Moral Development and Psychopathological Interference in Conscience Functioning Among Adolescents After Trauma

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Accepted October 6, 1998.
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ABSTRACT

Objectives: To compare moral development and psychopathological interference with conscience functioning (PI) among adolescents exposed to different degrees of earthquake-related trauma and to investigate the relationship of moral development and PI to exposure to trauma, severity of posttraumatic stress disorder (PTSD) symptoms, postearthquake adversities, and extent of loss of nuclear family members.

Method: Adolescents (N = 193) from 2 cities at different distances from the epicenter were evaluated. The Stilwell Structured Conscience Interview was used to assess moral development and PI. Structured self-report instruments were used to obtain ratings of severity of earthquake-related trauma, posttraumatic stress symptoms, and postearthquake adversities.

Results: Adolescents in the city near the epicenter manifested advanced moral development as compared with their counterparts in the less affected city. Concomitantly, they endorsed responses indicating PI. Levels of PI were significantly correlated with severity of PTSD symptoms.

Conclusion: In the aftermath of a catastrophic natural disaster, children assume greater responsibilities and confront a multitude of morally challenging interpersonal situations which may result in an advancement of their moral development. Yet, at the same time, PTSD symptoms and negative schematizations of self and others may give rise to disturbances in conscience functioning. The findings suggest that therapeutic consideration should be given to assisting children in integrating the horror of their traumatic experiences and the harshness of posttrauma adversities into an adaptive schema of good and evil in themselves and the world. J. Am. Acad. Child Adolesc. Psychiatry, 1999, 38(4):376-384.

Key Words: moral development, trauma, posttraumatic stress disorder.

Among philosophers, psychologists, and child developmentalists, there has been a rich intellectual tradition of moral theory and characterization of the process of moral development. Piaget (1965), [12] Kohlberg (1981), [9] Kegan (1982), [8] Gilligan (1982), [3] and Rest (1983) [16] have made important contributions to our current understanding of the acquisition of moral concepts and age-appropriate moral emotions over the course of childhood and adolescence. On the basis of a study of Midwestern American normal subjects between the ages of 5 and 17 years, Stilwell and colleagues described 4 domains of moral functioning (Stilwell and Galvin, 1985; Stilwell et al., 1991, 1994, 1996, 1998) [18,19,20,21,22]. The anchor domain, conceptualization of conscience, is composed of 5 stages. In stage 1, the external conscience stage (under age 7), children believe the control of good and evil to be in the hands of significant adults, whose rules they should obey. In stage 2, the brain or heart stage (ages 7 to 11),
children gradually internalize adult rules, as well as construct "morals" from their own experiences. In stage 3, the personified conscience stage (age 12 to 13), emerging adolescents begin to think of the conscience as a dynamic humanized component within the personality with whom they can interact. In stage 4, the confused stage (age 14 to 15), adolescents experience mounting anxiety and confusion regarding good and bad, aroused by the necessity to conciliate values expressed in the peer and popular culture with values learned in childhood. In stage 5, the integrated stage (age 16 to 17), adolescents consolidate moral values learned through relationships with authority figures, peers, and younger children. There is increased understanding that there may be admixtures of good and bad and greater capability for autonomous moral decision-making.

The other domains of moral functioning include moral valuation, moral volition, and moral-emotional responsiveness. Moral valuation encompasses the subject's beliefs about the source and justification of his/her moral rules. Moral volition refers to the perceived source and strength of willpower in relation to moral decision-making. Moral-emotional responsiveness relates to emotional responses (such as fear, pride, shame, and guilt) and behavior after acting morally right or wrong. It also refers to how, after wrongdoing, morally corrective thoughts and acts of reparation and healing are undertaken to alleviate negative emotions. In each of these 3 domains, developmental stages of increasingly complex understanding have been shown to be significantly correlated with the stages of conceptualization of conscience described above.

