

Three Forms of Stress in Cambodian Adolescent Refugees

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Sixty-nine Cambodian adolescents and young adults were interviewed to determine their experience as children surviving the Pol Pot regime (1975–1979); their first-year experience of resettlement in this country; and their experience of stressful events during the past year. Current DSM-III-R diagnostic status was also determined. A strong relationship between earlier war trauma, resettlement strain, and symptoms of posttraumatic stress disorder (PTSD) was found. In contrast, the strongest relationship with depressive symptoms was found for recent stressful events. These results are discussed in light of current findings from stress and PTSD research.

Over the past two decades, a large number of refugees from all over the world have resettled in the United States. Often these refugees have suffered considerable prior trauma before their relocation. In a new land, they must learn a new language, find housing and employment, and adjust to a different majority culture. Their need for medical and psychiatric services presents a challenge to health care providers. Since 1980, roughly 150,000 Cambodians, the focus of this research, have resettled in the United States

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This project was supported by the National Institutes of Mental Health [NIMH] grant #5-RO1-MH42927-02, Dr. William H. Sack, M.D., Principal Investigator.

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following the enormous destruction of that country by the Khmer Rouge from 1975 to 1979.

We have been working with Cambodian refugees in both clinical (Kinzie & Sack, 1991) and research settings (Kinzie, Sack, Angell, & Clarke, 1989; Kinzie, Sack, Angell, & Manson, 1986) for the past decade. The focus of this research has been to better understand the effects of prior massive trauma on Khmer children as they move through adolescence into young adulthood (Sack, Clarke, Dickason, Goff, & Kinzie, in press). In connection with that effort, we pretested a number of instruments now being used in a multisite study of the effects of trauma on Khmer youth and their parents. This report is based on the pilot study, and focuses on the relationship of three forms of stress endured by young adult and adolescent Cambodian refugees to current depressive and posttraumatic stress disorder (PTSD) symptomatology and diagnosis.

The war trauma these subjects experienced from 1975 to 1979 was enormous. During this time, the Khmer Rouge and its leader, Pol Pot, attempted to transform the country of Cambodia into a primitive form of Marxist communism. As a result, a genocide occurred in which a quarter of the population died of executions, starvation, or disease (Hawk, 1982). Many of these subjects witnessed atrocities, and some saw their own family members executed. Malnutrition was rampant in the work camps set up throughout the country. Death was a daily threat in these camps, both by execution for stealing food, or by starvation for not obtaining food. Children were separated from parents. Some were taught to spy on their elders to obtain extra favors or were forced to commit atrocities themselves. That the perpetrators of these events were fellow countrypeople adds a further element of tragedy to the whole ordeal.

Study of PTSD in this population is important because the limited research conducted with children and adolescents suggests that PTSD manifests differently in younger individuals. Compared to adults, children and adolescents with PTSD exhibit little evidence of psychogenic amnesia, fewer flashbacks, greater belief in omens of future disaster, and more thematic play and reenactment of the initiating trauma (see Lyons, 1987). A better understanding of developmental differences in PTSD may lead to interventions more appropriate for children, rather than relying on treatments developed for traumatized combat veterans and other adults with PTSD.

The goal of this paper is to relate three forms of stress experienced by this nonclinical sample of Khmer adolescent refugees to their PTSD and depression psychopathology. The three forms of stress defined here are *war trauma stress*, *resettlement stress*, and *recent stressful life events*. These categories of stress and trauma were selected for study in order to capture

the principal life experiences of these refugee children. In particular, war trauma stress was meant to include the major trauma(s) theorized to precipitate any PTSD symptomatology and/or diagnosis. Resettlement stress was hypothesized to encompass the negative experiences associated with being a new, non-English-speaking immigrant in this country.

Finally, recent stressful events were included to address other, more general life events (e.g., bereavement, major illness) which have been demonstrated to be risk factors for several psychopathological conditions in children. These general life stressors are associated with a broad array of effects in children and adolescents, including depression, separation anxiety, and disruptive behavior disorders (Garmezy and Rutter, 1983).

Three specific hypotheses arising out of clinical experience and prior research findings guided this study:

1. Khmer subjects who report greater amounts of previous war trauma as children will demonstrate a greater rate of PTSD diagnoses and symptoms as adolescents or young adults.
2. Subjects reporting PTSD symptoms will also be more vulnerable to the strains of resettlement in the United States.
3. Subjects reporting depressive symptoms will also report more recent stressful events than earlier stressors.

