Article

Longitudinal Course of Posttraumatic Stress Disorder and Posttraumatic Stress Disorder Symptoms in a Community Sample of Adolescents and Young Adults

Axel Perkonigg, Ph.D.

Hildegard Pfister, Dipl.-Inf.

Murray B. Stein, M.D., M.P.H.

Michael Höfler, Dipl.-Stat.

Roselind Lieb, Ph.D.

Andreas Maercker, M.D., Ph.D.

Hans-Ulrich Wittchen, Ph.D.

Objective: Few studies have focused on the natural course of posttraumatic stress disorder (PTSD) and its determinants in samples of the general population. The authors examined determinants of remission and chronicity of PTSD and associations with other disorders in a prospective community sample.

Method: The data were drawn from a prospective, longitudinal epidemiological study of adolescents and young adults (age 14–24 years) in Munich, Germany (N=2,548). The course of PTSD from baseline to follow-up 34–50 months later was studied in 125 respondents with DSM-IV PTSD or subthreshold PTSD at baseline.

Results: Although 52% of the PTSD cases remitted during the follow-up period, 48% showed no significant remission of PTSD symptoms. Respondents with a chronic course were more likely to experience new traumatic event(s) during follow-up (odds ratio=5.21, 95% confidence interval [CI]=1.95–13.92), to have higher rates of avoidant symptoms at baseline (odds ratio=10.16, 95% CI=1.73–59.51), and to report more help seeking (odds ratio=5.50, 95% CI=1.04–29.05), compared to respondents with remission. Rates of incident somatoform disorder (odds ratio=4.24, 95% CI=1.60–11.19) and other anxiety disorders (odds ratio=4.07, 95% CI=1.15–14.37) were also significantly associated with a chronic course.

Conclusions: PTSD is often a persistent and chronic disorder. Specific symptom clusters—especially avoidant symptoms—might be associated with the course of PTSD. In addition, the occurrence of new traumatic events differentiates PTSD cases with a chronic course from those with remission.

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Posttraumatic stress disorder (PTSD) is a prevalent disorder for which overall community lifetime prevalence estimates range from a minimum of 1% in earlier DSM-III studies to a maximum of 12.3% in more recent surveys (1–8).

A few epidemiological studies, most of them retrospective, have focused on the natural course of PTSD and its determinants. Chronic DSM-III or DSM-III-R PTSD was frequently reported in rape victims, victims of torture and political violence, refugees, and combat veterans (9-11). Kilpatrick et al. (9) reported that 16.5% of women who had been raped continued to meet PTSD diagnostic criteria an average of 17 years afterward. Risk factors for lifetime chronic (duration at least 1 year) PTSD have been reported for a random sample of young adults in the Detroit metropolitan area by Breslau and Davis (10). Compared to young adults with nonchronic PTSD, those with chronic PTSD had a higher number of DSM-III-R PTSD symptoms and higher rates of interpersonal numbing and overreactivity to stimuli that symbolized the stressor, as well as higher rates of psychiatric comorbidity and other medical conditions. Davidson et al. (11) noted significant differences between chronic and acute DSM-III PTSD in a general population sample; chronic PTSD was associated with reduced

social support, a greater frequency of social phobia, and greater avoidant symptoms.

Most of our knowledge of the course of PTSD and its determinants is based on prospective (12-15) or retrospective (16) cohort studies involving people who have experienced specific types of traumatic events (e.g., natural disasters). For example, a prospective study among Australian firefighters reported a 30% rate of PTSD identified by assessment with the General Health Questionnaire 29 months after a bush fire (14). Retrospective data from adult survivors of the Buffalo Creek flood showed that after 14 years, 28% of the survivors with PTSD still had not had remission (15). Results from the National Vietnam Veterans Readjustment Study showed that 15% of all male Vietnam veterans still had PTSD 19 years after combat exposure (16). Some studies found that specific symptom clusters and clinical features fluctuated over time and sometimes increased in intensity after several decades of decline (14). Furthermore, numerous pre-, peri-, and postexposure risk factors have been reported, suggesting a multifactorial model of longitudinal course with various pathways (14). For example, studies of acute stress reactions or acute stress disorder provided support for associations between the immediate response after a traumatic

