Is Posttraumatic Stress in Youth a Culture-Bound Phenomenon? A Comparison of Symptom Trends in Selected U.S. and Russian Communities

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Abstract

OBJECTIVE: The cross-cultural applicability of the concept of posttraumatic stress was investigated by assessing symptom frequency and levels of comorbid psychopathology in adolescents from the United States and Russia.

METHOD: A self-report survey was conducted in representative samples of 2,157 adolescents 14 to 17 years old from urban communities of the United States (N=1,212) and Russia (N=945).

RESULTS: In both countries, the levels of all three major clusters of posttraumatic symptoms (reexperiencing, avoidance, and arousal), as well as of internalizing psychopathology, increased along with the level of posttraumatic stress. Expectations about the future had a tendency to decrease with increasing posttraumatic stress. No differences between countries in significant interaction effects for symptom levels were found.
CONCLUSIONS: The current findings suggest that posttraumatic symptoms and their associations with other adolescent mental health problems are not culture bound and that the psychological consequences of trauma follow similar dynamics cross-culturally.

Introduction

Although not introduced as a formal psychiatric diagnostic category until 1980, posttraumatic stress disorder (PTSD) has increasingly emerged as a frequent diagnosis for adults and children who have experienced traumatic events (1). In spite of initial skepticism about whether children could suffer from this distinct pattern of symptoms, there is growing awareness that children and adolescents do indeed experience posttraumatic stress (2), with higher levels of exposure to trauma predicting higher levels of symptoms (3–5).

PTSD differs from other anxiety disorders in requiring exposure to an extreme traumatic event outside the range of ordinary experience, and it involves a serious injury, a direct threat to one’s physical integrity, or the witnessing of an event that involves the death, direct injury, or threat to the physical integrity of another person (DSM-IV). A child’s response to such an event usually includes fear, helplessness, horror, or agitated and/or disorganized behavior, and it can be generally characterized by three groups of symptoms: reexperiencing of the traumatic event, avoidance of stimuli associated with this event and numbing of general responsiveness, and persistent symptoms of increased arousal (DSM-IV; also see reference 6 for a review).

A large number of studies indicate that adolescents who develop posttraumatic stress after exposure to violence are "at great disadvantage in almost all late adolescent developmental tasks" (7), as they commonly demonstrate poor academic performance, interpersonal problems, and negative expectations about the future (7, 8). In addition, posttraumatic stress is often accompanied by a number of other psychopathological manifestations, such as somatic complaints, feelings of guilt, symptoms of dissociation, and clinical depression (e.g., references 7, 9, 10). There is also some evidence that the effects of trauma can be gender specific, as previous studies have suggested that girls exposed to trauma demonstrate higher levels of symptoms and more significant psychosocial impairment than boys (e.g., references 7, 11).

Although posttraumatic stress is increasingly evaluated in various settings, its cross-cultural applicability remains a controversial issue. Two major perspectives have emerged concerning the role of culture in the assessment and treatment of traumatized children. Some studies have indicated that signs of emotional distress are expressed similarly by children of different cultures and that PTSD surmounts the barriers of culture and language (12). Several studies have demonstrated the cross-cultural applicability of Western therapeutic programs in non-Western cultures (e.g., reference 13), suggesting that Western approaches can provide valid modalities of treatment, as well as psychosocial programs and services for traumatized children.
However, other authors have questioned the usefulness of this perspective and have argued for inclusion of a broader range of responses to traumatic situations, noting the limitations of present models and the need for expansion or revision (e.g., references 14–16). They have argued that responses to suffering are determined by social, cultural, and political aspects of unique contexts (14) and, thus, that a homogenized definition of distress does not adequately address local forms of response. It has been emphasized that errors in understanding the nuances of cultural symptom expression are not always captured by research and clinical practice (12) and that DSM-based categories, when applied in other cultures, can potentially identify as pathology what may be normal, constructive responses to trauma that do not require specific professional help (16).

