The contribution of life events to pseudoseizure occurrence in adults

Elizabeth S. Bowman, MD
Omkar N. Markand, MD

Life events associated with pseudoseizures were studied in 58 adults. Recent precipitants were diverse and triggered affect that was usually related to current life problems or remote trauma. Four patterns of remote and recent events were found, two related to trauma and two to inadequate emotional expression. When evaluating pseudoseizure precipitants, clinicians should consider the meaning of recent events in light of remote trauma, current life context, and dysfunctional familial patterns of handling affect. (Bulletin of the Menninger Clinic, 63[1], 70–88)

Pseudoseizures (**also called** conversion seizures, hysterical seizures, psychogenic seizures, and nonepileptic seizures) are sudden changes in behavior that resemble epileptic seizures but lack organic cause. They are associated with a wide range of psychiatric diagnoses (Bowman & Markand, 1996) and convey expressions of psychological distress. Life events that precipitate pseudoseizures may be psychological crises that disturb a balance between psychological defenses and forbidden mental content (Bjornes, 1993; Griffith, Polles, & Griffith, 1998). The literature contains many case reports but few systematic studies of life events that precipitate pseudoseizures. Most precipitating life events found in case studies can be categorized as trauma, losses, and situational stresses.

This work was supported in part by a grant from the Association for the Advancement of Mental Health Research and Education. The authors thank Dr. Bette Maybury, Ms. Eileen Welihan, and Mr. Kuolung Hu for assistance with data collection and analysis.

Dr. Bowman is associate professor, Department of Psychiatry, Indiana University School of Medicine, Indianapolis. Dr. Markand is professor, Department of Neurology, Indiana University School of Medicine. Correspondence may be sent to Dr. Bowman at the Indiana University School of Medicine, 541 Clinical Drive, Room 291, Indianapolis, IN 46202. E-mail: ebowman@iupui.edu.

Literature review: Pseudoseizures and life events

A connection between conversion symptoms (including seizures) and emotionally traumatic events was noted long ago by Janet (1907) and Briquet (Mai & Merskey, 1980). Childhood trauma has often been associated with pseudoseizures (Goodwin, Simms, & Bergman, 1979; Griffith et al., 1998; Liske & Forster, 1964). Snyder, Rosenbaum, Rowan, and Strain (1994) found major childhood trauma in 55% of pseudoseizure subjects. In five series, pseudoseizure patients generally reported higher rates of physical (15%–71%) and sexual (24%–58%) child abuse than is reported in the general population (Alper, Devinsky, Perrine, Vazquez, & Luciano, 1993; Arnold & Privitera, 1996; Betts & Boden, 1992; Bowman & Markand, 1996; Snyder et al., 1994). Pseudoseizure onset has been associated with incest in adolescents (Bowman, 1993; Goodwin et al., 1979; Griffith et al., 1998; LaBarbera & Dozier, 1980).

A variety of adulthood traumas are associated with pseudoseizures. Adulthood rape can be the sole precipitant (Bowman, 1993; Kloster, 1993; Nash, 1993; Shen, Bowman, & Markand, 1990). Other reports indicate that pseudoseizures occur when childhood physical or sexual abuse is followed by actual or symbolic adulthood trauma (Bowman, 1993; Blumer, Montouris, & Hermann, 1995; Griffith et al., 1998; Torem, 1993) such as surgery (Ward, McCarthy, & Nyman, 1988), accidents, sexual assault (Bowman, 1993; Nash, 1993), childbirth (Miller, 1983), physical assaults (Bowman & Markand, 1996; Kloster, 1993), and head injuries (Bowman, 1993; Lancman, Brotherton, Asconapé, & Penry, 1993; Liske & Forster, 1964). Adulthood domestic abuse is frequent in pseudoseizure subjects (Bowman & Markand, 1996) and has precipitated nonepileptic seizures decades after childhood sexual and physical abuse (Fakhoury, Abou-Khalil, & Newman, 1993).

Numerous reports note that depression, bereavement, and other losses are associated with pseudoseizures (Gardner & Goldberg, 1982–1983; Kloster, 1993; Lancman et al., 1993; Standage, 1975). These precipitants include miscarriages, divorce, children moving away (Gardner & Goldberg, 1982–1983), and the anniversaries of accidents or losses (Guberman, 1982; Ramchandani & Schindler, 1992).

Situational stresses such as illnesses (Guberman, 1982; Kloster, 1993; Liske & Forster, 1964; Parry & Hirsch, 1992; Ward et al., 1988), lawsuits, and job pressures (Guberman, 1982) have stimulated pseudoseizure onset. The most commonly noted stress is domestic problems or family conflict, found in one fifth to nine tenths of adult and adolescent subjects (Buchanan & Snars, 1993; Griffith et al., 1998; Lancman et al., 1993, 1994; Lempert & Schmidt, 1990). Acute situational stresses have been noted in 70% (Pakalnis, Drake, & Phillips,

1991) to 92% (Griffith et al., 1998) of adult and adolescent patients, and multiple concurrent life stresses in 11% (Bowman, 1993). The events that trigger pseudoseizures are not always discernible. One fifth of adult and adolescent subjects (Lancman et al., 1993, 1994) have no obvious social problems. Griffith et al. (1998) found that patients usually feel unable to articulate the distressing event, and it is minimized by family members. Precipitating events appear less obvious in patients with long psychiatric histories, but these events function as emotional traumas (Guberman, 1982).