Respondents With Subthreshold PTSD at Baseline Respondents With Full DSM-IV PTSD at Baseline (N=101)^a (N=24) Conditional Conditional Probability Prevalence Probability Prevalence (Weighted %)b (Weighted %)b Status and Course Ν (Weighted %) 95% CI (Weighted %) 95% CI Ν Baseline status All respondents (N=2,548) 101 4.4^c 3.5 - 5.41.3^c 0.8 - 2.024 26.1^d 7.6^d Trauma victims (N=393) 101 21.6-31.3 24 5.0-11.5 Male respondents 43 44.8 2.0^c 1.4-2.7 16.1 0.2^c 0.0-0.6 4 1.1^c 58 2.4^c Female respondents 55.2 1.8 - 3.220 83.9 0.7 - 1.7Follow-up status (34-50 months) PTSD symptoms^e 20 21.1 6 25.0 Subthreshold PTSD 20 18.3 2 6.5 Full DSM-IV PTSD 8 25.6 4.2 4 57 Other^f 56.7 8 42.9 Course from baseline to follow-up 57 56.7 8 42 9 Remission 44 43.3 16 57.1 Chronic course Symptomatic (partial remission) 20 8 31.5 21.1 Subthreshold or full DSM-IV PTSD 24 22.2 8 25.6 New traumatic events after baseline 44 44.5 22.6

TABLE 1. Status at Baseline and 34–50-Month Follow-Up and Course From Baseline to Follow-Up in Respondents With Subthreshold Posttraumatic Stress Disorder (PTSD) and Full DSM-IV PTSD at Baseline in a Community Sample of Adolescents and Young Adults Age 14–24 Years

^a Respondents with subthreshold PTSD fulfilled the A (traumatic event, fear), B (persistent reexperiences), and E (duration) criteria for DSM-IV PTSD but did not fulfill completely the C (avoidance or numbing of general responsiveness) and/or D (increased arousal) criteria, although they reported at least one symptom in each of the C and D criteria categories with a duration of more than 1 month.

^b Probability among respondents with subthreshold PTSD or DSM-IV PTSD.

^c Prevalence in the entire study sample.

^d Rate among trauma victims.

^e Respondents with PTSD symptoms fulfilled the A and the B criteria for DSM-IV PTSD but did not meet the criteria for subthreshold PTSD or the full criteria for DSM-IV PTSD.

^f Symptoms may be present, but they do not fulfill the criteria for PTSD symptoms, subthreshold PTSD, or DSM-IV PTSD (i.e., duration and persistence criteria).

event (i.e., acute motor restlessness) and the longitudinal course of PTSD (17). Some studies suggested a significant role of cognitive processing style (18), coping behavior (13), and social support (19). However, generalizability of these findings is an unresolved issue.

Several epidemiological studies have shown that PTSD is strongly associated with comorbid disorders (1, 5, 20). Most of these findings are based on retrospective or crosssectional data, and the causal explanations of psychiatric sequelae or temporal associations between PTSD and other disorders are unclear (21, 22). The few extant studies on the course of PTSD and psychiatric risk factors showed that other anxiety disorders and depressive symptoms after the onset of PTSD are related to a more chronic course (12, 23). However, no studies with an epidemiological and longitudinal approach have assessed a broader range of psychiatric risk factors after various types of traumatic events in the general population.

The high degree of comorbidity was also confirmed in a community sample of adolescents and young adults ages 14–24 years in the Early Developmental Stages of Psychopathology study (5). We previously reported that 1.3% of the baseline sample (0.4% of male respondents and 2.2% of female respondents) and approximately 8% of those who reported traumatic events fulfilled the DSM-IV criteria for PTSD. PTSD and traumatic events were strongly associated with other DSM-IV disorders that occurred as either a primary or secondary disorder before or after the

onset of PTSD. We also previously reported the patterns of incidence of PTSD in this community sample (24).