Psychopathological Interference With Conscience Functioning

Psychopathological interference with conscience functioning (PI) denotes disturbances in the domains described above. It includes a sense of loss of efficacy of the conscience, a diminished sense of personal goodness, a sense of loss of moral willpower, disturbances in methods of moral healing and psychological self-management after wrongdoing, and disturbed internal and external responses after acting morally. PI is differentiated from delay of moral development in that delay implies that the individual is morally less mature but on the same track as younger individuals within the same culture.

Moral Development and Trauma

Recently, Galvin et al. (1997),[2] using the semistructured Stilwell Conscience Interview (SCI), reported that early childhood maltreatment is associated with substantial developmental delays in cognitive and emotional areas of moral functioning. These findings complement other studies of maltreatment which have identified disturbances in social cognition (Smetana and Kelly, 1989),[17] decreased verbalization of negative emotions, and delayed acquisition of emotional control and emphatic responsiveness (Cicchetti and Toth, 1995),[1] which may negatively affect moral development. Tudin et al. (1994),[23] using Kohlberg's classification (1969),[10] reported that young black adults in South Africa exposed to years of apartheid evidenced both stage 2 and marginally higher capacity for stage 5 moral reasoning when compared with their white counterparts. To date, there has been no empirical investigation of the influence of a disaster on the moral development of children or adolescents.

The 1988 Spitak Earthquake

On December 7, 1988, an earthquake with a magnitude of 6.9 on the Richter Scale struck northern Armenia. Previous reports have documented the enormous destruction, injury, and loss of life in the earthquake zone (Goenjian, 1993)[4]. Spitak, the city nearest to the epicenter, was almost totally destroyed. Yerevan, the capital of Armenia, 47 miles from the epicenter, sustained mild damage and no significant loss of life. Longitudinal studies revealed that at 1 1/2 years after the earthquake, children and adolescents in Spitak manifested high rates of posttraumatic stress disorder (PTSD) and depression, as opposed to Yerevan, where the rates were significantly lower (Goenjian et al., 1995)[7]. At 3-year

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follow-up, adolescents in the earthquake zone were still experiencing high levels of posttraumatic stress and depressive symptoms (Goenjian et al., 1997) [5].

This study investigated differences in moral development and PI among adolescents from Yerevan and Spitak. It also examined the relationship between moral development and PI, and severity of trauma, PTSD symptoms, postearthquake adversities, and loss of family members. No antecedent hypotheses were formulated. The study was considered to be exploratory in nature and hypothesis generating, rather than hypothesis confirming or disconfirming.

METHOD

Subjects

A total of 193 adolescents were included in the present study. They were selected from schools in 2 cities in Armenia: Spitak at the epicenter of the earthquake and Yerevan at the periphery. At 6 1/2 years after the earthquake, 62 subjects from Yerevan and 66 subjects from Spitak (Spitak-1) were evaluated. To confirm the initial findings, a second sample from Spitak (Spitak-2) of 65 new subjects was obtained 7 1/2 years after the earthquake. All subjects from Yerevan and Spitak had resided in their respective cities from the time of the earthquake to the time of this study.

Two age groups, 13-year-olds and 16-year-olds, were selected from within each city: Yerevan age 13 (n = 29), 10 males, 19 females; Yerevan age 16 (n = 33), 12 males, 21 females; Spitak-1 age 13 (n = 34), 19 males, 15 females; Spitak-1 age 16 (n = 32), 13 males, 19 females; Spitak-2 age 13 (n = 35), 14 males, 21 females; Spitak-2 age 16 (n = 30), 15 males, 15 females. Each of the 3 groups comprised all students from 4 classrooms (2 classrooms for each age group) in one school in that city. Different students were sampled for Spitak-1 and Spitak-2, as 13- and 16-year-olds were studied on each occasion.