The literature contains one study of the contributions of family dynamics (Griffith et al., 1998) but no systematic study of general patterns of life events that precipitate pseudoseizures. This study reports the results of systematic assessment of life events with the purpose of understanding their psychodynamic relationship to the onset or recurrence of pseudoseizures in adults.

Sample and method

Sample

Between 1991 and 1995, we studied 58 adults (35 women and 23 men) with pseudoseizures observed on video electroencephalogram (VEEG) at Indiana University's Video EEG Laboratory and Epilepsy Clinic. Pseudoseizures were defined as alterations of consciousness and/or involuntary motor movements that were not organic in origin, did not correlate with EEG abnormalities, and had been suspected by referring physicians of being seizures. This definition includes states of motionless unresponsiveness that were suspected petit mal epileptic seizures. Subjects below age 18, those with below normal intelligence, or with morphological central nervous system abnormalities were excluded. Nine subjects had concomitant epilepsy. The first 45 subjects were consecutive patients who represent the usual gender distribution of pseudoseizure patients (35 women, 10 men). These 45 subjects and the study method are fully described in Bowman and Markand (1996). We subsequently studied 13 more men to obtain a more adequate sample for gender comparison.

Method

After being informed of their diagnosis, subjects gave informed consent to participate in a study of psychiatric aspects of pseudoseizures. They completed questionnaires about personal history and trauma, then were interviewed for approximately 4 hours by a psychiatrist (ESB). Axis I diagnoses were made by structured diagnostic interviews (see Bowman & Markand, 1996). Life events associated with seizures were ascertained by unstructured interviews that systematically inquired about the onset and course of seizures, seizure morphology, childhood

caretakers, childhood and adulthood family relationships, education, military and vocational experiences, interpersonal and sexual relationships, economic situation, disability status, medical history, childhood and adulthood physical and sexual abuse, other traumas and losses, and personal and familial management of conflict and emotional expression. Subjects were also asked what they thought caused their seizures. Collateral information was obtained from medical records and, when available, from family members.

Using the dates of seizure onset, recurrence after quiescence, or worsening (noticeable increase of seizure frequency), and the dates of life events, the physician interviewer organized contributory life events into three temporal life event categories. These categories were chosen to provide clarity and consistency in discussing and conceptualizing contributing life events:

1. *Recent precipitants* are psychologically significant discrete events in the minutes to weeks before seizure onset or recurrence, with a plausible connection to the seizures.
2. *Contextual contributors* are ongoing life situations (e.g., marital strain) in which recent precipitants or seizure onset occurred, and which contributed to the seizures.
3. *Remote contributors* are discrete remote events (arbitrarily defined as more than 1 year before seizure onset or recurrence) that increased distress in response to recent events or had an apparent psychodynamic connection to the pseudoseizures.

The interviewer constructed a narrative in which the significance of life events was considered in light of the subject's life history, psychiatric diagnoses, psychodynamics, and the temporal relationship of events to the occurrence of pseudoseizures. Combinations of life events were examined for recurrent patterns across subjects. This method is limited by the accuracy of the patient and family, by the subjective nature of synthesizing narrative patterns, and by lack of a second psychiatrically trained rater to provide interrater reliability. However, this method replicates a clinical psychodynamic evaluation.

Results

Demographics

The mean age was 37.2 (SD = 9.19) years for women and 37.3 (SD = 10.2) for men. Twenty (86%) men and 20 (57%) women were married. Thirteen subjects (22%) were employed and 23 (40%) were on disability. The mean duration since seizure onset was 7.5 years (SD = 8.2).

Recent precipitants

Table 1 shows recent precipitating events. These diverse events appeared to precipitate pseudoseizures by arousing conflicted or unacceptable emotions to an intolerable level. Subjects often experienced more than one type of recent precipitant, but we could identify no recent precipitants in five subjects. Several recent precipitants were childhood events that triggered initial seizure onset during childhood. Accidents ranged from minor to severe and four involved head blows. The category of "clustered life stresses" was utilized when concurrent stresses existed in multiple life areas (e.g., job, marital, legal). Protracted bitter divorce or custody battles contributed to some clustered stresses.

Table 1. *Recent precipitants of onset, recurrence, or worsening of pseudoseizures*

Event	Adults $n = 58$		Females $n = 35$		Males $n = 23$	
	n	%	*n*	%	*n*	%
Accident, any type[a]	11	19	9	26	2	9
Nonvehicular	6	10	4	11	2	9
Auto accident	6	10	6	17	0	0[b]
Clustered life stresses	10	17	3	9	7	31[c]
Role change	10	17	4	11	6	26[d]
Personal illness or surgery	10	17	6	17	4	17
Bereavement or anniversary of loss	8	14	7	20	1	4
Relationship conflict	8	14	1	3	7	30[e]
Sexual events[f]	8	14	7	20	1	4
Contact with rapist or abuser	7	12	6	17	1	4
Spouse physical or sexual abuse	7	12	6	17	1	4
Job loss/pressures/conflicts	5	9	0	0	5	22[g]
No precipitant found	5	9	1	3	4	17

Less frequent immediate precipitants

$n = 3$: Contact with abused children.