METHODS

Subjects

The sample of 69 subjects in this investigation was composed of two groups. Thirty-one subjects (31.0% female) were seen as part of a 6-year followup study of Cambodian refugee youth (Kinzie et al., 1989; Sack et al., in press). They comprised 71% of the original sample of 46 students first interviewed in 1984 (Kinzie et al., 1986). Six subjects could not be found at followup, and seven refused. This followup sample was an average of 23.03 years old ($SD = 2.1$) at the time of the interview, and an average of 14.70 years old ($SD = 2.4$) at the time of entry into the United States. Twenty-nine of the 31 had been in Cambodia during the Pol Pot regime. Twenty-three subjects (74.2%) were rated by the interviewer as having employed the English language throughout the interview. Ten subjects were married, and eight reported having children.

The remaining 38 subjects (52.5% female) were a Cambodian sample of convenience, recruited from the greater Portland area (Sack et al., in

press). All (100%) of this sample also lived through the Pol Pot regime; several had been seen at the Oregon Health Sciences University Indochinese Clinic for mental health services related to this trauma. This latter sample was an average of 17.74 years old ($SD = 2.6$) at the time of the interview, and an average of 11.40 years old ($SD = 4.4$) at the time of their entry into the United States. Twenty-one clinical subjects (55.3%) were rated by the interviewer as having used English throughout the interview. Only one subject was married, although two reported having children. There were six refusals from subjects initially approached.

Because these two samples had been previously determined to be comparable with respect to psychiatric diagnoses (Sack et al., in press), they were collapsed into one sample for the present report. These subgroups, which formed a pretest sample for a major multisite study now underway, were remarkably free of diagnoses other than PTSD and depression, with no disruptive behavior disorder or substance/alcohol abuse. The only other diagnostic category noted in the sample were five diagnoses (7.3%) of any anxiety disorder. This is in contrast to American combat veterans, where comorbidity is common (Breslau & Davis 1987; Hyer, Bondewyns, & O'Leary, 1987).

For the present study, it proved impossible to generate a comparison group of Khmer youth who had escaped the Pol Pot regime. Vietnamese refugee youth were considered as a comparison group, but their cultural differences with Cambodians are as great as their similarities. Thus, any differences between nontraumatized Vietnamese "control" youth and the present sample of traumatized Khmer youth could not be attributed exclusively to exposure to trauma, but might be equally a function of preexisting cultural differences.

Assessment and Procedures

All subjects took part in a 2- to 3-hour interview, conducted in research offices by master's-level interviewers. A Khmer interpreter was present for all interviews, even if the subject spoke excellent English. All subjects were paid \$50.00 for taking part in the interview. Participants signed a letter of informed consent before proceeding.

The diagnostic interview consisted of the Children's Schedule for Affective Disorders and Schizophrenia (K-SADS; Puig-Antich, Orvaschel, Tabrinzi, & Chambers, 1980) with the PTSD section from the Diagnostic Interview for Children and Adolescents (DICA; Welner, Reich, Herjanic, Jung, & Amado, 1987). The K-SADS interview provides information on the presence of specific symptoms for a reliable diagnosis of depression

and other psychiatric disorders, using criteria from the DSM-III-R (American Psychiatric Association, 1987). Even though some subjects were beyond the typical age limit for adolescence (21 years), adolescent instruments were used throughout this investigation in order to provide continuity with instruments employed with the present sample at earlier assessments (Kinzie et al., 1989), and because this sample served as a pretest for a large study of 200 adolescent subjects. The DSM-III-R diagnostic criteria for both PTSD and major depression are the same for adults and for adolescents.

Diagnostic interviewers were trained by the authors to a reliability level of $\kappa = .80$ or better on a minimum of two consecutive training interviews before beginning experimental interviews. Interrater reliability for a random sample of 20% of the interviews ($n = 15$) was high, with a mean symptom $\kappa = .88$ for current major depressive disorder (MDD) symptoms, and mean symptom $\kappa = .94$ for current PTSD symptoms.

For the present study, only current diagnoses (point prevalence) were used in order to facilitate examination of current life stressors as a risk factor for PTSD and/or depression. Since stressful events are presumed to impart risk prospectively, not retroactively, it was necessary to examine only those episodes which occurred after or at the same time as the most recent of the three stress categories (e.g., current stressful events).