Scores for the trauma-related variables (except for CPTSD-RI score, which is presented in the "Results" section) for the Yerevan and 2 Spitak samples were as follows: perceived earthquake trauma-Yerevan (n = 62) mean = 2.1 +/- 1.0, Spitak-1 (n = 66) mean = 3.3 +/- 1.0, Spitak-2 (n = 64) mean = 3.5 +/- 1.1 (F = 34.8, df = 2,190, p < .001) (Spitak-1 and Spitak-2 did not differ, although both were significantly greater than Yerevan, p < .001); perceived postearthquake adversity-Yerevan mean = 2.0 +/- 1.0, Spitak-1 mean = 3.2 +/- 0.9, Spitak-2 mean = 3.0 +/- 1.1 (F = 28.5, df = 2,190, p < .001) (Spitak-1 and Spitak-2 did not differ, although both were significantly greater than Yerevan, p < .001); loss of nuclear family member(s)-Yerevan, 3%; Spitak-1, 32%; Spitak-2, 32% (chi squared = 18.06, df = 2, p < .001).

The subjects from Spitak experienced extreme direct life-threat, witnessed mutilating injuries and grotesque death(s), and heard agonizing screams for help and cries of distress from victims trapped in the rubble during the earthquake and for several days thereafter. In Yerevan, subjects were exposed to significantly less traumatogenic circumstances. Subjects in both cities were of the same ethnicity, religion, and culture.

The principals of the schools that participated gave their approval for the study. Parents were informed of the evaluations and gave written informed consent for their child's participation. The adolescents who participated gave their assent. None of them declined to participate. One subject from Spitak-1 had previously received brief mental health treatment for anxiety.

Instruments

Level of moral development and PI were assessed using the Stilwell Structured Conscience Interview (SSCI), an adaptation of the semistructured SCI (Stilwell and Galvin, 1985; Stilwell et al., 1991, 1994, 1996, 1998) [18,19,20,21,22]. The validity of SCI is based on its ability to stage children's and adolescents' responses consistently across the 4 domains of conscience functioning. The responses of normal subjects converged into the stage criteria. All 5 stages of the 4 domains correlated highly with age. The anchor domain, conceptualization of conscience, correlated with the other 4 domains. With regard to

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findings supporting divergent validity, Galvin et al. (1997), [2] using the SCI, demonstrated differences in both developmental and PI scores between normal controls and hospitalized boys with conduct disorder.

The SSCI includes 12 items designed to assess moral development and 7 items that measure PI. The moral development items fall into a moral cognition category (6 items combining the domains of conceptualization of conscience, moral valuation, and moral volition) and a moral-emotional responsiveness category (6 items). All moral development items are scored from 1 to 5, corresponding to the 5 levels of moral development described above. Subjects endorse as many responses as applicable. For each item, the highest endorsed score is taken to represent the level of moral development. The Cronbach alpha for reliability among the 12 items comprising the moral development scale was .70 (moral cognition = .55; moral-emotional responsiveness = .58), indicating a moderate level of cohesiveness among these items.

Level of PI was assessed using 7 items. The items are scored 0 to 5, with 0 representing no PI. Scores of 1 to 5 represent increasing severity levels of PI (1 = occasional mood-dependent or peer-influenced demoralization; 2 = persistent mood-dependent demoralization; 3 = internal moral warfare; 4 = moral confusion; and 5 = entrenched demoralization). Subjects endorse as many responses as applicable. For each item, the highest endorsed score is taken to represent the level of PI. PI in the domain of conceptualization of conscience was assessed with one question regarding the subjects' perception of deficiency in conscience functioning. PI in the domain of moral valuation was assessed with one question about limitations of willpower to act morally. PI in the domain of moral-emotional responsiveness was assessed with 3 questions related to negative responses to positive and negative moral acts. The Cronbach alpha for reliability among the 7 items comprising the PI scale was .61, indicating a moderate level of cohesiveness among these items.

For this study, no assessment of test-retest reliability for the administration of the SCI was made.