For the past decade, Russia has been experiencing a painful transition to a capitalist society. These dramatic changes have been associated not only with sharp economic and cultural changes but also with higher criminality rates and, consequently, with an increase in community violence. Substantial changes have also occurred in professional fields, and growing communication with Western countries has led to a reconsideration of the diagnostic system used in Russian psychiatry, which until recently did not include PTSD in the official classification. However, the question of cross-cultural applicability of the diagnostic criteria widely accepted in the West is an important issue, as we know of no study that has examined similarities of symptom expression. Our previous study from Russia on levels of posttraumatic stress (17), although limited to the assessment of a specific population, demonstrated that similar to American youth, Russian youth with clinical diagnoses of PTSD tend to report significantly higher levels of comorbid psychopathology.

To provide better, culturally sensitive assessment and treatment, the use of cross-cultural community-based studies is critical. In the current study we sought to demonstrate that the dynamics of posttraumatic symptoms, as well as of comorbid psychopathology associated with posttraumatic stress, show similar patterns in U.S. and Russian youth. Specifically, we expected that in both cultures the prevalence of the three major clusters of PTSD symptoms (reexperiencing, avoidance, and arousal) and the levels of comorbid psychopathology would increase similarly with increasing levels of posttraumatic stress. We further expected that the individuals with higher levels of posttraumatic stress would report greater levels of exposure to community violence. Finally, although some gender-specific responses to trauma were expected, we hypothesized that those patterns would not be culture specific.

Method

Study Groups
In this study, which represents one aspect of an ongoing multisite international project examining risk and protective factors for adolescent adjustment, surveys were administered to two community samples of adolescents (14–17 years old) in New Haven, Conn., and in Arkhangelsk, Russia. New Haven is a
medium-sized city (150,000 inhabitants) in the northeastern United States that has a high proportion of ethnic minorities with low socioeconomic status. Arkhangelsk is a large city (450,000) in the north of Russia. The socioeconomic status of the majority of the population is estimated to be similar to the (low) Russian average, and interindividual differences tend to be minimal. A total of 2,478 subjects were eligible for comparison, 1,439 from the United States (701 boys, or 48.7%) and 1,039 from Russia (405 boys, or 39.0%). From the original samples, 15.8% and 9.0%, respectively, were excluded because of inconsistent responses or missing data, leaving 1,212 reports from the United States and 945 from Russia. Participants in the United States were slightly younger (mean age=15.03 years, SD=0.96) than those from Russia (mean=15.48, SD=0.90) (t=−11.10, df=2089.02, p<0.001). The U.S. sample was ethnically diverse (African American, 59.1%; Hispanic, 24.6%; white, 14.0%; and other ethnic groups, 2.2%), whereas the Russian sample comprised only ethnic Slavs.

**Instruments**
The Social and Health Assessment, developed by Weissberg et al. (18) and adapted by Schwab-Stone et al. (8), served as the basis for the survey. As described in the following, this survey includes both new scales developed specifically for this survey and scales available from the literature that have been used with similar populations.

**Posttraumatic stress and exposure to violence**
The Child Post-Traumatic Stress Reaction Index consists of 20 items designed to assess the posttraumatic stress reactions of school-age children and adolescents after exposure to a broad range of traumatic events (5, 19, 20). It uses a Likert-type 5-point rating scale ranging from 0 (none) to 4 (most of the time) to rate the frequency of symptoms. The degree of reaction, according to the raw score, is categorized as doubtful (score<12), mild (score=12–24), moderate (score=25–39), severe (score=40–59), or very severe (score≥60). A score of 40 or higher is highly correlated with the DSM diagnosis of posttraumatic stress disorder (20), and the scale has been used in various international settings, including Russia (e.g., references 17, 21). In the present study, the Cronbach alpha values for the scale were adequate: 0.87 (United States) and 0.81 (Russia).