$n = 2$: Separation from abusive spouse, impending career success, acute depression, family illness, nondomestic adult physical assault, adulthood rape.

$n = 1$: Parental abandonment (childhood onset), parental separation (childhood onset), pregnancy.

[a] One subject had vehicular and nonvehicular accidents.
[b] $z = 1.97$, $p = .002$. Footnoted items in the last column are comparisons of the proportions in female and male samples, using a two-sided z-test with application of continuity correction.
[c] $z = 1.71$, $p = .043$.
[d] $z = 1.38$, $p = .083$ (ns).
[e] $z = 2.40$, $p = .008$.
[f] Includes onset of menses, incestuous intercourse, first sexual activity, affairs, new romantic interest, and homosexual advances.
[g] $z = 2.13$, $p = .016$.

Men were significantly more likely than women to have pseudoseizures precipitated by job stresses or relationship conflicts, the latter conflicts nearly always involving family members. Over half of the role changes were relationship status changes (engagement, marriage, divorce). There was a nonsignificant trend for men to be more likely to have pseudoseizures precipitated by role changes ($p = .08$) and for women to be more likely to have them precipitated by sexual events ($p = .05$), by contact with a former abuser ($p = .10$), or by domestic abuse ($p = .10$). Contact or impending contact with their former abusers included stalking, assaults, and death threats from ex-husbands, and unexpected contact with childhood abusers.

Some recent precipitants were obvious because they were severe stresses (e.g., a recent rape) or were temporally close to seizure onset or recurrence. As Case 1 illustrates, some precipitants were not obvious until the subject's life history and current life context was explored.

Case 1: A less than obvious precipitant. Ms. A, a middle-aged woman without epilepsy, had initial onset of pseudoseizures in the context of an apparently stress-free life (satisfying job, marriage, and family life). In childhood she was abruptly separated from her parents and siblings because of extreme physical abuse. Her adoptive parents changed her first and last names, and vigorously denied her access to information about the location of her siblings. After becoming a parent, she felt an increasing desire to find her siblings. Seizures began shortly after she discovered that her adoptive mother had secretly blocked her siblings' recent attempt to locate her. In the interview, she expressed grief over her childhood losses and rage at her controlling adoptive mother. During follow-up, her seizures ceased when she was united with her lost siblings, who corroborated her child abuse memories.

Contextual contributors

In 44 subjects (76%), we noted that, in addition to discrete precipitating events, general life situations contributed to the occurrence of pseudoseizures. Usually the contributions of recent events and life contexts overlapped considerably. Distressing life contexts functioned to raise emotional distress to a level at which a recent precipitant served

as the "last straw" that caused pseudoseizures. For example, in Case 1, the final precipitant (learning that sibling contact had been denied) was particularly painful because of its context (a long-standing painful conflict over family identity and childhood losses).

The life contexts most commonly associated with pseudoseizure onset or recurrence included: (1) rising awareness of distress over childhood physical or sexual abuse experiences ($n = 13$); (2) chronically frustrating but seemingly inescapable situations ($n = 10$; examples included chronic interpersonal conflict at an economically inescapable job, being chronically exposed to a former assailant, and caring for ill or dying family members); (3) chronic marital tension or abuse ($n = 8$); (4) conflicts over family loyalties ($n = 6$; examples included being caught between an exploitive child and spousal disapproval of helping that child, or conflict between adult independence and maintaining attachment to an enmeshed or demanding family of origin). Other life contexts that contributed to seizures included a series of losses, anniversaries of inadequately grieved deaths ($n = 4$), chronic physical illness or pain, chronic legal battles, and middle-age job or life disappointments.

When contextual factors were present, they appeared more causally powerful than recent precipitants because they raised more intense affect. However, as Case 2 shows, conflicts created by life contexts may precipitate pseudoseizures by themselves.

Case 2: Trapped in a context. A young woman without epilepsy began having pseudoseizures in her senior year of high school. Her history was devoid of discrete precipitating events, significant losses, trauma, or obvious conflicts with family or peers. However, she told us that she believed her family expected her to attend college but she felt emotionally and academically unready. She had not revealed her feelings to her family out of fear of disappointing them. Her pseudoseizures expressed her anxiety over feeling trapped between disappointing her parents or enduring the humiliation of collegiate academic failure. After consultation, she revealed her feelings to her parents, who supported her decision to delay college. Her seizures soon stopped.

Remote life events

Remote life events were defined as occurring longer than 1 year before pseudoseizure onset or recurrence, and as having emotional consequences that appeared important in the genesis of pseudoseizures. We rated remote events as contributing to the pseudoseizures if discussion of them in the interview was accompanied by a marked emotional response, by the transient appearance of dissociative amnesia or conversion symptoms (seizures, paralysis, numbness, deafness, muteness), or by the subject's spontaneous statement that this event was related to the seizures. We also rated events as remote contributors if an exacerbation of feelings about these events occurred in connection with recent precipitating events. In some subjects, the importance of these events was confirmed by reports in follow-up interviews that seizures had ceased after the diagnostic interview or other psychotherapy had addressed feelings about these events.