Posttraumatic stress symptoms were evaluated using the self-report Child Posttraumatic Stress Disorder Reaction Index (CPTSD-RI) (Nader et al., 1990) [11]. The properties of this instrument as used in this population, our translation and reliability procedures, and the scoring of the 3 symptom categories of PTSD have been reported (Goenjian et al., 1995; Pynoos et al., 1993) [7,13].

A demographic profile obtained from each child included information about loss of nuclear family members and self-ratings of perceived severity of earthquake trauma and postearthquake adversities. The severity of trauma was rated from 1 = nontraumatic to 5 = very traumatic. To ground the severity scale, examples of very traumatic experiences were provided, e.g., witnessing mutilation or death, hearing agonizing screams of torment, being trapped or seriously injured. The severity of postearthquake adversities was rated from 1 = no difference to 5 = very severe, compared with before the earthquake. This item was rated after examples of very severe adversities were provided, e.g., being often hungry and cold, living in a makeshift or poorly insulated home, lack of any means of transportation, and being physically ill.

For the CPTSD-RI, a subjects' mean item score for the completed items was used to replace a missing score. A missing score for a moral development item was replaced with the mean item score for the completed items within each domain. A missing score for PI was replaced with the mean item score for the remaining PI items. No subject had more than 3 missing scores on either instrument.

**Statistical Analyses**

The effects of the earthquake on Moral Development and PI scores were analyzed with a 3 x 2 analysis of variance (ANOVA) with city (Yerevan, Spitak-1, and Spitak-2) and age (13 and 16) as
between-group factors. Preliminary screening of the data indicated that means and variances were independent. Consequently, raw scores were entered in the analyses without transformation. Interrelationships among the 2 categories of moral development (moral cognitive and moral-emotional responsiveness), PI, PTSD, and trauma-related variables were assessed using Pearson product moment correlations with alpha levels set at $p < .01$ to correct for multiple analyses.

### RESULTS

#### Moral Development

(Table 1) shows the mean moral development stage, mean level of PI, and mean CPTSD-RI scores by age group and combined ages for Yerevan, Spitak-1, and Spitak-2. ANOVA of moral development by city produced a significant city effect ($F = 5.28, df = 2,185, p < .01$). Corrected Bonferroni post hoc tests indicated that adolescents from both Spitak groups scored significantly higher in moral development than adolescents from Yerevan (Spitak-1, $p = .01$; Spitak-2, $p = .02$). The 2 Spitak groups did not differ significantly from each other. There was no significant age effect in this sample ($F = 0.42, df = 1,185$, not significant), but there was a significant age by city interaction ($F = 3.56, df = 2,185, p < .05$). The 16-year-olds scored slightly higher than the 13-year-olds in Yerevan and Spitak-2. This pattern was reversed in Spitak-1. Because of the above, age groups were combined in presenting moral development findings.

<table>
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<tr>
<th>Table 1. Mean Stage of Moral Development, Mean Level of PI, and CPTSD-RI Scores by Age and Combined Ages for Yerevan, Spitak-1, and Spitak-2</th>
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Scores for moral cognition and moral-emotional responsiveness were positively correlated with one another ($r = 0.44, n = 191, p < .001$), and with the mean moral development score (moral cognition: $r = 0.87, n = 191, p < .001$; moral-emotional responsiveness: $r = 0.83, n = 191, p < .001$). ANOVAs of scores for moral cognition and moral-emotional responsiveness produced the same pattern of results as found for overall moral development.

#### Moral Cognition

Because of the similarity in advanced moral development in both Spitak groups, the 2 Spitak samples were combined. Two examples from the category of moral cognition are presented below. (Table 2) shows the frequency distribution of responses to the item concerning conceptualization of conscience. Comparatively fewer subjects in Spitak conceived of their conscience as external or as consisting of rules stored in the brain, with greater percentages endorsing level 4 and 5 responses (72% versus 60%).