Items for the scale measuring exposure to community violence (witnessing and victimization) were derived from the Screening Survey of Exposure to Community Violence developed by Richters and Martinez (22). The students were asked whether during the past 2 years they had seen someone or were themselves beaten up or mugged, threatened with serious physical harm, shot or shot at with a gun, attacked or stabbed with a knife, chased by gangs or individuals, or seriously wounded in an incident of violence. The total scores for witnessing and for victimization were computed by summing up six items characterizing each type of violence exposure. Cronbach alpha values were not computed for these measures, as they represent coefficients, rather than scales, for which the presence of one type of exposure does not necessarily imply the presence of another (23).

**Depression, anxiety, and somatization**
Three scales from the Behavior Assessment System for Children (24) were used to assess symptoms of depression, anxiety, and somatization. The validity and reliability of this instrument has been widely documented (24), age-appropriate norms for each scale have been provided, and the instrument is being increasingly used internationally to assess psychopathology in children and adolescents. The Cronbach alpha values for depression rated with this scale were 0.83 (United States) and 0.78 (Russia), for anxiety they were 0.83 (United States) and 0.71 (Russia), and for somatization they were 0.65 (United States) and 0.57 (Russia).

Expectations about the future
Four items were derived from an instrument by Jesser et al. (25). The introductory phrase "What are the chances" was followed by four items: 1) "that you will graduate from high school?" 2) "that you will have a job that pays well?" 3) "that you will have a happy family life?" and 4) "that you will stay in good health most of the time?" Each was answered on a 5-point Likert-type scale, ranging from "very low" to "very high." The Cronbach alpha values for this scale were 0.82 (United States) and 0.72 (Russia).

Procedures
The translation of these scales into Russian followed established guidelines, including appropriate use of independent back-translations (26). The initial translations were made by the Yale Social and Health Assessment working group, followed by discussion of the translated questionnaires with colleagues. An independent interpreter made back-translations, which were compared with the originals, and inconsistencies were analyzed and corrected. All questionnaires were pretested in different samples of youths.

In the United States the survey was administered to all 8th- and 10th-grade students in the local public school system. In Russia, schools were randomly selected from lists of schools in the area to represent typical administrative school systems and different levels of education. Several weeks before the survey was administered, students and their parents were informed of the planned date of the survey and were offered the opportunity to decline participation. Before the survey, students were read a detailed assent form, outlining their participation and confidentiality, and were asked to sign it to indicate assent. Students also had the option to decline at the time of administration (parent and child refusals were less than 1%). No reimbursement for participation in the survey was provided. The students completed the survey in one class period during the regular school day. Trained administrators read all questions aloud while the students followed along with their copies of the survey, reading the questions to themselves and circling responses in the booklet.

Statistical Analysis
Although between-country comparisons of rates of psychopathology may seem unjustified, because of differences in culture, ethnicity, socioeconomic status, size of the city, and other variables, the basic descriptive data for each study group are provided in order to demonstrate that, in spite of the differences between the countries, there were specific trends that were generalizable across these cultures.
For statistical analyses, SPSS 10.0 (Chicago, SPSS) was used. Chi-square and independent sample t tests were used for univariate comparisons. General linear modeling with multivariate analyses of covariance (MANCOVAs) was used to determine the main effects of PTSD group, country, and gender. It was also applied to assess differences in the levels of violence exposure and psychopathology. The unique contributions of each type of psychopathology were assessed by follow-up tests of between-subjects effects derived from MANCOVA. Results are presented as means and standard deviations and, for individual outcomes, as partial eta squared.

Results

For the purpose of cross-cultural comparisons, in each country three groups of youth were formed on the basis of the five levels of scores on the Child Posttraumatic Stress Reaction Index. The clinical cutoff scores for the Child Posttraumatic Stress Reaction Index are well established for U.S. youth and are widely used in both clinical practice and research. The first group contained students with doubtful or mild posttraumatic stress, whose scores ranged from 0 to 24. For the present study, this group was considered as the group with no PTSD. The second group, with moderate PTSD, consisted of the youth who reported moderate levels of posttraumatic stress on the Child Posttraumatic Stress Reaction Index, i.e., had total scores from 25 to 39. Finally, the third group, considered to have severe PTSD, consisted of youth who reported severe or very severe levels of posttraumatic stress, with total scores of 40 or higher.