In this article, we report results from the follow-up component of the Early Developmental Stages of Psychopathology study, which focused on the 42-month longitudinal course of PTSD and PTSD symptoms. We explored the following questions:

- 1. How many persons with subthreshold PTSD or full PTSD at baseline had entire or partial remission of PTSD during the follow-up period?
- 2. How do persons with a chronic course differ from persons who experience remission(s) during followup with respect to specific PTSD characteristics and risk factors?
- 3. Is a chronic course of PTSD associated with the onset of other disorders?

Method

Sample and Overall Design

The data presented here were collected as part of the Early Developmental Stages of Psychopathology study (25, 26). The Early Developmental Stages of Psychopathology study was designed as a prospective-longitudinal survey to explore prevalence and incidence, familial and other risk factors, and comorbidity and course of mental disorders in a population sample of adolescents and young adults randomly and proportionally drawn from regional registries to represent the distribution of persons age 14–24

TABLE 2. Characteristics of Respondents With Posttraumatic Stress Disorder (PTSD) at Baseline and With Complete Remission
or a Chronic Course at 34–50-Month Follow-Up in a Community Sample of Adolescents and Young Adults Age 14–24 Years

	Respondents With PTSD Remission at Follow-Up (N=65) ^a		Respondents With a Chronic Course of PTSD at Follow-Up (N=60) ^a		Analysis ^b			
Characteristics					All Respondents (N=125)		Respondents Without New Traumas (N=74)	
	NI	Weighted	NI	Weighted	Odds	05% (1	Odds	
Gender	IN	70	IN	70	Katio	95% CI	Katio	95% CI
Male	31	65.1	16	34 9	1 00		1 00	
Female	34	46.5	44	53.5	2.24	0.75-6.65	2.47	0.60-10.16
Age group at baseline (years)	51	10.5		55.5	2.21	0.75 0.05	2.17	0.00 10.10
14–17	18	57.6	12	42.4	1.00		1.00	
18–24	47	53.0	48	47.1	1.52	0.49-4.72	4.42	0.55-35.55
Trauma type	17	55.0	10	.,	1.52	0.15 1.72	1.12	0.55 55.55
Nonassaultive	25	55.4	21	4v4 6	1 00		1 00	
Assaultive	40	52.6	39	47.4	1.00	0 39-2 76	0.29	0 06-1 42
Age at onset of baseline trauma (years)	10	52.0	55	.,	1.05	0.33 2.70	0.25	0.00 1.12
>12	43	56.1	37	43.9	1 00		1 00	
<12	22	48.6	23	51.4	0.69	0 23-2 05	1.00	0 22-5 57
Number of traumas	~~	10.0	25	51.1	0.05	0.25 2.05	1.10	0.22 3.37
1	52	574	42	42.6	1.00		1.00	
- >1	13	42.1	18	58.0	1.00	0 52-3 96	1.00	0 21-5 76
Number of symptoms	15	12.1	10	50.0		0.52 5.50	1.10	0.21 5.70
	26	56.3	17	43 7	1 00		1.00	
<u>_</u> 0	39	52.4	43	47.6	0.58	0 13-2 63	0.15 ^c	0 02-0 92
Number of avoidant symptoms	55	52.1	15	17.0	0.50	0.15 2.05	0.15	0.02 0.52
<2	42	62.2	26	37.8	1 00		1.00	
>7	23	44.2	34	55.8	1.00	0 40-4 86	10.16 ^c	1 73_59 51
Number of depressive symptoms and	25	11.2	51	55.0	1.55	0.10 1.00	10.10	1.75 55.51
internersonal numbing								
	54	57 5	38	42 5	1 00		1.00	
>7	11	44 0	22	56.0	1.00	0 61-5 71	1.00	0 14–18 78
Number of arousal symptoms		11.0	~~~	50.0	1.07	0.01 5.71	1.01	0.11 10.70
	19	59.9	12	40.2	1 00		1.00	
>2	46	51.5	48	48.2	1.00	0 26_4 92	2 50	0 53_11 81
Impairment due to symptoms	40	51.0	40	40.2	1.14	0.20 4.52	2.50	0.55-11.01
Ves moderate	53	58.7	40	41 3	1.00		1.00	
Ves severe/verv severe	12	41 1	20	58.9	1.00	0 49_5 71	1.00	0 23-16 09
Help seeking	12	41.1	20	50.5	1.07	0.45-5.71	1.51	0.25-10.05
No	54	59.7	37	40.3	1.00		1.00	
Ves	11	38.1	27	61.9	1.00	0 52_4 12	5.50 ^C	1 04_29 05
New traumas between baseline and follow-up		50.1	25	01.5	1.77	0.52-4.12	5.50	1.04-25.05
No	50	66.9	74	33.1	1.00			
Ves	15	33.3	24	66.7	5.21 ^C	1 95_13 92		
Presence of any other baseline mental disorder ^d	37	55.9	34	44.2	0.75	0.20-1.02	0.42	0 10-1 60
resence of any other baseline mental disolder	57	55.0	т	77.2	0.75	0.29-1.90	0.74	0.10-1.09
					Odde		Odda	
	Moor		Moor		Datio		Datic	050/ 01
	Mean		Mean		Katio	95% CI	Katio	95% CI
Self-competence ^e	2.8		3.0		1.57	0.97–2.54	2.31 ^c	1.04–5.11