Convergent reliability was also examined by comparing diagnoses generated from the research interviews with prior clinical diagnoses generated in the Oregon Health Sciences University's Indochinese Clinic. Twelve of the 13 subjects who were assigned a PTSD diagnosis on the DICA section had also been so diagnosed by a clinician (92% agreement). Ten of 13 subjects who received a K-SADS diagnosis of current or past major depressive disorder had previously been clinically diagnosed as depressed (77% agreement). More information regarding interviewer training, interrater reliability, and interview construction and translation is provided in Sack et al. (in press).

Several stress/trauma scales were administered as part of the assessment battery. Based on the author's decade of clinical experience of the various traumas reported by subjects in a variety of settings (Kinzie & Sack, 1991), interview and self-report versions of a War Trauma Scale were constructed by the research team to measure which of 42 war trauma stressors were experienced by subjects during the Pol Pot regime (e.g., "Were you ever tortured by the Khmer Rouge cadres or others?"). The interview version of the War Trauma Scale, which was employed in the present investigation, demonstrated moderate correspondence with an alternative self-report version (mean item $\kappa = .55$, and 86.4% agreement; total

scale score $r = .74$, $p < .0001$), and good interrater reliability (mean item kappa = .88, and 95.5% agreement).

A 32-item Resettlement Stressor Scale was also generated to measure various forms of stress uniquely associated with being a refugee and a new emigrant to this country (e.g., "Were you able to go to a Buddhist temple or ceremony as often as you wanted during your first year here?").

A 56-item stressful life events scale for youth (Sandler & Block, 1979) was also administered, modified to evaluate both the magnitude (e.g., subjective severity) and duration of exposure to more "typical" major stressful events in the past 12 months (e.g., "Have you had to go to the hospital in the past year because of an illness or injury?"). Stressful event magnitude ratings were employed in the present investigation. Sack et al. (in press) report the percentage of subjects reporting selected stressors from each of the three scales.

Other self-report measures included in the assessment battery but not pertinent to the present report were the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the Impact of Events Scale (Zilberg, Weiss, Horowitz, 1982).

RESULTS

Comparison of Diagnostic Groups

In order to examine the relationship of the three types of stressors to PTSD and depressive diagnoses, the sample was divided into four mutually exclusive groups based on current DSM-III-R diagnoses generated by the K-SADS/DICA: not mentally ill ($n = 39$), PTSD only ($n = 22$), depression only ($n = 3$), and comorbid PTSD and depression ($n = 5$). Separate one-way analyses of variance were conducted comparing these groups on each of the three stress scales, with independent planned comparisons contrasting (a) the not mentally ill group against the other three groups combined; (b) the PTSD only group vs. the depression only group; and (c) the PTSD only group vs. the comorbid PTSD and depression group.

Table I presents the mean resettlement stressors for the four diagnostic groups. The overall ANOVA was significant, $F(3, 65) = 4.66$, $p < .005$, but only the contrast between the not mentally ill group and the three diagnostic groups proved significant, $F(1, 65) = 6.64$, $p < 0.01$. In comparison, there were no significant differences between the four diagnostic groups with respect to recent life event stressors, $F(3, 65) = 1.18$.

Table 1. Means and Standard Deviations (SD) for the Four Khmer Adolescent Diagnostic Groups on Measures of Resettlement Stress, Current Life Stress, and War Trauma

Diagnostic group	n	Resettlement Stress		Current Life Stress		War Trauma	
		Mean	SD	Mean	SD	Mean	SD
Not mentally ill	39	37.49	(15.7)	8.05	(6.1)	57.56	(6.0)
PTSD only ^a	22	50.45	(10.8)	9.82	(4.8)	64.86	(6.6)
Depression only	3	44.33	(9.7)	9.00	(9.5)	67.33	(9.1)
Comorbid depression and PTSD	5	49.40	(5.6)	13.20	(10.6)	66.80	(3.7)

^a PTSD = posttraumatic stress disorder.

The greatest differences between diagnostic groups was detected for war trauma stressors (Table I), with a highly significant overall ANOVA, $F(3, 65) = 9.39, 65; p < .0001$. Similar to resettlement stressors, the only war trauma planned comparison which proved significant was that contrasting the not mentally ill group and the three diagnostic groups, $F(1, 65) = 22.35, p < 0.0001$.