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Table 2. Frequency Distribution of Responses by City to the SSCI Question Regarding How the Subject Conceptualizes His/Her Conscience

(Table 3) shows the frequency of responses to the item concerning the subject's rationale for belief in personal basic goodness. A greater percentage from Yerevan endorsed level 2 responses, with greater percentages of subjects from Spitak endorsing level 4 and 5 responses (66% versus 52%).

<table>
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<tr>
<th>Moral-Emotional Level</th>
<th>Yerevan (%)</th>
<th>Spitak (%)</th>
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Table 3. Frequency Distribution of Responses by City to the SSCI Item Regarding the Subject's Rationale for a Belief in Personal Basic Goodness

Moral-Emotional Responsiveness

One example from the category of moral-emotional responsiveness for Yerevan and the combined Spitak samples is presented below. (Table 4) shows the frequency distribution of responses to the item concerning the subject's external response to having done something morally wrong. There is a relative paucity of response to the first 3 choices in Spitak, with a greater percentage endorsing level 5 responses (52% versus 40%).
Table 4. Frequency Distribution of Responses by City to the SSCI Item Concerning the Subject's External Response to Having Done Something Morally Wrong

Trauma-Related Variables

None of the trauma-related variables, including earthquake-related trauma, CPTSD-RI score, postearthquake adversity, and loss of a nuclear family member, correlated significantly with moral development.

Psychopathological Interference With Conscience Functioning  
(Table 1) shows the mean level of PI and mean CPTSD-RI scores by age for Yerevan and the 2 samples from Spitak. ANOVA for PI produced a significant city effect ($F = 21.69$, $df = 2,187$, $p < .01$). Corrected Bonferroni post hoc tests indicated that PI score was significantly greater in Spitak-1 compared with Yerevan ($p < .01$). There was no significant difference between Yerevan and Spitak-2. There were no overall differences in PI for the 2 age groups ($F = 1.31$, $df = 1,187$, not significant). There was a significant city X age interaction ($F = 5.12$, $df = 2,187$, $p < .01$). The 13-year-old subjects scored lower than the 16-year-olds in Yerevan and Spitak-2, while the reverse was true in Spitak-1. Because of the above, age groups were combined in presenting the PI findings.

Relationship of PI to Trauma-Related Variables

The drop in PI score in Spitak-2 was associated with a drop in CPTSD-RI score. The 3 samples differed significantly from one another in severity of PTSD ($F = 16.8$, $df = 2,187$, $p < .01$), with the highest CPTSD-RI scores in Spitak-1 and the lowest scores in Yerevan ($p < .05$). Older adolescents in all 3 samples had higher CPTSD-RI scores than younger adolescents ($F = 11.3$, $df = 2,187$, $p < .01$). PI score was significantly positively correlated with mean CPTSD-RI score ($r = 0.29$, $n = 193$, $p < .001$) and perceived severity of postearthquake adversities ($r = 0.28$, $n = 192$, $p < .001$). Controlling for the contribution of CPTSD-RI score and perceived trauma, adversity made a significant independent contribution to predicting PI score (partial $r = 0.21$, $n = 188$, $p < .01$). Controlling for CPTSD-RI and adversity, perceived severity of trauma did not make a significant independent contribution to predicting PI. The 2 variables, CPTSD-RI and adversities combined, produced a multiple $R = 0.34$ ($n = 189$, $p < .001$). With regard to PTSD symptom categories, PI was significantly positively correlated with category D (arousal) symptoms ($r = 0.37$, $p < .001$), but not with category B (intrusion) or category C (avoidance) symptoms. PI was not significantly correlated with moral development.

Within subjects from Spitak ($n = 131$), there was no significant difference in PI score for those who had lost a nuclear family member (mean = 2.4, SD = 1.1) and those who had not (mean = 2.3, SD = 0.8). Likewise, there was no significant difference in PI for adolescents in Spitak who had lost a parent ($n = 19$, mean = 18.3, SD = 7.5) and those who had not ($n = 112$, mean = 16.1, SD = 5.8). Higher levels of PI among adolescents in Spitak-1 were manifested in responses to specific items. Three PI items from different domains were selected for presentation. These items exemplified the most striking differences between Spitak-1 and Yerevan. The responses for Spitak-2 fell between those of Spitak-1 and Yerevan, corresponding to their intermediate level of PTSD symptom severity.