Table 2 shows seven categories of remote events that contributed emotionally to pseudoseizures. Forty-two subjects experienced more than one category of these events. As Table 2 notes, some subjects experienced these events, but there was no evidence that the event contributed to seizures (i.e., feelings about it had been resolved or other events more adequately explained the seizures). Five categories (1–4 and 6 in Table 2) involved events before age 18 and six categories (1–2 and 4–7 in Table 2) involved overt trauma or abuse.

Discussion of any of these seven categories of remote contributors raised powerful, painful emotions during research interviews. We observed brief episodes of amnesia in 41% of subjects during discussions of remote traumas or the emotional conflict underlying the seizures. Because of emotional pain, temporal remoteness, or partial amnesia, most subjects revealed these remote stressors only in response to systematic inquiry. They often admitted they had tried for years to avoid thoughts or feelings about these events. Forty (69%) of our subjects had medically unexplained childhood amnesia, which diminished their recall of remote stressors, so our assessment of these stressors is incomplete. Childhood amnesia was significantly more common among women ($n = 30$, 86%) than men ($n = 10$, 43%, $p < .001$, z test). In the following discussion, we will address the nonviolent remote events, then consider both the remote and recent occurrence of violent and abusive life events.

Nonviolent remote precipitants. We found two solely emotionally traumatic types of remote events: childhood parental rejection/belittlement and families who created double-binds about anger (categories 3 and 6 in Table 2). These types of events contributed to the seizures of 25 (43%) subjects, but co-occurred with physical or sexual assault in 19 of them. Five of these 25 subjects reported both parental rejection and other, more specific anger-engendering parental behaviors. We classified the solely emotional categories as remote contributors rather than life contexts because they were rarely ongoing events at the time the seizures began. However, they

Table 2. *Remote life events in 58 pseudoseizure patients*

Event	Adults $n = 58$		Females $n = 35$		Males $n = 23$	
	n	%	*n*	%	*n*	%
1. Childhood sexual abuse						
Remote contributor	28	48	19	54	4	17
Occurred but did not contribute	6	10	3	9	3	13
2. Childhood physical abuse						
Remote contributor	20	34	15	43	5	22
Occurred but did not contribute	5	9	4	11	1	4
3. Chronic parental emotional rejection (with or without other abuse)	19	33	12	34	7	30
4. Other childhood traumas or abandonment[a]						
Remote contributor	14	24	7	20	7	30
Occurred but did not contribute	8	14	8	23	2	9
5. Adulthood physical assaults/life threats						
Remote contributor	13	22	8	23	5	22
Occurred but did not contribute	2	3	0	0	2	9
6. Anger-engendering/violent family that hindered subject's anger expression						
Remote contributor	11	19	6	17	5	22
7. Nonfamilial rape (late adolescence or adulthood)						
Remote contributor	11	19	11	31	0	0
Occurred but did not contribute	1	2	1	3	0	0

Note. Events 1, 2, 4, 5, and 7 also occurred as immediate precipitants in some subjects. Data on these events as immediate precipitants are not included in this table.
[a]This event category includes being orphaned, neglected, abandoned, kidnapped, or exposed to prolonged domestic violence, or experiencing similar events.

had operated over time to create adults with great emotional pain but no safe way to express it.

We identified families that created double-binds around the expression of anger by asking how anger and conflict were handled by each parent and by the subjects in childhood and adulthood. Subjects described three constellations of these families: (1) a father who expressed anger violently (at the subject or others) and a mother who minimized violence by avoiding conflict or anger; (2) families in whom any expression of anger was completely avoided; and (3) families in which the child was provoked or criticized and then severely punished if she or he responded in anger. Subjects from the first two types of families often stated that anger was too destructive to be risked. They could identify no model for appropriate expression of anger. Subjects from the third type varied in their awareness of their anger.

Half of the anger double-binding families had also emotionally rejected the subjects during childhood. These subjects reported overt and persistent verbal degradation or criticism, such as the parents calling the child worthless or wishing the child had never been born. Some families also neglected these children or abandoned their care to others. These subjects voiced chronic low self-esteem and many were quite depressed.

Abusive and violent precipitating events (remote and recent). Abusive and violent events were the most common type of remote precipitating event; they had occurred in childhood (e.g., physical and sexual abuse, witnessing violence, and other traumas) as well as adulthood. We are combining discussion of their recent and remote occurrence.

The most common type of adulthood physical assault was domestic abuse (defined as battery by a spouse or partner causing visible tissue damage), shown combined with domestic sexual assault in Table 1 and shown in Table 2 in combination with nondomestic adulthood physical assaults and serious life threats (e.g., military trauma, assaults by strangers, death threats, and stalking). Domestic sexual assault was never reported by men, and co-occurred with domestic physical assault in seven of the nine women who reported it. It was not possible to accurately discern the individual contributions to pseudoseizures of remote domestic physical versus sexual assault. Domestic physical assaults occurred recently or remotely in 20 subjects (34%; 19 women, 1 man) and contributed to pseudoseizures in 15 (26%) of them (7 as recent events shown in Table 1, and 8 as remote events shown in Table 2).