^a Includes respondents with both subthreshold PTSD and full DSM-IV PTSD. Respondents with subthreshold PTSD fulfilled the A, B (traumatic event, fear, and persistent reexperiences), and E criteria (duration) for DSM-IV PTSD but did not fulfill completely the C (avoidance or numbing of general responsiveness) and/or D criteria (increased arousal), although they reported at least one symptom in each of the C and D criteria categories with a duration of more than 1 month.

^b Multiple logistic regression analyses of variables related to chronic course.

^c Significant difference between respondents with remission and respondents with a chronic course.

^d Includes substance use disorders, mood disorders, other anxiety disorders, somatoform disorders, and eating disorders.

^e Standardized scores are reported; higher scores are associated with lower self-competence.

years in the area. After complete description of the study to the subjects, written informed consent was obtained.

The study was divided into three waves. The first wave was conducted in 1995 (baseline) and included the representative sample of persons age 14–24 years (N=3,021). The second wave was conducted in 1996–1997 (time 1) and included only respondents who were age 14–17 years at baseline (N=1,228). The third wave was conducted in 1998–1999 (time 2) and again included all respondents who were age 14–24 years at baseline (N=2,548). Detailed information on the sampling procedure has been reported elsewhere (25). Briefly, at baseline, a total of 3,021 interviews were completed (response rate=71%). The first follow-up (time 1), among the respondents who were age 14–17 years at baseline, was conducted an average of 19.7 months (range=15–25.6) after the baseline interviews (response rate=88%). The second followup (time 2), which was intended to include all baseline participants, was conducted in 1998–1999, an average of 42 months (range=34–50) after the baseline interviews (response rate=84%). The findings reported here are based on baseline and second follow-up data (N=2,548). For the younger cohort (respondents age 14–17 years at baseline), information from the first follow-up (i.e., on new traumatic events) was added. The sociodemographic characteristics of the baseline and entire follow-up (baseline to time 2) sample have been published (5, 26). Briefly, at baseline, most of the respondents were attending school (89%) and living with their parents (97.8%). About 10% were in job training. The majority was classified as belonging to the middle class (61.4%). Noteworthy changes in sociodemographic characteristics from baseline to the second follow-up were found for school status (42% were attending school at follow-up) and employment status (24% were in a job training program and 12% were employed at follow-up).