Table 1 shows the prevalences of the three PTSD categories by country and gender. In both countries boys reported lower levels of posttraumatic stress than girls (United States: $\chi^2=20.97$, df=2, $p<0.001, N=1,212$; Russia: $\chi^2=53.54$, df=2, $p<0.001, N=945$).

Table 2 presents descriptive data on the levels of reexperiencing, avoidance, and arousal symptoms by PTSD group. The results of MANCOVA demonstrated a significant main effect for PTSD group (Wilks’s lambda=0.352, $F=489.78$, df=6, 4282, $p<0.001, \eta^2=0.41$), implying an increase in symptom level by increasing PTSD severity. The main effect for country was also significant (Wilks’s lambda=0.985, $F=10.81$, df=3, 2141, $p<0.001, \eta^2=0.02$), suggesting that there were differences in the levels of posttraumatic stress between the countries, with the U.S. youth reporting higher levels. However, neither the main effect for gender nor gender’s interaction with PTSD group, country, or both PTSD group and country was significant, suggesting that the increase in the levels of the three main clusters of posttraumatic symptoms followed similar dynamics for boys and girls in both countries.
General linear modeling with MANCOVA was also applied in order to assess differences in the levels of violence exposure and psychopathology in boys and girls by country and by PTSD group. Because demographic characteristics of children, such as gender, age, and having a single-parent family, have been found to influence their developmental processes and outcomes, all analyses were conducted by gender and with control for age and single-parent family status. Table 3 presents the results of two separate MANCOVAs, one for violence exposure (witnessing and victimization) and another for psychopathology (anxiety, depression, somatization, and future expectations).

In the analysis of the levels of violence exposure (witnessing and victimization) in boys and girls by country and by PTSD group, the main effect for PTSD group was significant (Wilks’s lambda=0.940, F=33.37, df=4, 4284, p<0.001, \( \eta^2 = 0.030 \)), as were the main effects for country (Wilks’s lambda=0.948, F=58.78, df=2, 2142, p<0.001, \( \eta^2 = 0.052 \)) and for gender (Wilks’s lambda=0.974, F=29.14, df=2, 2142, p<0.001, \( \eta^2 = 0.026 \)). Specifically, these findings indicate that the youth with higher levels of PTSD were more often exposed to violence. The U.S. youth reported higher levels of violence exposure (witnessing and victimization) than Russian youth, and boys reported higher levels of violence exposure than girls. Among all the interaction effects, only the interaction of PTSD group and gender was significant (Wilks’s lambda=0.992, F=4.43, df=4, 4284, p<0.001, \( \eta^2 = 0.004 \)). This finding shows that the levels of violence exposure in the group with severe PTSD were higher for boys than for girls, indicating that girls require less trauma than boys to reach the same level of PTSD. The absence of significant interaction effects by country suggests that the patterns of gender-specific interactions were similar in the two countries. In addition, there were significant effects of age (Wilks’s lambda=0.996, F=3.80, df=2, 2142, p=0.02, \( \eta^2 = 0.004 \)) and single-parent family status (Wilks’s lambda=0.996, F=4.62, df=2, 2142, p=0.01, \( \eta^2 = 0.004 \)), indicating that older youth and youth from single-parent families tend to report higher levels of violence exposure.