Taken together, adulthood assaults (domestic and nondomestic) and life threats were common and equally likely to be remote ($n = 13$, category 5 of Table 2) or recent ($n = 11$, Table 1 categories of spouse assault, adulthood rape, other adulthood physical assault). Regardless of when they occurred, adulthood assaults or life threats generated powerful emotional distress. Traumatic events involving physical integrity (childhood physical and sexual abuse, rape, and adulthood assaults/life threats combined) contributed to seizures in 40 subjects (69%) and were temporally remote in 37 subjects (64%). These data suggest that in influencing dissociation and conversion seizures, the

occurrence of trauma may be more important than how recently it occurred.

In some subjects, initial pseudoseizure onset occurred before age 18, so some childhood physical or sexual abuse and trauma was classified as a recent (or ongoing) stressor. Childhood or adolescent traumas in general (physical or sexual abuse, other childhood trauma, and parental emotional rejection) appeared to contribute to the seizures of 38 subjects (65%) and were remote to seizure onset in 35 subjects (60%). The narrower category of childhood physical or sexual abuse appeared to contribute in 30 subjects (52%) and was remote to seizure onset in 28 (48%) subjects. Remote childhood physical or sexual abuse appeared related to seizure occurrence significantly more often in females (n = 22, 63%) than in males (n = 6, 26%, $p < .002$, $z = 2.99$).

Patterns of life events associated with seizures

Table 3 shows four patterns of contributing events that were seen recurrently in our subjects. The first column shows the frequency of these patterns in a sample of 45 consecutively recruited subjects with the usual gender ratio of pseudoseizure subjects, that is, a group representative of tertiary care patients. Larger samples of male and female subjects are shown in the other columns to illustrate gender differences in distribution of these patterns.

1. The most common pattern, occurring in one half of consecutive subjects, was reactivation of emotions about childhood physical or sexual abuse by a variety of adulthood precipitants. This pattern occurred significantly more frequently in women than in men. In this group, adulthood precipitants included physical and sexual trauma (e.g., spouse abuse) or events that symbolized or awakened feelings about earlier trauma (e.g., an incest victim discovering that her abuser had also molested her children). For several subjects, sexual conflicts or emotional constriction related to childhood physical or sexual abuse left them unable to cope with adulthood stresses.

Case 3: Adult reminders of child abuse. Mr. C, a young married man with pseudoseizures and suspected concomitant epilepsy, reported partial amnesia for repeated anal rapes in early adolescence by a male neighbor in the patient's own bedroom. In adulthood, he began having episodes of amnesia on moving back to his hometown and sleeping in the house where he had been raped. He reported an episode of dissociation, followed by increasing awareness of feelings about his sexual abuse after casually reencountering his rapist. Several years later, in his employment position, he discovered the physical and sexual abuse of several children but was unable to get prompt action from child protection

Table 3. ***Life event pathways to pseudoseizures***

	Consecutive adults		Gender Comparison Samples: Women		Men	
	n = 45		n = 35		n = 23	
	n	%	n	%	n	%
1. Child abuse, adult sequelae						
A. Child abuse, then adult trauma or reminders of abuse	23	51	22	63	4	17[a]
B. Abuse-related vulnerability to adult stresses[b]	2	4	2	6	2	9
2. Repressed anger plus life stress	11	24	5	14	8	35
3. Late adolescent or adult trauma[c]	6	13	5	11	2	9
4. Adult stresses (unrelated to abuse or chronic anger)	3	7	1	3	7	30[d]

Note. To highlight gender differences, a larger sample (n = 58) is analyzed in columns 3–6. The sample of consecutive adults shows distribution of these pathways in a gender-balanced population of subjects.

[a] $z = 3.588$, $p = .0001$. Comparisons are male vs. female, using the two-sided z-test with continuity correction.

[b] For females, this category was child sexual abuse followed by adult sexual conflicts. For males, it was other abuse that contributed to conflicts over functioning in adult roles.

[c] Three subjects in this group had extensive childhood amnesia that precluded assessment of childhood trauma.

[d] $z = 2.399$, $p = .008$.

services. He reported subsequent rising anger over his own child abuse. Very shortly thereafter, VEEG-diagnosed pseudoseizures began during a marital disagreement that angered and disempowered him. He was found to have a dissociated ego state that caused seizures when he felt trapped between intolerable rage and fear of expressing it violently. All seizure activity stopped promptly when he began psychotherapy that addressed expression of anger and feelings about his sexual abuse.

2. The second pattern, found in one fourth of subjects, is chronic avoidance of anger followed by a series of adulthood frustrations. This was more common in men than in women. These subjects usually came from families who exhibited dysfunctional handling of anger. They calmly denied feeling anger or voiced distorted beliefs about it. Their inability to be angry was often noted by their spouses. Ordinary midlife

family or job disappointments precipitated these subjects' pseudoseizures as they raised lifelong frustrations to an intolerable level. For some, their pseudoseizures took the form of a shaking fist or punching movements.

Mr. D's situation (Case 4) illustrates the second pattern. His only familial model for anger expression was violence, so he believed he had no acceptable outlets. In the interview, he was unable to recognize frustration as a form of anger or to vent it verbally. He demonstrates how a seemingly minor event can precipitate pseudoseizures when added to child abuse, current life frustrations, and inability to handle anger.

