

Episodic Psychic Symptoms in the General Population

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Summary: The frequency of some episodic psychic symptoms (dysmnestic, perceptual, and experiential) was determined in a 2,500-subject general population sample. Correlations with some risk factors eventually associated with nervous system dysfunctions (seizure history, head injury, car accident, hospitalization, febrile illness, and birth injury) were calculated. Subjects with one or several risk factors were more likely to report episodic psychic

phenomena in daily life. Significant correlations of episodic psychic phenomena with sleep disorders, headache, allergies, and a history of learning disabilities were observed. We propose that some subclinical dysfunctions can be associated with the appearance of episodic psychic phenomena in otherwise normal subjects. **Key Words:** Psychic partial seizures—Temporal lobe—Epilepsy.

Some phenomena observed in complex partial and psychic partial seizures (Daly, 1975, 1982; Ardila, 1989; Commission, 1981, 1985, 1989) are also observed as nonpathologic phenomena in the general population. Unfortunately, because few studies have analyzed the frequency in a population of normal individuals, it is difficult to appreciate the true clinical significance of such phenomena. Do they represent contingent random phenomena with little clinical significance? Conversely, do they indicate the existence of minor central nervous system (CNS) dysfunctions, reflected in sporadic presentation of these psychic partial phenomena?

Roberts et al. (1990) developed a partial seizure-symptoms questionnaire and observed that although normal individuals do report experiencing partial seizurelike symptoms, such symptoms are quite rare in the general population. Reporting partial seizurelike symptoms is significantly increased among individuals who report having risk factors for potential cerebral dysfunction, however, and it is highest in individuals with documented mechanical or thermal brain trauma. Roberts et al. (1990) proposed that the experiencing of partial seizure phenomena can be conceptualized as a continuum ranging from a healthy, essentially symptom-free state to overt CNS dysfunction with multiple seizure symptoms.

Psychic partial seizures (usually considered "temporal lobe seizures") include: (a) dysmnestic seizures (*déjà-vu*, *jamais-vu*, memory gaps), (b) perceptual seizures (illusions and hallucinations, mainly visual, auditory, and olfactory), (c) cognitive seizures (depersonalization, derealization, forced thought), (d) affective seizures (fear, anxiety), and (e) dysphasic seizures (forgetfulness of words, paraphasias, difficulties in understanding language) (Daly, 1975, 1982; Commission, 1981, 1985, 1989). The purposes of our research were (a) to establish the frequency of episodic psychic symptoms in the general population, and (b) to correlate these episodic psychic symptoms with a series of variables potentially indicative of minor CNS dysfunctions.

METHOD

Subjects

A sample of 2,500 nonpaid volunteer students (1,244 men and 1,256 women) from different universities in Bogotá, Colombia was selected. Average age was 24.07 years (SD 5.49, range 17–50).

Instrument

An adapted version of the questionnaire of Roberts et al. (1990), including 72 questions, was used. This questionnaire was designed to establish (a) the frequency of some perceptual, experiential, and dysmnestic partial symptoms in the general population; (b) the frequency of some CNS risk factors

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and their correlations with the psychic partial symptoms; and (c) the frequency of some associated dysfunctions and their correlations with the psychic partial symptoms (described in the Appendix).

The first part of the questionnaire (32 items) was designed to determine the frequency of some episodic psychic symptoms ("symptomatic variables"). Items were rated on the following 5-point scale: 0, never; 1, less than once a month; 2, at least once a month; 3, at least once a week; and 4, at least several times a week. The second part of the questionnaire (40 items) included three types of questions: (a) general demographic data, (b) some possible risk factors ("predicting variables"), and (c) some associated disorders ("associated variables"). For the two last types of questions, a dichotomous yes/no answer was used (for some questions, the answer, "I do not know," was allowed).

Procedure

Once the information was collected, a Pearson's product-moment correlation (correlation of predicting any associated variables with symptomatic variables) was applied with an SPSS program. A factor analysis of symptomatic variables was performed,

and a correlation matrix of associated variables was constructed.