In the MANCOVA for psychopathology, the main effect for PTSD group was significant (Wilks’s lambda=0.818, F=56.61, df=8, 4280, p<0.001, \( \eta^2 = 0.096 \)), as were the main effects for country (Wilks’s lambda=0.908, F=53.91, df=4, 2140, p<0.001, \( \eta^2 = 0.092 \)) and gender (Wilks’s lambda=0.994, F=3.27, df=4, 2140, p=0.01, \( \eta^2 = 0.006 \)). However, none of the interaction effects
was significant, suggesting strong similarities in the patterns of interactions for the two countries. No significant effects of age and single-parent family status were obtained. In both countries youth with higher levels of posttraumatic stress reported higher levels of comorbid psychopathology (Table 3). The univariate between-subjects tests demonstrated that youth from the severe PTSD group reported the highest levels of depression (F=115.53, df=2, 2143, p=0.001, η²=0.097), anxiety (F=162.46, df=2, 2143, p=0.001, η²=0.132), and somatization (F=92.69, df=2, 2143, p=0.001, η²=0.080) and the lowest expectations for the future (F=21.55, df=2, 2143, p=0.001, η²=0.020). The U.S. youth reported lower levels of anxiety (F=9.56, df=2, 2143, p=0.002, η²=0.004) and higher expectations (F=177.55, df=2, 2143, p=0.001, η²=0.077) than Russian youth. Finally, boys reported lower levels of somatization (F=6.46, df=2, 2143, p=0.01, η²=0.003) than girls.

Finally, general linear modeling with MANCOVA comparing the levels of violence exposure and psychopathology in boys and girls by country were repeated by using a continuous score for posttraumatic stress, rather than the tripartite group variable (no PTSD, moderate PTSD, and severe PTSD), and the same patterns of relationships were obtained.

Discussion

In this cross-national community study we investigated the applicability of the concept of posttraumatic stress for youth from Russia, compared to youth from the United States. Although culture-specific symptoms may occur, we propose that the main characteristics of traumatic response are comparable across these cultures, as assessed by similar associations between PTSD symptom severity and trauma severity and by similar increases in main symptom clusters and levels of comorbid psychopathology with an increasing level of total posttraumatic stress.

There is a growing awareness that children, as well as adults, can experience posttraumatic stress (2). Previous studies have demonstrated that traumatic exposure is often associated with a wide range of psychopathological responses (27, 28) and can have severe developmental, behavioral, and emotional sequelae (8, 11, 29, 30). In considering the application of the diagnosis of PTSD in different cultural contexts, it is assumed that there are universal patterns of reaction to trauma. Hence, it should be possible to identify similar factors associated with the onset of the disorder in different cultures, individuals diagnosed with the disorder should reveal similar patterns of symptoms that are considered specific for the disorder, and finally, associated comorbid psychopathology should increase similarly across cultures.

Some symptoms may be expressed in culture-specific ways, since ways of coping with problems may differ across the cultures. For example, a series of studies by Kinzie et al. (31) found that in response to trauma, Khmer youths tended to suppress feelings. However, to argue for the diagnostic universality of a particular disorder, one should be able to apply specific diagnostic
criteria that require the presence of a certain number of symptoms from each symptom cluster. Thus, all three major symptom clusters should be present and should similarly increase with increasing levels of posttraumatic stress. The present study has demonstrated that, although levels of posttraumatic stress differed for the Russian and U.S. samples, symptoms in all three clusters (reexperiencing, avoidance, and arousal) similarly increased across cultures and across genders.

Trauma response usually correlates with the degree of exposure, measured by both physical and emotional proximity (6), as well as with the number of traumatic events (32). For example, witnessing and victimization, as integral components of violence exposure, have different degrees of associated psychological and behavioral problems (8, 33, 34). The present study has demonstrated that adolescents with increasing levels of posttraumatic stress report increasing degrees of exposure (cumulative effect) to events of different proximity (i.e., witnessing and victimization) in both countries.

Finally, posttraumatic stress is often associated with a wide range of comorbid psychopathology (35), which tends to increase with the level of PTSD. In both the United States and Russia, greater levels of posttraumatic stress were associated with higher rates of comorbid internalizing psychopathology, whereas positive expectations for the future tended to decrease with increasing trauma. The interaction effects for symptom levels by country were invariant. Taken together, these findings suggest that the psychological consequences of trauma follow similar dynamics cross-culturally.