Diagnostic Assessment

Diagnostic assessments at the baseline and the two follow-up investigations were based on the computer-assisted personal version of the Munich-Composite International Diagnostic Interview (27), which allows for the assessment of symptoms, syndromes, and diagnoses of 48 mental disorders according to the DSM-IV criteria and for collection of data on onset, duration, severity, and psychosocial impairment. Diagnostic findings were obtained by using the Munich-Composite International Diagnostic Interview/DSM-IV algorithms. At baseline, the lifetime version of the Munich-Composite International Diagnostic Interview was used. At each follow-up, the interval version was applied. In all assessments, the Munich-Composite International Diagnostic Interview was supplemented by a separate respondents' booklet that included several scales and questionnaires for assessing psychological constructs relevant to the study (26). For the purpose of this examination, we additionally used a self-competence scale (28). Test-retest reliability and validity of the full Munich-Composite International Diagnostic Interview, along with descriptions of the Munich-Composite International Diagnostic Interview format and coding conventions, have been reported in detail elsewhere (29, 30). The test-retest reliability of the diagnostic modules of the Munich-Composite International Diagnostic Interview was fair to good, with kappa values ranging from 0.64 (Yule's Y=0.80) to 0.78 (Yule's Y=0.82). In tests of validity, a good concordance between clinicians' diagnoses and interview DSM-IV diagnoses was found for all disorders (kappa=0.50-0.96) except psychotic disorders (kappa=0.21).

Posttraumatic stress disorder (and other mental disorders) was defined according to the DSM-IV criteria by using the Munich-Composite International Diagnostic Interview diagnostic algorithm (27). Details of PTSD diagnosis have been presented previously (5). Briefly, a screening question, a written list of 10 groups of potentially traumatic events, and an open-ended question about any other traumatic events (to avoid the necessity of speaking about embarrassing and stigmatizing traumas) were presented, followed by questions about the presence of the DSM-IV A2 criterion (intense fear, helplessness, or horror) during each reported event and questions that probed for the most severe (i.e., most distressing to the individual) event, as well as linkages between events. If the respondent indicated several qualifying events (fulfilling the DSM-IV A1 and A2 criteria) that did not cluster, only the criteria for the most distressing event were assessed by asking which of the events had been the most upsetting at the time it occurred. For this report, the 10 specific event types plus the open category were grouped into a category with two exclusive groups: assaultive events (horrific experience during war, imprisonment, being taken hostage or kidnapped, physical attacks, sexual abuse, and rape) and nonassaultive events (serious accidents, experience of natural catastrophes, sudden death or threat of death of associates, and witnessing traumatic events that happened to others). Similar categories have been used in other studies (31). One-week test-retest reliability of the Munich-Composite International Diagnostic Interview PTSD section was acceptable (kappa=0.79), as was the validity (kappa=0.85) assessed by using the diagnostic concordance between the Munich-Composite International Diagnostic Interview diagnosis and the clinical diagnosis (29, 30).

For this report, we specified two additional categories: "subthreshold PTSD" and "PTSD symptoms." The category of subthreshold PTSD refers to persons who fulfilled the A, B (traumatic event, fear, and persistent reexperiences), and E criteria (duration) for DSM-IV PTSD but did not completely fulfill the C (avoidance or numbing of general responsiveness) and/or D criteria (increased arousal), although they reported at least one symptom of each of the C and D criteria categories with a duration of more than 1 month. The DSM-IV criterion of impairment was not required (although it was met by some respondents with subthreshold PTSD). Similar subthreshold diagnoses of PTSD have been discussed in the literature (32). The category of "PTSD symptoms" at follow-up refers to persons who fulfilled the A and the B criteria of DSM-IV PTSD but did not meet the criteria for full or subthreshold PTSD. The course specifiers of a chronic course or remission refer to the time between the baseline and second followup interviews and describe transitions from subthreshold PTSD to full DSM-IV PTSD, unchanged status between baseline and second follow-up, or transitions to remission (not fulfilling the criteria for the categories defined earlier). Partial remission with PTSD symptoms was included in the category of chronic course. Only persons who failed to meet the criteria for DSM-IV PTSD or our operational criteria for subthreshold PTSD or PTSD symptoms (as described earlier) were considered to have remission for the purpose of this investigation.