RESULTS

Table 1 shows the distribution of the responses. About 50% of the cases had scores of 0 ("never"), indicating that in the studied population, the frequency of psychic partial symptoms was low. The events most frequently reported were dysphoric spells, episodic euphoria, religiousness, sweating, excessive shyness, and déjà-vu. The most unusual phenomena were unrecalled behaviors, sexual failure, somatosensory illusions, and suicidal ideation. A significant dispersion in scores was observed. Although average scores were ~0-1, a varying percentage of subjects had scores of 2, 3, and even 4.

Correlations between predicting variables (risk factors) and symptomatic variables (episodic psychic symptoms) were calculated. A $p < 0.0001$ level of significance was selected. Seizure history was significantly correlated with seven symptomatic variables (episodic vertigo, visual fixation, confusional spells, environmental distortion, paranoia, episodic anxiety, and suicidal ideation). Head

TABLE 1. Percentage of response in each category

Variables	0 (Never)	1 (Less than once a month)	2 (At least once a month)	3 (At least once a week)	4 (At least several a week)
1. Déjà-vu	9.48	33.68	39.76	12.60	4.48
2. Jamais-vu	47.88	29.32	16.16	4.88	1.76
3. Unrecalled behaviors	72.52	17.72	7.36	1.88	0.52
4. Memory gaps	45.96	28.68	17.80	5.56	2.00
5. Visual illusions	34.36	26.88	24.16	10.64	3.96
6. Illusion of movement	40.20	33.68	19.28	5.44	1.40
7. Auditory illusions	42.12	32.64	18.24	5.60	1.40
8. Episodic tinnitus	25.40	34.72	25.56	11.28	3.04
9. Haptic illusions	46.44	29.24	16.88	5.80	1.64
10. Somatosensory illusions	72.48	17.00	7.56	2.12	0.84
11. Olfactory illusions	41.84	29.92	17.16	8.24	2.84
12. Gustatory illusions	49.68	30.12	14.08	5.00	1.12
13. Visual hallucinations	63.36	20.88	11.08	3.52	1.16
14. Episodic vertigo	25.44	36.76	23.96	10.64	3.20
15. Visual fixation	33.36	33.00	19.40	10.32	3.92
16. Episodic anomia	18.08	37.52	29.40	11.72	3.28
17. Syllabic iterations	51.04	30.08	12.04	4.84	2.00
18. Confusional spells	41.64	32.88	17.56	6.44	1.48
19. Environmental distortion	46.80	31.84	14.92	4.88	1.56
20. Impending doom	48.24	26.24	14.84	7.52	3.16
21. Paranoia	46.88	30.20	15.16	5.76	2.00
22. Religiousness	23.48	28.36	24.96	16.40	6.80
23. Dysphoric spells	16.24	29.72	28.68	17.36	8.00
24. Episodic euphoria	17.92	28.08	29.28	17.56	7.16
25. Temper outburst	30.44	31.84	21.32	11.44	4.96
26. Episodic anxiety	34.56	32.04	20.76	9.32	3.32
27. Suicide ideation	75.88	13.88	5.20	2.88	2.16
28. Mental decline	42.80	32.84	15.64	6.36	2.36
29. Excessive shyness	27.68	30.72	21.96	13.16	6.48
30. Sexual failure	76.24	14.96	5.32	1.96	1.52
31. Sweating	22.48	33.20	25.08	12.64	6.60
32. Tachycardia	44.60	25.92	17.56	8.28	3.64

trauma history was correlated with five symptomatic variables (visual illusions, auditory illusions, episodic vertigo, visual fixation, and confusional spells). Car accidents were correlated with unrecalled behaviors, visual hallucinations, syllabic iterations, and tachycardia. Febrile illness was correlated with 19 of the symptomatic variables. Hospitalization with unrecalled periods correlated with three symptomatic variables (paranoia, dysphoric spells, and episodic anxiety), and a positive history of birth hypoxia (to the subjects' knowledge) correlated significantly with six symptomatic variables (episodic vertigo, visual fixation, confusional spells, environmental distortion, episodic anxiety, and tachycardia).