Prediction of PTSD and Depression Symptoms

Two simultaneous regression analyses were conducted to compare the association of the three types of stressors with PTSD and depressive symptomatology. Potential predictors for both analyses were war trauma stressors, resettlement stressors, recent life event stressors, adolescent age, and English language ratings made by research staff at the end of the diagnostic interviews. The dependent variables for the two analyses were the sum of positive K-SADS depressive symptoms, and the sum of positive DICA PTSD symptoms, respectively.

Table II summarizes the PTSD symptom simultaneous regression results. War trauma significantly accounted for 15.4% of symptom variance,³ and resettlement stress accounted for an additional 11.7% of variance; in both cases, increased PTSD symptomatology was associated with increased levels of stress/trauma. Recent life event stressors did not significantly contribute to the prediction of PTSD symptoms, although there was a borderline association between older adolescent age and more PTSD symptoms ($p = .056$), accounting for 3.3% of the dependent variable variance. The overall multiple correlation was $R = .682$, with an adjusted $R^2 = .422, F(5, 65) = 10.77, p < .0001$.

Table III presents the results of the regression onto major depression symptomatology. Significant predictors included recent life stressors (8.3% of MDD symptom variance), war trauma stressors (6.7% variance), and inferior English language skill ratings (5.1% variance). Neither resettlement stressors nor age significantly contributed to the prediction of MDD symptoms. The overall $R = 0.608$, with an adjusted $R^2 = 0.319, F(5, 65) = 7.29, p < .0001$.

DISCUSSION

In both clinical and research settings, adolescent and adult refugees from Cambodia show primarily symptoms and/or diagnoses of PTSD and

³Percent variance = squared semipartial correlation (sr^2).

depression (Kinzie & Sack, 1991; Kroll et al., 1989). Depression and PTSD have frequently been found together in studies of combat veterans as well (Southwich, Yehuda & Giller, 1991). However, in contrast to combat veterans, this sample is remarkably free of other comorbid conditions (Breslau & Davis, 1987; Sack et al., in press).

These Khmer subjects reported considerable amounts of both war trauma and resettlement stress. Resettlement stress might better be labeled as a form of chronic strain, since the conditions reported in this category have long durations. Turner and Avison (1990) have clearly demonstrated the utility of distinguishing chronic strains from eventful stress in understanding the relationship of stress to distress. Most current stress instruments underestimate the magnitude of strain or the synergistic effects of strain on reported stress (Avison & Turner, 1988). Since no available instruments for measuring this form of refugee stress/strain existed in the literature, we were obliged to develop new instruments for this study.

Analyses comparing categorical diagnostic groups indicate that only war trauma and resettlement stressors differed across groups, and then only when contrasting the not mentally ill group with all the other categories. No clear differences were detected across the different PTSD and/or MDD diagnostic groups. Several possible factors may be responsible. First, stress may not be uniquely associated with different diagnoses, but may simply be a correlate of psychopathology in general. However, this is not consistent with the regression results in the present study. A second possibility is that the small sample size and the comorbid diagnostic groups (PTSD and MDD together) may be obscuring potential between-group differences.

Finally, the lack of discrimination among the three diagnostic groups may be due to the nature of diagnoses themselves, which as dichotomous variables do not yield much statistical power to detect relationships between constructs. In contrast, when these psychopathological conditions are represented by continuous measures such as number of symptoms, distinctions among stressors appear. This is in some ways consistent with the results reported by Seifer, Nercumbe, Scioli, & Grapentine (1989), who found that childhood depressive symptoms appear to have no naturally occurring discontinuities in their distribution, and that for research purposes may be better represented by continuous measures than by diagnoses.

That *prior* stressful events (war trauma and resettlement stressors) distinguished between the diagnostic groups while recent stressful events did not is interesting, because it runs counter to much of the stress literature in which the effects of stress on symptoms usually decreases rapidly over

Table II. Summary of Simultaneous Multiple Regression onto PTSD Symptomatology^a

Variable	<i>B</i>	Standard error	Beta	Partial r^2	Semi-partial r^2	<i>F</i> -to-remove
Resettlement stress	0.129	0.035	0.401	0.179	0.117	13.540 ^b
Current life stress	0.072	0.070	0.103	0.017	0.009	1.004
War trauma	0.278	0.066	0.450	0.223	0.154	17.822 ^c
English language	-0.495	0.353	-0.135	0.031	0.017	1.963
Adolescent age	-0.289	0.148	-0.222	0.058	0.033	3.802 ^d
Constant	-9.808	4.385	0.000	—	—	5.002 ^e

^a PTSD = posttraumatic stress disorder.