Some controversy surrounds the gender-specific effects of violence exposure. Most studies have suggested that females exposed to trauma are more likely to be diagnosed as having PTSD (7, 27) or at least to report more posttraumatic stress symptoms than their male counterparts (34). In the present study, in comparisons of girls and boys with similar levels of posttraumatic stress, the girls reported lower levels of violence exposure than the boys, in terms of both witnessing and direct victimization. This finding may imply a lower threshold level of stress tolerance in girls, since compared to boys, the girls in this study became symptomatic at lesser levels of traumatic exposure. These findings are similar to those from a large community sample of adults in the United States (27), suggesting that such gender-specific patterns are generalizable across cultures. These conclusions are also supported by a large body of literature on the longitudinal effects of child abuse and other types of victimization (e.g., reference 36).

The Child Posttraumatic Stress Reaction Index is the most commonly used self-report measure of posttraumatic stress symptoms in children and adolescents (2). Previous studies have demonstrated that high levels of posttraumatic stress as measured by the Child Posttraumatic Stress Reaction Index correlate highly with the clinical diagnosis of PTSD, and clinically relevant Child Posttraumatic Stress Reaction Index cutoff scores for children and youth have been established (20). The present study suggests that as symptoms of posttraumatic stress increase similarly in response to increasing trauma in the two cultures, the cutoff scores
established in American studies could potentially be applied in other settings. This is also supported by results from our study of Russian juvenile delinquents (17) that demonstrated significantly higher levels of posttraumatic stress, as assessed by the Child Posttraumatic Stress Reaction Index, in delinquents with a clinical diagnosis of PTSD. Wider use of Child Posttraumatic Stress Reaction Index cutoff scores across cultures, however, requires additional studies with clinical diagnostic interviews to assess the sensitivity of this instrument in other contexts.

The strengths of the current study include the assessment of large cross-national community samples from diverse socioeconomic and ethnic regions with different levels of violence exposure and psychopathology. Similar trends in the two study groups suggest that in the United States and Russia posttraumatic stress reactions are comparably expressed. While several authors have noted the importance of recognizing culture-specific diagnostic aspects of PTSD (e.g., references 37, 38), the present study provides support for the presence of culturally invariant responses to trauma, providing direct implications for research and clinical practice. However, while admitting the usefulness of the Western diagnostic approach to posttraumatic stress, cultural differences in social support systems should not be ignored, and it is essential to consider unique local specifics in order to provide culturally sensitive modalities of treatment (39).

Some limitations of this study should also be noted. Data were obtained through youth self-report. It has been shown, however, that self-report surveys of adolescents often are a valid source of information (40), especially with regard to exposure to violence and internalizing problems, as adults may be unaware of these problems in their children. Also, this study used a cross-sectional design and thus did not allow investigation of causal relationships. The small number of Russian boys in the group with severe PTSD limits the generalizability of the findings. The relatively low numbers of Russian boys reporting moderate and severe levels of symptoms may be explained by the greater levels of traumatization reported by the U.S. youth and a general tendency for girls to report higher levels of internalizing problems than boys, which is also partly reflected by our findings. Finally, in spite of the potential powerful insight that could have been obtained by using the questions on sexual attacks and abuse (for instance, it may be that although girls were exposed to similar levels of trauma, they had been exposed to the additional trauma of sexual abuse or attacks), these questions were excluded for ethical reasons in the course of discussing the survey with the local departments of education.

The clinical implications of the current findings are straightforward. Although cultural differences should be taken into account when devising therapeutic intervention programs, the current cross-national findings suggest that adolescents from these two different regions react with similar forms of psychopathology. From a public health perspective, these findings also support previous research results that implicate exposure to violence in the development of a wide range of internalizing problems, a finding with meaning for public policy, especially primary prevention efforts for youth at risk.
Footnotes

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