Correlations between symptomatic and associated variables were calculated. Overall, associated variables showed highly significant correlations with the presence of psychic partial symptoms. In our sample, women reported a significantly increased frequency of vertigo or dizziness without any apparent reason (episodic vertigo), as well as sudden mood changes such as depression (dysphoric spells) and anxiety (episodic anxiety). Loss of memory and concentration (mental decline) was also more frequently reported by female subjects.

Allergy history correlated with 16 symptomatic variables. Dysphoric spells and episodic vertigo showed the highest correlations. Strikingly, self-reported headache (migraine type) appeared as the second most important associated variable for the psychic partial phenomena considered. Headache history was correlated with 29 of 32 symptomatic variables. The highest correlations were noted for episodic anxiety, sweating, episodic anomia, and dysphoric spells. The probable history of developmental learning problems (specifically dyslexia) correlated with 15 symptomatic variables; among such variables, the word "forgetfulness" (episodic anomia) represented the highest correlated symptomatic variable.

Use of psychoactive drugs correlated significantly with suicidal ideation and episodic anxiety. Suicide attempt history correlated significantly with 22 of 32 symptomatic variables. Illusions and hallucinations, confusional spells, environmental distortion, impending doom, and paranoia were significantly increased in subjects with a positive history suicide attempt.

Sleep pathologies, especially irresistible sleepiness, correlated with all symptomatic variables analyzed, thus appearing as the strongest variable. Somnambulism history correlated with 22 of the symptomatic variables. The sleeping disorders considered thus showed a highly significant correlation

with the appearance of episodic psychic symptoms. For all the abovementioned correlations, a significance level of $p < 0.0001$ was observed.

A principal component analysis with varimax rotation of the 32 symptomatic variables was performed with an SPSS statistical package. This analysis extracted five principal factors with an Eigen value > 1.00 , which accounted for 45.4% of the variance (Table 2). Factor I (Eigen value = 9.18, 28.7% of the variance) was measured mainly through variables analyzing changes or fluctuations in mood (mainly dysphoric spells, episodic euphoria, and temper outburst). Factor II (Eigen value = 1.71, 5.4% of the variance) was related with variables analyzing the presence of illusions and hallucinations (mainly episodic tinnitus, gustatory illusions, and olfactory illusions). Factor III (Eigen value = 1.30, 4.1% of the variance) was associated with feelings of failure and deterioration (mainly sexual failure, excessive shyness, and mental decline). Factor IV (Eigen value = 1.29, 4.0% of the variance) and factor V (Eigen value = 1.01, 3.2% of the variance) were associated with self-reported memory abnormalities (mainly unrecalled behaviors, jamais-vu, and memory gaps).

Finally, a matrix of correlations among the different associated variables was constructed. Such correlations are shown in Table 3. Some of those correlations are of particular significance. Headache (migraine type) correlated especially with sex (as expected, headaches were significantly more frequent among women). Women also had increased frequency of allergies and sleep disorder. Suicide attempt history correlated significantly with drug abuse, sleep disorders, and learning difficulty history. In general, correlations were low, although they appear to be statistically significant.

DISCUSSION

This study has an important set of restraints, as is typical of every epidemiologic study. Analyses were made based simply on the answers given by the subjects. There are individual differences with regard to proneness to answer in a specific way. The questionnaire has not been validated, and the responses may be those of individuals who tend to respond positively. Some of the questions posed were not easy to answer (e.g., hypoxia); as a result, there were many "I don't know" answers. Nevertheless, overall trends can be distinguished and significant correlations can be inferred to be generally valid for large populations.