^b $p < .001$.

^c $p < .0001$.

^d $p = .0557$.

^e $p < .05$.

time (Andrews, 1991; Brown & Harris, 1978; Paykel, 1978; Turner and Avison, 1990). In the present study, stressful events further removed in time proved more powerfully related to diagnoses than those more recently incurred.

The results obtained in the two simultaneous regression analyses are consistent with a priori predictions, and suggest that there may be unique associations between different disorders and different types of stress. War trauma stressors occurring an average of 11 to 15 years earlier appear to impact strongly on current psychopathology. However, it is important to note that war trauma stressors were assessed only at the present time. Selective recall or even exaggeration of past trauma by subjects are potential threats to the veracity of these data. Nevertheless, the strong contributions of both war trauma and resettlement strain to symptoms of PTSD is in keeping with the clinical perspective that having been severely traumatized by war leaves the individual more vulnerable to the vicissitudes of resettlement issues (Beiser & Fleming, 1986; Boehnlein & Kinzie, 1985; Kinzie, 1986).

The most likely explanation for the finding that older subject age contributed a small amount of the variance in PTSD symptoms is that younger subjects may recall less about what they experienced. Further, during the Pol Pot regime, children under the age of 6 were usually not separated from their parents, nor forced to work in the labor camps. Thus, both developmental and experiential factors may be contributing to the observed marginal relationship of age to PTSD symptoms.

Table III. Summary of Simultaneous Multiple Regression onto Major Depression Symptomatology

Variable	<i>B</i>	Standard error	Beta	Partial r^2	Semi-partial r^2	<i>F</i> -to-remove
Resettlement stress	0.021	0.017	0.146	0.024	0.016	1.536
Current life stress	0.099	0.034	0.313	0.116	0.083	8.168 ^a
War trauma	0.083	0.032	0.297	0.096	0.067	6.597 ^a
English language	-0.388	0.174	-0.234	0.074	0.051	4.971 ^b
Adolescent age	-0.079	0.073	-0.133	0.019	0.012	1.168
Constant	-2.237	2.159	0.000	—	—	1.074

^a*p* < .01.

^b*p* < .05.

The regression finding that depressive symptoms are more strongly predicted by recent stressful events than are the two other forms of stress is compatible with other findings with this group (Sack et al., in press). In a 6-year followup study, PTSD diagnoses and symptoms were found to persist much longer than depressive diagnoses and symptoms. While both were prevalent in 1984, by 1990 depression had declined much more rapidly. This is compatible with the notion that depressive symptoms are more closely connected to events more proximal in time than are PTSD symptoms. Similarly, Beiser and Fleming (1986) and Westermeyer, Neider, & Collies (1989), have shown that depressive symptoms in Southeast Asian refugee adults dissipate as acculturation proceeds.

The uncoupling of PTSD and depressive symptoms over time also has some theoretical interest. Some trauma researchers have posited that PTSD symptoms are a relatively short-lived, nonspecific response to a variety of both stressors and trauma (Breslau & Davis, 1987). Our data suggest rather that PTSD and depression are differently related to various stressors, and take different courses over time.

Until further studies are completed, these results must be considered tentative and exploratory. Several shortcomings of the present study limit the generalizability of these findings. First, the samples, while largely non-clinical, were not random and were quite small. Specifically, the small cell sizes for depressive diagnoses limit our confidence in these diagnostic group comparisons. A second issue is that both the war trauma and resettlement stressor scales are new instruments, with only limited information available

regarding their psychometric properties. However, studies of these instruments are now underway.

Finally, this study is a retrospective inquiry conducted at one point in time. Whether these three forms of stress differentially predict psychopathology across *future* points in time remains to be seen. To answer this and other related questions, we are completing a definitive, multisite study of 200 Khmer adolescents and their parents. The same analyses will be conducted on this large sample in an attempt to cross-validate these preliminary results.

In summary, hypotheses regarding stress, PTSD, and depression appear to be confirmed. A strong relationship exists between war trauma experienced in childhood and PTSD symptoms reported as later adolescents and/or young adults. Subjects reporting PTSD symptoms also report greater amounts of resettlement stress. In contrast, depressive symptoms are more closely tied to recent stressful events than to prior war trauma or resettlement strain.

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