Statistical Analysis

Data were weighted to consider different sampling probabilities as well as systematic nonresponse at baseline. The Stata software package (33) was used to calculate proportions and standard errors as well as robust confidence intervals (CIs) for weighted data. Multiple logistic regression analyses with odds ratios were used to describe significant differences between the respondents with remission and those with a chronic course. Logistic regression analyses with adjustment for age and gender were used to calculate odds ratios for incident disorders (i.e., first onset) in the two course specifier groups; the total follow-up sample (without respondents with PTSD) was used as the reference group. Persons with a preexisting case (at baseline) of any of the disorders considered in the analysis of incident disorders were excluded from each of these regression analyses because they were not at risk for the incidence of that disorder. In addition, to avoid confounding findings with new traumatic events, we conducted all logistic regression analyses using data from a sample that excluded persons who experienced new traumatic events between baseline and follow-up. We did not find selective attrition from baseline to follow-up relevant to our categories of DSM-IV PTSD and subthreshold PTSD.

Results

Diagnostic and Symptom Status From Baseline to the Second Follow-Up

As Table 1 shows, at baseline 5.7% (N=125) of the respondents age 14–24 years fulfilled the criteria for either subthreshold PTSD (4.4%) or full DSM-IV PTSD (1.3%). The proportion of female respondents was significantly higher among respondents with full PTSD (83.9%) (odds ratio=5.22, 95% CI=1.61–16.80).

A total of 56.7% of respondents with subthreshold PTSD at baseline and 42.9% of those with full PTSD at baseline reported not meeting the criteria for PTSD symptoms at either the first or the second follow-up assessment, for an TABLE 3. Incident Other Disorders During 34–50-Month Follow-Up Among Respondents With Posttraumatic Stress Disorder (PTSD) at Baseline and With Complete Remission or a Chronic Course in a Community Sample of Adolescents and Young Adults Age 14–24 Years^a

				Respondents With PTSD Remission at Follow-Up (N=65)						
					Analysis ^c					
	Referer	nce Group ^b			All Respondents (N=65)		Respondents Without New Traumas (N=50)			
Incident Disorders	N	Weighted %	N	Weighted %	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI		
Any disorder	625	43.6	10	67.3	3.07	0.97-9.69	2.82	0.62-12.88		
Substance use disorders	406	16.3	8	19.6	1.60	0.61-4.17	1.97	0.61-6.39		
Mood disorders	292	12.8	4	7.8	0.58	0.20-1.70	0.44	0.10-1.93		
Anxiety disorders	229	11.5	5	23.3	2.66	0.86-8.26	2.57	0.59-11.22		
Somatoform disorders	602	25.7	16	29.6	1.39	0.68-2.84	1.47	0.62-3.47		

^a Includes respondents with both subthreshold PTSD and full DSM-IV PTSD. Respondents with subthreshold PTSD fulfilled the A (traumatic event, fear), B (persistent reexperiences), and E (duration) criteria for DSM-IV PTSD but did not fulfill completely the C (avoidance or numbing of general responsiveness) and/or D (increased arousal) criteria, although they reported at least one symptom in each of the C and D criteria categories with a duration of more than 1 month.

^b Includes all respondents in the overall community sample at follow-up who did not have PTSD and did not at baseline fulfill the criteria for the incident disorders under consideration.

overall remission rate of 52% (N=65). The probability of having full DSM-IV PTSD at the second follow-up was highest among respondents with baseline full PTSD (25.6%); only 4.2% of those with subthreshold PTSD at baseline progressed to full PTSD. The remaining 48% of those with full or subthreshold PTSD at baseline reported experiencing full or subthreshold PTSD or PTSD symptoms during the follow-up periods and were classified as having a chronic course (N=60). There were no significant differences in the distribution of respondents with subthreshold PTSD and with full PTSD in the two course specifier groups (difference between remission and a chronic course among respondents with subthreshold PTSD: odds ratio=0.57, 95% CI=0.21-1.59; difference between remission and a chronic course among respondents with full PTSD: odds ratio=1.74, 95% CI=0.62-4.84). However, 44.5% of those with subthreshold PTSD and 22.6% of those with full PTSD experienced new traumatic events during the follow-up period (odds ratio=2.57, 95% CI=1.64-4.02; odds ratio=0.89, 95% CI=0.36-2.22, respectively).