Even though normal subjects occasionally reported one or several episodic psychic symptoms,

TABLE 2. Factor structure of the symptomatic variables

Variables	Factors				
	I	II	III	IV	V
1. Déjà-vu	0.21	0.19	-0.02	0.42	0.11
2. Jamais-vu	0.14	0.11	0.08	0.62	0.08
3. Unrecalled behaviors	0.03	0.09	0.02	0.66	0.26
4. Memory gaps	0.16	0.13	0.18	0.27	0.65
5. Visual illusions	0.09	0.50	0.13	0.10	0.37
6. Illusion of movement	0.11	0.55	0.17	0.22	0.26
7. Auditory illusions	0.14	0.55	0.13	0.20	0.08
8. Episodic tinnitus	0.20	0.64	0.09	0.07	0.17
9. Haptic illusions	0.10	0.56	0.22	0.14	0.05
10. Somatosensory illusions	0.03	0.39	0.27	0.48	-0.16
11. Olfactory illusions	0.22	0.61	0.03	0.09	-0.12
12. Gustatory illusions	0.19	0.62	0.09	0.19	-0.08
13. Visual hallucinations	0.23	0.39	0.08	0.42	-0.07
14. Episodic vertigo	0.33	0.52	0.15	0.02	0.16
15. Visual fixation	0.45	0.33	0.07	0.28	0.06
16. Episodic anomia	0.31	0.30	0.37	0.02	0.36
17. Syllabic iterations	0.17	0.22	0.42	0.09	0.20
18. Confusional spells	0.41	0.21	0.32	0.41	0.05
19. Environmental distortion	0.38	0.25	0.32	0.45	-0.06
20. Impending doom	0.46	0.16	0.38	0.27	-0.17
21. Paranoia	0.49	0.18	0.38	0.21	-0.09
22. Religiousness	0.51	0.14	0.15	0.08	0.09
23. Dysphoric spells	0.78	0.20	0.18	0.11	0.15
24. Episodic euphoria	0.77	0.21	0.06	0.12	0.18
25. Temper outburst	0.69	0.18	0.19	0.08	0.05
26. Episodic anxiety	0.56	0.25	0.31	0.18	0.04
27. Suicide ideation	0.32	0.03	0.37	0.28	-0.20
28. Mental decline	0.22	0.09	0.58	0.08	0.24
29. Excessive shyness	0.21	0.04	0.59	0.02	0.17
30. Sexual failure	0.03	0.00	0.65	0.23	-0.10
31. Sweating	0.18	0.20	0.56	-0.02	0.13
32. Tachycardia	0.09	0.29	0.50	-0.04	-0.05

the existence of such symptoms was very low. In this study sample, the mean score noted with the scale used was ~0-1 (never, less than once a month). The presence of these phenomena was significantly increased in subjects with one or more risk factors of CNS dysfunction, however (convulsive history, head trauma, hospitalization, car accident, febrile illness, and hypoxia).

The frequency of the episodic psychic symptoms in our sample was in general higher than that reported by Roberts et al. (1990). The observed frequency of the 4-score answer (at least several times a week) in our sample was approximately twice that reported by Roberts et al. (1990). However, the

prevalence of epilepsy in Colombia is significantly higher than the prevalence usually reported (Gomez et al., 1978; Hauser, 1978; Kurtzke and Kurland, 1983), as is apparently equally valid for other Third-World countries (Chiofalo et al., 1979; Osuntokun et al., 1987; Gracia et al., 1988, 1990). This might be interpreted as an increase in some risk factors not only associated with a higher prevalence of epilepsy, but also with a higher frequency of some minor CNS dysfunctions.