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(Table 5) shows the frequency distribution of responses for Yerevan, Spitak-1, and Spitak-2 to the PI item relating to deficiencies in the functioning of the conscience. Greater percentages of adolescents in Spitak endorsed responses 3, 4, and 5 (62% versus 39%).

Table 5. Frequency Distribution of Responses by City to the SSCI Item Concerning the Subject's Ideas About What Interferes With the Functioning of the Conscience

(Table 6) shows the frequency distribution of responses by city to the PI item relating to the subject's rationale for loss of willpower to be morally good. A much greater percentage of adolescents from Spitak (40.5% versus 14.5%) endorsed response 5, that their rationale for loss of willpower to do morally right things was that the world is basically evil.

Table 6. Frequency Distribution of Responses by City to SSCI Item Concerning the Subject's Rationale for Loss of Willpower to be Morally Good

(Table 7) shows the frequency distribution of responses to the PI item relating to the subject's belief in limitations of personal basic goodness. More adolescents from Spitak indicated in responses 3, 4, and 5 that they perceived themselves as "bad" most or all of the time (36% versus 11%).

Table 7. Frequency Distribution of Responses by City to SSCI Item Concerning the Subject's Belief in Limitations of Personal Basic Goodness
DISCUSSION

This is the first published report of moral development and PI among adolescents after a disaster. The findings indicate that adolescents in the severely affected city had achieved a higher level of moral development compared with their counterparts in the less affected city. Advanced moral development (stages 4 and 5) was evident in both the categories of moral cognition and moral-emotional responsiveness. For example, a greater percentage from Spitak indicated that their conscience is what bothers or nags them when facing tough decisions about right and wrong (stage 4). Conceptualizing the conscience as reproachful and admonishing may be related to guilt associated with traumatic experiences during and in the days following the earthquake. The high prevalence and severity of guilt among children in Spitak within the first 6 months to 1 1/2 years after the earthquake has been reported (Goenjian, 1993; Pynoos et al., 1993) [4,13]. Guilt, real or imagined, was often linked by children to their acts of commission or omission surrounding the injury or death of others. Such ongoing trauma-related guilt feelings, renewed by frequent trauma and loss reminders, may have rendered these adolescents characterologically guilt-prone.

Greater percentages from Spitak endorsed higher-stage responses such as the following: that their conscience does not always know the right answer and that they have to make their own decisions about right or wrong (stage 5); that they learned how to be good from their own mistakes (stage 4); and that they learned how to be good by thinking about how good and bad are tied together (stage 5). These more mature reflections on moral decision-making may have been derived from more extensive experience among children in Spitak in confronting moral situations during the postearthquake period.

Because of pervasive multiple postearthquake adversities in Spitak, children took on greater responsibilities, either on their own or at the behest of adults. These included having to take care of siblings and other dependent, disabled, and elderly family members, having to find wood to burn for cooking and heat, and having to sell things on the street to earn extra money for the family. As a result, these children were exposed to more varied and complex interpersonal situations that presented them with moral alternatives. Being exposed to the complexities of moral decision-making, these children may have had greater opportunity to learn that moral dilemmas are not always resolvable by reference to a set of inclusive moral rules contained in the conscience (stage 2) and that they often have to devise their own solutions.

Such experiences of moral ambiguity may have also fostered the realization that moral options often involve aspects of both good and bad (stage 5). Furthermore, increased experience with making incorrect moral judgments among subjects in Spitak may have provided greater opportunity to learn about right and wrong through moral mistakes (stage 4). Finally, parents were less available to their children during the postearthquake period because of their posttraumatic stress symptoms (Goenjian et al., 1994) [6] and/or preoccupation with subsistence matters. Diminished parental supervision and guidance may also have contributed to the necessity for children to struggle to make their own determinations of right and wrong.