Differences Between Complete Remission and a Chronic Course

Table 2 shows differences in certain baseline PTSD characteristics and additional factors between respondents with full remission and those with a chronic course. Overall, respondents with a chronic course had higher rates of most of the PTSD characteristics and other risk factors that were assessed, except for assaultive trauma types, number of symptoms, and presence of other baseline mental disorders.

To identify core variables associated with chronicity, we performed multiple logistic regression analyses with all significant variables from Table 2. The experience of new traumatic events between baseline and follow-up was the most robust and significant difference between the two course specifier groups (odds ratio=5.21, 95% CI=1.95–

13.92). To avoid confounding between the other predictors and new traumatic events, we also performed the multiple logistic regression analyses using data from the subsample of respondents who had not experienced new traumatic events. Significant differences between the two course specifier groups were found for avoidant symptoms (odds ratio=10.16, 95% CI=1.73–59.51), help seeking (odds ratio=5.50, 95% CI=1.04–29.05), and self-competence (odds ratio=2.31, 95% CI=1.04–29.05). The number of symptoms, however, was negatively associated with chronicity (odds ratio=0.15, 95% CI=0.02–0.92).

Incident Disorders During Follow-Up

Table 3 shows associations between the two course specifiers and other incident mental disorders with onset during the follow-up period among persons who had never before fulfilled the criteria for these disorders. We did not directly compare differences between the two groups, but we compared rates of onset of new disorders in the two groups with the rates of incident disorders during followup in the total sample of respondents with no PTSD and no history of the specific disorder at baseline. In addition, to avoid confounding of new traumatic events and the onset of other disorders, we conducted the analysis with data from a subset of persons who had not experienced new traumatic events.

Both course specifier groups experienced other incident disorders during the follow-up period, but the overall rate was not significantly different in the category "any disorder" from the rate of follow-up disorders in the reference group. However, although we found no significant odds ratios for specific incident disorders among respondents with remission of PTSD at follow-up, a chronic PTSD course was significantly associated with higher rates of incident somatoform disorders (odds ratio=4.24, 95% CI=1.60–11.19) and incident other anxiety disorders (odds ratio=4.07, 95% CI=1.15–14.37) during the follow-up period. Table 3 also shows

Respondents With a Chronic Course of PTSD at Follow-Up (N=60										
			Analysis ^c							
		All Resp (N:	oondents =60)	Respond New (N	ents Without Traumas I=24)					
		Adjusted		Adjusted						
	Weighted	Ódds		Ödds						
Ν	%	Ratio	95% CI	Ratio	95% CI					
10	62.4	2.45	0.78–7.67	2.45	0.51–11.87					
4	9.4	0.92	0.30-2.83	0.44	0.05-3.54					
11	25.5	2.46	1.12–5.41	2.48	0.75-8.14					
8	25.7	2.77	1.13–6.78	4.07	1.15–14.37					
25	56.2	3.79	1.95–7.39	4.24	1.60–11.19					

^c Adjusted odds ratios (with adjustment for age and gender) and 95% CIs from logistic regression analyses comparing rates of incident disorders in subsets of the follow-up sample (without persons with a preexisting case of any of the disorders under consideration) to the rates in the course specifier groups.

that new traumatic events were specifically associated with incident mood disorders among those with a chronic course (odds ratio=2.46, 95% CI=1.12–5.41).

Discussion

The key findings of the study are as follows: More than one-half of the sample with full DSM-IV PTSD at baseline remained symptomatic for more than 3 years, and more than one-half fulfilled the criteria for subthreshold PTSD or DSM-IV PTSD at 34–50-month follow-up. Nearly one-half of those with subthreshold PTSD at baseline remained symptomatic or fulfilled the criteria for subthreshold PTSD or DSM-IV PTSD at follow-up. These estimates are close to those from other epidemiological studies in older populations (1, 14).