The different risk factors (predicting variables) had different weight. On the whole, our results coincided with those of Roberts et al. (1990), although they reported more episodic psychic symptoms as-

TABLE 3. Correlation matrix: Main associated variables

Variables	V48	V50	V55	V57	V58	V59	V60
V33 Gender	0.10 ^a	0.21 ^a	0.01	0.01	0.08 ^b	0.01	0.04
V48 Allergies		0.14 ^a	0.07 ^b	0.10 ^a	0.10 ^a	0.13 ^a	0.11 ^a
V50 Headache			0.10 ^a	0.13 ^a	0.12 ^a	0.08 ^b	0.13 ^a
V55 Dyslexia				0.12 ^a	0.15 ^a	0.15 ^a	0.09 ^b
V57 Drug abuse					0.20 ^a	0.11 ^a	0.06 ^b
V58 Suicide attempt						0.20 ^a	0.11 ^a
V59 Somnambulism							0.11 ^a

^a p < 0.0001; ^bp < 0.001.

sociated with different risk factors. In our study, the most significant risk factors were febrile illness, accounting for 19 of 32–60% of the symptomatic variables [90% in the study of Roberts et al. (1990)]; convulsion history, accounting for 22% of the symptomatic variables; hypoxia, accounting for 19%; head trauma, significant for 16% [63% in the study of Roberts et al. (1990)]; car accident, accounting for 13% [17% in the study of Roberts et al. (1990)]; and hospitalization, accounting for 9% [87% in the study of Roberts et al. (1990)]. This difference could result from the level of significance we adopted. We selected a level of significance of $p < 0.0001$, whereas Roberts et al. (1990) accepted a significance level of $p < 0.05$.

The associated variables showed very important correlations with the symptomatic variables. Their correlations sometimes were even higher than the ones noted for the predicting variables. The more important of these variables were (in order of importance) irresistible sleepiness, accounting for 100% of the symptomatic variables; headache, accounting for 91% of the symptomatic variables; suicide attempt, accounting for 69%; sonambulism, accounting for 69%; allergies, accounting for 50%, and dyslexia, accounting for 47%. They refer, therefore, to sleep disorders; headache, probably migraine type; allergies; and history of learning difficulty.

Individuals with a history of suicide attempt had a very high frequency of psychic partial symptoms. Suicide ideation was significantly correlated with suicide attempt history ($r = 0.43$; $p < 0.0001$). Subjects with suicide ideations and suicide attempts had a significantly increased frequency of drug abuse and sleeping disorders.

With the questionnaire we used, we were able to distinguish groups of factors. Five factors were the most critical. Factor I was related to sudden changes in mood ("affective factor"). Factor II saturated the questions related with perceptual phenomena ("perceptual factor"). Factor III was determined by the questions that referred to the feeling of incapacity and decline ("experiential factor"). Factors IV and V are specifically referred to as memory disorders ("dysmnestic factors"). The psychic partial phenomena observed in temporal lobe epilepsy are not homogeneous. The International League Against Epilepsy (ILAE) classification distinguishes five different subgroups of psychic partial seizures: Perceptual (illusions and complex hallucinations), affective, dysmnestic, cognitive, and dysphasic partial seizures (Commission, 1981). These subgroups basically coincide with the factors we observed in this study through factor analysis.

In epilepsy, psychic partial symptoms have usu-

ally been reported to be associated with damage or dysfunction of the temporal lobe (Stevens, 1966; Daly, 1975; Ardila et al., 1986; Commission, 1989; Trimble, 1991). Studies using direct brain electric stimulation have shown that so-called mental phenomena such as hallucinations, dreamy states, and dysmnestic changes appear with stimulation at the level of the hippocampo-amygdala system (Halgren et al., 1978; Gloor et al., 1982). Maintaining a subictal activity has been proposed to be responsible for the personality changes observed in patients with temporal lobe epilepsy and, in the long term, transient psychotic episodes (Bear and Fedio, 1977; McKenna et al., 1985; Tucker et al., 1986; Trimble, 1991).

Many psychic partial symptoms observed in epilepsy (e.g., depersonalization, hallucinations, affective changes) can also be observed in psychotic functional episodes (American Psychiatric Association, 1987), which have also been studied to seek the existence of some relation between the phenomena considered characteristic of temporal lobe seizures and the psychopathologic states, in particular schizophrenic psychosis (Karagulla and Robertson, 1955; Nielson and Kristensen, 1981; Trimble, 1982, 1991; McKenna et al., 1985; Bernal, 1988). "Paroxysmal psychosis" has even been proposed as a term to refer to some temporal lobe seizures (Ardila et al., 1988; Ardila, 1989).