Loss of external moral support during the postearthquake period may have forced children to use more internal resources to resolve negative feelings and consequences after wrongdoing. Thus a greater percentage from Spitak indicated that after wrongdoing, they turned inward to Figure out what to do (stage 5). This response is directed at planning how to rectify a morally wrong act. Being more experienced with the consequences of wrongdoing, these adolescents may have become more appreciative of the pragmatics of action directed at remediation of wrongdoing, i.e., averting undesirable repercussions such as self-recrimination, condemnation, and retaliation and promoting safety, security, and friendship.

The finding of advanced moral development in Spitak is supported by examples of right actions cited by them. In addition to the conventional values also endorsed by adolescents from Yerevan (e.g., "Do not steal," "Do not fight or use drugs and alcohol"), adolescents from Spitak cited higher-order moral values that expressed a sense of communality and loyalty (e.g., "Help all others in their work," "Be caring of the elderly," "Say good things to the little ones so they will become good," "Do not leave my
Motherland"). In terms of traditional moral theory, responses among adolescents from Spitak indicated a deeper conceptualization of teleology (e.g., "My actions affect my community") and deontology (e.g., "Everyone's rights, needs and feelings must be respected").

In contrast to the Midwestern United States study (Stilwell et al., 1991), [19] no consistent age-related differences in moral development between 13- and 16-year-olds were found. The fully structured interview, which restricted choices to preselected responses, may have made it less sensitive in detecting age-related differences. Furthermore, age-related norms for moral development in the Midwest may not correspond cross-culturally to those in Armenia. For example, the increasing independence from parents and the extended family during the course of adolescence in the United States is not paralleled in traditional Armenian culture.

Severity of PTSD symptoms, earthquake trauma and postearthquake adversities, and loss of nuclear family members were not correlated with stage of moral development. Future studies should examine changes in children's lifestyle and in family and community ecology subsequent to a catastrophic event to elucidate the potential association of such factors with moral development.

The finding of advancement in moral development among adolescents in Spitak is not unequivocally positive, as these adolescents also showed evidence of psychopathological interference in conscience functioning. The findings indicate that there was a positive correlation between PI and CPTSD-RI score. Adolescents in the Spitak-1 sample had the highest level of PTSD symptoms and had the highest level of PI. Although the Spitak-2 sample did not show a significant difference in overall mean PI from the Yerevan sample, the frequency distribution of responses to specific PI items in the Spitak-2 sample tended to fall between those of Yerevan and Spitak-1, congruent with their intermediate score on the CPTSD-RI.

In response to questions about limitations of personal basic goodness, greater percentages of adolescents from Spitak endorsed responses indicating that they were in a terrible mood and (as a result) a bad person most of the time, they had a good side that was ruined while they were growing up, and they were basically bad. Endorsement of being in a terrible mood most of the time may be due to suffering with chronic PTSD symptoms and comorbid depression (Goenjian et al., 1995, 1997) [7,5].

Endorsement of being a bad person most of the time may be related to engaging in societally proscribed behaviours, such as premarital sex and excessive drinking and fighting, which were reported by the adolescents to have provided temporary relief from ongoing distress. Acting in a self-perceived immoral fashion may initially be attributed to a bad part of the self that is responsible for committing such acts and, over time, may lead to characterization of the self as bad. In addition, PTSD-related impairments in academic functioning and in peer and family interactions may also have contributed to a negative self-image.

Forty percent from Spitak versus 14% from Yerevan endorsed the world being basically evil as a rationale for losing willpower to be morally good. Traumatic experiences may alter schematizations of the world, of other people, and of social agencies and institutions (Pynoos et al., 1995) [15]. Postearthquake schematization of the world as basically evil may have derived in part from the experience of the unpredictable massive destruction and enormous loss of innocent life, as was experienced by every child in Spitak. Specific PTSD symptoms, e.g., chronic hypervigilance (category D), and recurrent bouts of fear may have led to a schematization of the world, consonant with their internal arousal, as replete with dangers. Projection of their negative self-image (as described earlier) onto the outside world may have also contributed to a perception of the world hostile and selfish.