Compared to our previous findings and findings from other studies, the predictors of course partly seemed to differ from the predictors of traumatic events and predictors of the onset of PTSD. For example, an early onset and number of traumas were not significantly associated with the course of PTSD in this sample. However, the experience of new traumas during the follow-up interval distinguished a chronic course from a more favorable course with remission. Furthermore, a higher number of avoidant symptoms (from cluster C) at baseline predicted a chronic course. Higher self-competence, which may indicate a greater ability to cope with the effects of recurrent or new traumatic events, was associated with a lower risk of chronicity. It remains to be shown whether these results are stable during a longer course of illness or whether they reflect fluctuating symptoms (14). It is further noteworthy that we found no significant differences for other baseline disorders between respondents with remission and those with a chronic course. This finding might be related to the high rate of comorbidity of other disorders at baseline in both groups (more than 50%).

However, a chronic course of PTSD seems to be significantly associated with incident disorders during followup. A higher risk of somatoform disorders or syndromes in persons with PTSD has often been described (34) and was associated with a chronic course in our study. The lack of association between mood disorders and chronicity was somewhat surprising and may be an artifact of the low number of cases of depression in this young adult sample. The role of depression in relation to traumatic events and PTSD has been discussed in the literature, and further empirical evidence in larger samples is required, especially with regard to the course of PTSD (22). Although previous research found associations between substance use disorders and PTSD (5), we could not show that incident substance use disorders were significantly related to course during this relatively brief follow-up period.

Some limitations of the study should be addressed. The findings were restricted to a small number of respondents with full syndromal cases of DSM-IV PTSD at baseline and follow-up. But, as we have noted previously, in this representative community sample of adolescents and young adults, the prevalence of full-blown DSM-IV PTSD is lower than in other epidemiological studies (5). It is also possible that our findings from this relatively young, urban German community sample, which consisted of well-educated persons from an area with a relatively high economic status, may not generalize to other populations. Our definition of remission refers to the lack of PTSD criterion B (reexperiencing) and E (duration), but it is possible that some persons might have residual symptoms confined to avoidance and/or hyperarousal. Although one might question whether lack of criterion B and E symptoms constitutes remission, we felt that continuing to refer to these persons as having PTSD-related symptoms was less than parsimonious, because such symptoms might be attributable to other DSM disorders. Finally, our findings on course may not generalize to the course after exposure to specific types of traumatic events that were rare or did not occur at all in the present sample (such as natural catastrophes or terrorist attacks).

In conclusion, the results of this longitudinal study confirm in a prospective cohort that PTSD is often a persistent and chronic disorder. In adolescents and young adults, exposure to new traumatic events and seeking help for PTSD symptoms (which may be either an indicator of severity or of coping ability) are associated with poorer outcomes. Avoidant symptoms in particular seem to predict a chronic course. Efforts to prevent persons from being exposed to new traumatic events during the course of PTSD could lessen the chronicity of this disorder. Prevention may be achieved through the implementation of therapies that include techniques for teaching individuals how to seek safe living environments and nonabusive social and romantic relationships (35). The role of other comorbid disorders (e.g., anxiety and somatoform disorders) in influencing the course of PTSD and the possibility that concurrent treatment of these symptom domains might reduce chronicity require further investigation.

Received April 23, 2003; revision received June 23, 2004; accepted Aug. 18, 2004. From the Department of Clinical Psychology and Epidemiology, Max Planck Institute of Psychiatry; the Department of Clinical Psychology and Psychotherapy, University of Technology, Dresden, Germany; and the Department of Psychiatry, University of California San Diego, La Jolla, Calif. Address correspondence and reprint requests to Dr. Perkonigg, Clinical Psychology and Epidemiology Department, Max Planck Institute of Psychiatry, Kraepelinstr. 2–10, D-80804 Munich, Germany; axel@mpipsykl.mpg.de (e-mail).

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