The presence of episodic psychic symptoms probably is significantly associated with two different types of variables: (a) individuals who have an increased frequency of episodic psychic phenomena also have a higher frequency of some risk factors of CNS disease or dysfunction (convulsion history, head trauma, car accident, hospitalization, febrile illness, and birth injury), and (b) an important association exists between the frequency of episodic psychic symptoms and sleep disorders, headache (likely migraine type), learning disability history, and allergy.

Finally, analysis of episodic psychic phenomena eventually can permit better understanding of the mechanisms underlying normal and abnormal psychological states, but a more detailed analysis of the phenomena and their relation with other pathologies is necessary.

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REFERENCES

- American Psychiatric Association. *Diagnostic and statistical manual of mental disorders, revised*, 3rd ed. Washington, D.C.: APA Press, 1987.

- Ardila A. Partial cognitive seizures. *J Neuropsychiatry Neuropsychol Behav Neurol* 1989;2:175-82.
- Ardila A, Botero M, Gomez J, Quijano C. Partial cognitive-dysmnestic seizures as a model for studying psychosis. *Int J Neurosci* 1988;38:11-20.
- Ardila A, Montañes P, Bernal B, Serpa A. Partial psychic seizures and brain organization. *Int J Neurosci* 1986;30:23-32.
- Bear DM, Fedio P. Quantitative analysis of interictal behavior in temporal lobe epilepsy. *Arch Neurol* 1977;34:454-67.
- Bernal B. Personalidad interictal y psicosis. In: Quiroga F, Ardila A, eds. *Neuropsiquiatria*. Medellín: Prensa Creativa, 1988:49-72.
- Chiofalo N, Kirschbaum A, Fuentes A, Cordero MI, Madsen S. Prevalence of epilepsy in children of Melipilla, Chile. *Epilepsia* 1979;20:261-6.
- Commission on Classification and Terminology of the International League Against Epilepsy. Proposal for revised clinical and electroencephalographic classification of epileptic seizures. *Epilepsia* 1981;22:489-501.
- Commission on Classification and Terminology of the International League Against Epilepsy. Proposal for classification of epilepsy and epileptic syndromes. *Epilepsia* 1985;26:268-78.
- Commission on Classification and Terminology of the International League Against Epilepsy. Proposal for revised classification of epilepsies and epileptic syndromes. *Epilepsia* 1989;30:389-99.
- Daly DD. Ictal clinical manifestations of complex partial seizures. In: Penry JK, Daly DD, eds. *Complex partial seizures and their treatment*. New York: Raven Press, 1975:57-83. (Advances in neurology; vol. 11.)
- Daly DD. Complex partial seizures. In: Laidlaw J, Richen A, eds. *A textbook of epilepsy* 1982:131-47.
- Gloor P, Oliver A, Quesney LP, Anderman F, Horowitz S. The role of the limbic system in the experiential phenomena of temporal lobe epilepsy. *Ann Neurol* 1982;12:129-44.
- Gomez JG, Arciniegas E, Torres J. Prevalence of epilepsy in Bogota, Colombia. *Neurology* 1978;28:90-4.
- Gracia F, Bayard V, Triana E. Prevalencia de enfermedades neurológicas en el Corregimiento Belisario Poras, Distrito de San Miguelito, en Panamá. *Rev Med Panama* 1988;13:408-11.
- Gracia F, Loo de Lao S, Castillo L, et al. Epidemiology of epilepsy in Guaymi Indians from Bocas del Toro Province, Republic of Panama. *Epilepsia* 1990;31:718-23.
- Halgren E, Walter RD, Cherlow DG, Crandall PH. Mental phenomena evoked by electrical stimulation of the human hippocampal formation and amygdala. *Brain* 1978;101:83-117.
- Hauser WA. Epidemiology of epilepsy. In: Schoenberg BS, ed. *Neurological epidemiology: principles and clinical applications*. New York: Raven Press, 1978:313-39. (Advances in neurology, vol 19.)
- Karagulla S, Robertson E. Psychic phenomena in temporal lobe epilepsy and the psychoses. *Br Med J* 1955;42:256-65.
- Kurtzke JF, Kurland TL. The epidemiology of neurological diseases. In: Baker AB, Joynt RJ, eds. *Clinical neurology*, vol 4. Philadelphia: Harper & Row, 1983:27-42.
- McKenna PJ, Kane JM, Parrish K. Psychotic syndromes in epilepsy. *Am J Psychiatry* 1985;142:895-904.
- Nielson H, Kristensen O. Personality correlates of sphenoidal EEG-foci in temporal epilepsy. *Acta Neurol Scand* 1981;64:289-300.
- Osuntokun BO, Adeuja AOG, Nottidge VA, et al. Prevalence of epilepsy in Nigerian Africans: a community-based study. *Epilepsia* 1987;28:272-9.
- Roberts RJ, Varney NT, Hulbert KR, et al. The neuropathology of everyday life: the frequency of partial seizure symptoms among normals. *Neuropsychology* 1990;4:65-85.
- Stevens JR. Psychiatric implications of psychomotor epilepsy. *Arch Gen Psychiatry* 1966;14:461-472.
- Trimble MR. The interictal psychosis in epilepsy. In: Benson DF, Blumer D, eds. *Psychiatric aspects of neurological diseases*. New York: Grune & Stratton, 1982:75-92.
- Trimble MR. *The psychoses of epilepsy*. New York: Raven Press, 1991.
- Tucker GJ, Price TRP, Johnson VB, McAllister T. Phenomenology of temporal lobe dysfunction: a link to atypical psychosis—a series of cases. *J Nerv Ment Dis* 1986;174:348-56.