Case 4: Anger. Mr. D, a married man in his 30s without epilepsy, reported the first onset of seizures within hours after being served with legal demands for more child support during a very protracted legal battle that had included threats to his life and destruction of property. Other current stresses included financial problems, conflicts with stepchildren, and health problems. He described helpless rage during childhood as his father severely berated him, beat his mother, and molested his sisters. He coped with his anger via antisocial acts and drug abuse until substance abuse treatment and a religious conversion terminated use of these defenses. Subsequently he became depressed as legal harassment replicated his childhood feelings of helpless rage in the face of maltreatment of himself and others. He admitted fear of expressing his anger because of his violent history and religious proscriptions. He felt anger when emerging from his seizures.

3. The third pattern, seizures related to purely adult trauma, was less common, but the precipitants were more severe and obvious. Usually these subjects' seizures expressed the terror they dissociated during serious accidents, adulthood rapes, or assaults. Half of these subjects had such extensive childhood amnesia that we were unable to determine whether they had also experienced childhood trauma.

Case 5: Purely adult trauma. Ms. E, a single woman in her mid-20s without epilepsy, denied childhood traumas but was raped by an acquaintance in early adulthood. Her family downplayed the importance of this rape and discouraged her from talking about it. Her pseudoseizures began several months later, when she reencountered her rapist and he tried to physically assault her. The seizures stopped when she moved to a different city. Several years later, she returned to the town where she had been raped and her seizures recurred within a week of seeing her assailant in a public place. Her pseudoseizures and an accompanying partial conversion paralysis replicated her description of her physical position and restricted movements during her rape.

4. The fourth pattern, pseudoseizures in response to solely nontraumatic adulthood stresses, was generally seen in patients with a low normal range of intelligence or in persons with very immature coping abilities. This pattern is probably underrepresented in our sample because we excluded persons with IQs below 80. Many of these subjects exhibited alexithymia or used exclusively cognitive means of coping. Three subjects were diagnosed with seizures because they were recurrently entering dissociative trance states to cope with everyday life. Among the fourth group, precipitating stresses included chronic physical pain or overwhelming losses in close succession.

Case 6: Adult stresses and inadequate emotional outlets. Mr. F, a middle-aged married male without epilepsy, had onset of pseudoseizures (generalized trembling) shortly after the sudden cardiac death of a close brother. Mr. F reported an unremarkable childhood. However, several decades earlier, his father had died suddenly of heart disease hours after they had parted during an argument. Subsequently he became terrified whenever he felt angry. In the 5 years preceding his seizure onset, he had lost four other relatives and had experienced chronic physical pain that had forced him into an unwanted retirement. In the interview, he tearfully acknowledged that unresolved guilt and grief related to his father's death had been reactivated by his recent losses. His trembling episodes improved after he visited his father's and brother's graves and said farewell to them.

The lives of human beings are rarely simple, so some subjects had life event patterns and dynamics found in more than one of these four general patterns, but nearly all subjects exhibited one predominant pattern. A lifelong inability to detect or express strong emotions (partial or total alexithymia) contributed to the pseudoseizures of 10 of our subjects, but this is a psychodynamic vulnerability rather than a precipitating event or "life context." All 10 subjects had lifelong difficulty with expression of anger, three with grief, and two with anxiety. Seven of them were men from families who equated masculinity with stoicism.

Discussion

Study limitations

This study's tertiary care center subjects (adults, half with quite chronic seizures) limit the applicability of these data to acute-onset subjects,

minors, or persons with below normal intelligence. Our broad definition of pseudoseizures (including motionless, unresponsive states) limits the application of these data to pseudoseizure subjects with solely a movement type of conversion disorder, but our definition makes these data applicable to the broad variety of nonepileptic episodes seen in VEEG laboratories. Our data are also limited by the necessarily subjective process of psychodynamic interviewing and by the absence of a psychiatrically trained second rater to provide interrater agreement about classifying precipitating events. The statistical power of gender comparisons is also limited by the fairly small sample size. These comparisons provide trends as a guide for clinical interviewers and for further research.

The classification of events into immediate, contextual, and remote precipitants is the most subjective aspect of this study and should be considered as a conceptual paradigm for approaching interviews rather than as hard and fast historical categories. While baseline general population rates are available for childhood physical and sexual abuse and adulthood rape, base rates for other stressors are lacking. This limits the certainty of our conclusions that certain nonabusive events are causally linked to pseudoseizures. The best evidence for this link is the disappearance of the seizures when these issues were addressed in treatment. In addition, our findings are congruent with the recent description of other researchers (Griffith et al., 1998) that nonabusive emotional double-binds in families contribute to pseudoseizures.

Events and emotions: Four factors

Although each patient has a unique history, contributory life events fall into a few general patterns (Table 3). These patterns are discernible by noting the interaction of four factors: remote events, life contexts, recent precipitants, and individual management of affect. We found that inquiry about these four factors greatly facilitates an investigation of the cause of pseudoseizures. Our observations about the contributions of life contexts (i.e., current and past family dynamics), abuse, and impaired affect managment are similar to Griffith et al.'s (1998) findings that stressors combine with conflict over verbalizing distress to produce pseudoseizures.