The harsh postearthquake circumstances may also have contributed to seeing the world as evil. After the earthquake, these adolescents experienced ongoing shortages of food, housing, heat, water, electricity, consumer goods, recreation facilities, etc. Awareness of exploitation by individuals who sold basic necessities at exorbitant prices, and lack of accountability for the poor workmanship, which contributed to the destruction and loss of life from the earthquake, gave rise to a perception that people were not trustworthy. Widespread perception of unfair distribution of food and housing produced a lack of trust in the agencies of government.
A greater percentage in Spitak indicated that interference with the functioning of their conscience occurred because they no longer had a conscience or had stopped caring about right or wrong. Chronic debilitating PTSD symptoms, including emotional distancing, feelings of detachment, estrangement, and restricted range of affect (category C), may have disrupted attachment and affiliation with family and friends and diminished their capacity to care about doing the right things.

Engaging in immoral acts, such as stealing because of shortages of food and wood (to burn for heat), in order to combat ongoing harsh adversities, may have resulted in resignation to the idea that to cope or survive, it was justifiable to act without consideration of morality. Over time, repetition of such acts, particularly without punishment, may have led to a self-perception of not caring about right or wrong. In addition, these adolescents perceived others as acting immorally and getting away with it, further contributing to their belief in the inequity of their social environment, in turn decreasing their sense of obligation to conform their behavior to moral rules.

The current findings of advanced moral development and increased PI among adolescents from Spitak strongly suggest that traumatic experiences, chronic PTSD symptoms, and posttrauma circumstances and adversities have affected their moral life in disparate ways. For example, adolescents from Spitak evidenced an experience-driven advanced development of conceptualization of the conscience, reflected in their endorsement that they learned how to be good from their own mistakes (level 4) and that their conscience includes all their experiences with right and wrong (level 5). Yet, at the same time, they evidenced psychopathological interference in conscience functioning in indicating that after the earthquake they stopped caring about right and wrong, or that, despite knowing what a conscience is, they did not have one. Quite poignantly, this study provides evidence that a discrepancy can occur between developmental progression in conceptualization of the conscience and pathological interference with its use, manifested as perceived weakness in its functioning or, in the extreme case, its loss.

In contrast to other studies that have investigated developmental sequelae of trauma among clinic populations, this study evaluated subjects from the general population. Subjects were of the same culture, religion, and ethnicity, with similar socioeconomic status. Within each city, adolescents had comparable and contemporaneous earthquake-related trauma exposure and suffered similar postearthquake adversities over the same time span. Evaluations were done at a similar posttrauma interval. An important limitation of this study is that it did not specifically ascertain the relationship between disturbances in conscience functioning and behavior. Future studies should include efforts to make longitudinal self-report assessments of behavioral alterations with corroborative reports from parents and teachers. Replication of these findings and evaluation of potential intervening variables are needed.

Clinical Implications

Advanced moral development with concomitant disturbances in conscience functioning may constitute a source of posttrauma anxiety for children and adolescents which may be unidentified or mischaracterized by clinicians in addressing well-recognized posttraumatic stress, depressive, anxiety, and grief reactions. Disturbances in conscience functioning may disrupt current family and peer relationships, interfere with academic performance, and portend future problems in adult occupational, marital, parental, and community functioning.

Postdisaster mental health interventions for children and adolescents require a multifocal approach. These foci include strategies to address traumatic experiences, posttraumatic stress symptoms, grief and depressive reactions, current stresses and adversities, and developmental disruption (Goenjian et al., 1997; Pynoos et al., 1998) [5,14]. This study suggests that among developmental consequences, achieved moral developmental stage and disturbances in conscience functioning may be important to evaluate and monitor over time.

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