RESUMEN

Se buscó determinar la frecuencia de algunos fenómenos parciales psíquicos (mnésicos, perceptuales, y experienciales) dentro de la población general y su posible relación con diversos factores que pueden implicar algún tipo de riesgo de daño o disfunción del sistema nervioso (historia de convulsiones, traumatismos craneoencefálicos, accidentes automovilísticos, hospitalizaciones, pérdida de conciencia, fiebres altas, y sufrimiento durante el nacimiento). Se tomó una muestra de 2,500 sujetos. Se establecieron las correlaciones entre las diferentes variables predictoras (factores de riesgo) y sintomáticas (síntomas parciales psíquicos). Se encontró que los sujetos que presentaban uno o varios factores de riesgo mostraban una probabilidad aumentada de reportar la presencia de síntomas parciales psíquicos de diversos tipos. Igualmente, se encontró una asociación significativa entre la presencia de estos síntomas y la existencia de una historia de desórdenes del sueño (hipersomnia y/o sonambulismo), cefalea de tipo migraña, alergias, e historia de problemas de aprendizaje. Se propone que pueden existir disfunciones subclínicas que subyacen a la aparición de tales fenómenos parciales psíquicos en sujetos normales.

(Translation supplied by authors)

APPENDIX

Questionnaire for Episodic Psychic Symptoms

Symptomatic variables

1. Déjà-vu: Do you sometimes get the feeling that you have experienced something or been some place before even though you know you have not?
2. Jamais-vu: Do you sometimes feel that familiar places or people are somehow not familiar or the way they should be?
3. Unrecalled behaviors: Do you sometimes appear in a place without knowing how you arrived there?
4. Memory gaps: Do you have clear-cut gaps in your memory during which you cannot remember anything that happened during a period of ≥ 5 min?
5. Visual illusions: Do you sometimes see things in your peripheral vision, such as stars, bugs, worms, or threads?
6. Ilusion of movement: Do you sometimes see things come closer or recede without any reason?
7. Auditory illusions: Do you sometimes experience external sounds as louder or weaker than they really are?
8. Episodic tinnitus: Do you sometimes get a ringing, buzzing, rushing or patting noise in your ears which comes and goes for no reason?