We found that pseudoseizures generally begin because of a series of adverse events rather than a single event. Patients with chronic pseudoseizures are frequently traumatized people in whom recent precipitants trigger seizures that express distress over a variety of painful events. Traumatized patients frequently had dissociated awareness of distress and were unable to verbalize it. Among those without prior traumas, we found personal or familial patterns of avoiding

discussion of conflict or expression of affect, as might be expected with conversion symptoms.

We believe that the gender differences we found in patterns of events causing pseudoseizures are related to gender-based differences in expressing feelings (more censured in males), and to the significantly higher rates of childhood physical and sexual abuse and adulthood sexual trauma reported by women subjects (Bowman & Markand, 1996). We hypothesize that men were less likely than women to manifest pseudoseizures in response to adulthood traumas because their adulthood traumas less often overlay unresolved or dissociated feelings about childhood trauma. Instead, among men, family and cultural socialization to avoid expression of feelings, especially sadness and anger, appeared to play a larger role in generating pseudoseizures.

Guidelines for assessing causes of pseudoseizures

When assessing events as possible precipitants of pseudoseizures, we suggest that interviewers keep six observations in mind:

1. The significance of the recent event is often understandable only after discerning the patient's history of prior trauma and conflicted relationships.
2. The recent precipitant (e.g., marrying) is usually not the seizure's ultimate emotional cause (e.g., reawakened terror about prior domestic abuse).
3. The recent "precipitant" may not be a single event but a cluster of events that raise distress to an intolerable point.
4. Pseudoseizure sufferers are often less aware of contextual contributors because they are accustomed to them. These contexts can be discovered by asking about general satisfaction with a range of life situations, such as employment, parenting, marriage, economics, and the like.
5. An apparently mundane recent precipitating event may be a real or symbolic "last straw" that overwhelms defenses against barely contained feelings. The significance of seemingly minor precipitating events (e.g., returning to one's childhood home) is easily overlooked if interviewers fail to inquire about past conflicts or traumas (e.g., being raped in that home). Interviewers who only look for recent obvious stressors will fail to detect many precipitating events. Our findings support the observations of Guberman (1982), Lancman et al. (1993, 1994), and Griffith et al. (1998) that in a minority of subjects, precipitants are not easily discerned.
6. Among persons with prior physical and sexual abuse, recent events can function as potent reminders of past traumas. These

events ranged from mild (being battered by minor accidents) to severe (sexual assault), and often raised feelings similar to those from past traumas (e.g., physical pain, helplessness). These patients frequently had dissociated ego states that expressed distress over past abuse via seizures (Bowman & Markand, 1996). We conclude that dissociation of affect about remote traumas predisposes to conversion seizures by making the affect unavailable for verbal processing. It is imperative to ask pseudoseizure patients about significant remote events when attempting to discover the cause of pseudoseizures, but be aware that remote trauma may be present without contributing emotionally to the seizures. Most subjects were willing to divulge trauma when asked, but, like Betts and Boden (1992), we encountered some initial shame-based denial of abuse. Disclosure was aided by building rapport and conveying empathy, then gently asking about abuse near the end of the interview. Questions about remote trauma sometimes triggered cathartic expressions of affect. Unintentionally, some diagnostic interviews served as therapeutic experiences that were followed by seizure cessation.

Beneath a wide variety of immediate precipitating events, we found only a few underlying emotional causes of pseudoseizures. We propose that the immediate precipitants of pseudoseizures serve four psychological functions: (1) arousing affect about past trauma or abuse, (2) raising chronic suppressed anger to an intolerable level, (3) arousing anxiety or sadness over past or impending losses, and (4) arousing feelings of entrapment in interpersonal conflicts without perceived escape or acceptable verbal outlets.

Conclusions

To structure interviews, we recommend inquiring about three categories of precipitating events: recent events, life contexts, and remote events. It is the *personal meaning* of the event, not its temporal relationship to the pseudoseizures, that determine's the event's causal importance. Traumatic remote events and ongoing relationship conflicts often contribute heavily to the occurrence of pseudoseizures. Exploring them is critical to understanding the significance of immediate precipitants and the emotional cause of the seizures. Recent precipitating events may appear insignificant if their connection to the past and their symbolic significance are not understood. We recommend asking every patient about remote trauma and looking for recent situations that might arouse feelings about these events.

Immediate precipitants are diverse and less obviously traumatic; remote events are less diverse and more traumatic, and some "precipitants" are not discrete events, but a socialized lifelong avoidance of expressing affect or dealing with interpersonal conflict. In such patients, anger-engendering or emotionally unexpressive families are often evident. Interviewers should look for four general patterns of remote and recent life events, two related to trauma and two related to inadequate expression of affect.

References

Alper, K., Devinsky, O., Perrine, K., Vazquez, B., & Luciano, D. (1993). Nonepileptic seizures and childhood sexual and physical abuse. *Neurology, 43*, 1950–1953.

Arnold, L. M., & Privitera, M. D. (1996). Psychopathology and trauma in epileptic and psychogenic seizure patients. *Psychosomatics, 37*, 438–443.

Betts, T., & Boden, S. (1992). Diagnosis, management and prognosis of a group of 128 patients in non-epileptic attack disorder: Part II. Previous childhood sexual abuse in the aetiology of these disorders. *Seizure, 1*, 27–32.

Bjornes, H. (1993). Aetiological models as a basis for individualized treatment of pseudo-epileptic seizures. In L. Gram, S. I. Johannessen, P. O. Osterman, & M. Sillanpaa (Eds.), *Pseudo-epileptic seizures* (pp. 81–98). Petersfield, United Kingdom: Wrightson Biomedical.

Blumer, D., Montouris, G., & Hermann, B. (1995). Psychiatric morbidity in seizure patients on a neurodiagnostic monitoring unit. *Journal of Neuropsychiatry, 7*, 445–456.

Bowman, E. S. (1993). Etiology and clinical course of pseudoseizures: Relationship to trauma, depression, and dissociation. *Psychosomatics, 34*, 333–342.

Bowman, E. S., & Markand, O. N. (1996). Psychodynamics and psychiatric diagnoses of pseudoseizure subjects. *American Journal of Psychiatry, 153*, 57–63.

Buchanan, N., & Snars, J. (1993). Pseudoseizures (non epileptic attack disorder)—Clinical management and outcome in 50 patients. *Seizure, 2*, 141–146.

Fakhoury, T., Abou-Khalil, B., & Newman, K. (1993). Psychogenic seizures in old age: A case report. *Epilepsia, 34*, 1049–1051.

Gardner, D. L., & Goldberg, R. L. (1982–1983). Psychogenic seizures and loss. *International Journal of Psychiatry in Medicine, 12*(2), 121–128.

Goodwin, J., Simms, M., & Bergman, R. (1979). Hysterical seizures: A sequel to incest. *American Journal of Orthopsychiatry, 49*, 698–702.

Griffith, J. L., Polles, A., & Griffith, M. E. (1998). Pseudoseizures, families and unspeakable dilemmas. *Psychosomatics, 39*, 144–153.

Guberman, A. (1982). Psychogenic pseudoseizures in non-epileptic patients. *Canadian Journal of Psychiatry, 27*, 401–404.

Janet, P. J. (1907). *The major symptoms of hysteria*. New York: Macmillan.

Kloster, R. (1993). Pseudo-epileptic versus epileptic seizures: A comparison. In L. Gram, S. I. Johannessen, P. O. Osterman, & M. Sillanpaa (Eds.), *Pseudo-epileptic seizures* (pp. 3–16). Petersfield, United Kingdom: Wrightson Biomedical.

LaBarbera, J. D., & Dozier, E. (1980). Hysterical seizures: The role of sexual exploitation. *Psychosomatics, 21*, 897–903.

Lancman, M. E., Asconapé, J. J., Graves, S., & Gibson, P. A. (1994). Psychogenic seizures in children: Long-term analysis of 43 cases. *Journal of Child Neurology, 9*, 404–407.

Lancman, M. E., Brotherton, T. A., Asconapé, J. J., & Penry. J. K. (1993). Psychogenic seizures in adults: A longitudinal analysis. *Seizure, 2,* 281–286.
Lempert, T., & Schmidt, D. (1990). Natural history and outcome of psychogenic seizures: A clinical study in 50 patients. *Journal of Neurology, 237,* 35–38.
Liske, E., & Forster, F. M, (1964). Pseudoseizures: A problem in the diagnosis and management of epileptic patients. *Neurology* (Minneapolis), *13,* 41–49.
Mai, F. M., & Merskey, H. (1980). Briquet's *Treatise on Hysteria. Archives of General Psychiatry, 37,* 1401–1405.
Miller, H. R. (1983). Psychogenic seizures treated by hypnosis. *American Journal of Clinical Hypnosis, 25,* 248–252.
Nash, J. L. (1993). Pseudoseizures: Etiologic and psychotherapeutic considerations. *Southern Medical Journal, 86,* 1248–1252.
Pakalnis, A., Drake, M. E., & Phillips, B. (1991). Neuropsychiatric aspects of psychogenic status epilepticus. *Neurology, 41,* 1104–1106.
Parry, T., & Hirsch, N. (1992). Psychogenic seizures after general anaesthesia [Letter to the editor]. *Anaesthesia, 47*(6), 534.
Ramchandani, D., & Schindler, B. A. (1992). Distinguishing features of pseudocomplex partial seizures. *Bulletin of the Menninger Clinic, 56,* 479–486.
Shen, W., Bowman, E. S., & Markand, O. N. (1990). Presenting the diagnosis of pseudoseizure. *Neurology, 40,* 756–759.
Snyder, S. L., Rosenbaum, D. H., Rowan, A. J., & Strain, J. J. (1994). SCID diagnosis of panic disorder in psychogenic seizure patients. *Journal of Neuropsychiatry and Clinical Neurosciences, 6,* 261–266.
Standage, K. F. (1975). The etiology of hysterical seizures. *Canadian Psychiatric Association Journal, 20,* 67–73.
Torem, M. S. (1993). Non-epileptic seizures as a dissociative disorder. In A. J. Rowan & J. R. Gates (Eds.), *Non-epileptic seizures* (pp. 173–179). Boston: Butterworth-Heinemann.
Ward, P. E., McCarthy, D. J., & Nyman, G. W. (1988). Podiatric implications of psychogenic seizures. *Journal of Foot Surgery, 27,* 222–225.