9. Haptic illusions: Do you sometimes feel as though bugs are crawling on you?
 10. Somatosensory illusions: Do you sometimes feel as if a part of your body were strange or did not belong to you?
 11. Olfactory illusions: Do you sometimes smell things which other people can't smell (e.g., chemical odors, urine, smoke) without any apparent cause?
 12. Gustatory illusions: Do you sometimes have a strange taste in your mouth (e.g., metallic taste) without any apparent reason?
 13. Visual hallucinations: Have you ever seen non-existing things?
 14. Episodic vertigo: Have you ever had vertigo or brief dizziness without any apparent cause?
 15. Visual fixation: Do people tell you often that there are times when you are staring and have a blank look on your face?
 16. Episodic anomia: Is it a common problem of yours that you suddenly have trouble finding words you know?
 17. Syllabic iterations: Do you sometimes present syllabic iterations (kind of stuttering)?
 18. Confusional spells: Do you sometimes become quite suddenly and intensely confused and perplexed as though you were a different person?
 19. Environmental distortion: Do you sometimes have an overwhelming feeling that things are weird and strange?
 20. Impending doom: Do you sometimes feel the existence of an unavoidable and fatal destiny in life?
 21. Paranoia: Do you sometimes feel persecuted, as though there existed an agreement for everything to go wrong?
 22. Religiousness: Do you feel sometimes the necessity to be more religious than you usually are?
 23. Dysphoric spells: Do you sometimes become abruptly more depressed than you were a few minutes or seconds earlier with no apparent reason?
 24. Episodic euphoria: Do you sometimes feel suddenly happier than a few minutes or seconds before without any apparent reason?
 25. Temper outburst: Do you sometimes become extremely and intensely angry for no reason?
 26. Episodic anxiety: Do you sometimes feel panic or high anxiety without any apparent reason?
 27. Suicidal ideation: Are you regularly so depressed that you think seriously about suicide?
 28. Mental decline: Do you feel that your memory and concentration are becoming substantially worse every day?
 29. Excessive shyness: Do you feel that excessive shyness impedes you from doing things that you would wish to do?
 30. Sexual failures: Do you feel that your sexual life is a failure?
 31. Sweating: Are there frequent special situations in which you have a high perspiration level?
 32. Tachycardia: Do you have tachycardia on certain occasions?
- Predicting Variables**
33. Gender: Male or female
 34. Handedness: Right-handed, left-handed, or ambidextrous
 37. Seizure history: Have you ever had a seizure?
 40. Head trauma: Have you ever had such a severe blow to your head that you have lost consciousness and/or required hospitalization?
 43. Car accident: Have you ever been in an auto accident in which your head was struck, but you did not lose consciousness?
 44. Loss of consciousness: Have you ever lost consciousness without any apparent reason?
 46. Febrile illness: As an adolescent or adult, have you ever had such a high fever that you became delirious or could not remember what happened to you for 1 or more days?
 47. Hospitalization: Have you ever had a life-threatening illness so severe that you were hospitalized in severe condition and for which you have little or no memory?
 53. Hypoxia: Do you know if you had hypoxia (lack of oxygen) during your birth?
- Associated variables**
48. Allergies: Do you have any allergies? To what?
 50. Headache: Do you sometimes get severe pulsating headaches and feel so bad that the light seems too bright and you become nauseated and want to vomit?
 55. Dyslexia: Did you have (with regard to the rest of your classmates) special difficulties when learning to read and/or write (e.g., letter inversions, errors in the sequence of letters in a word)?
 56. Smoking: Are you a smoker?
 57. Drug abuse: Have you used psychoactive drugs for >1 month?
 58. Suicide: Have you ever attempted to commit suicide?
 59. Somnambulism: Do you have or have you had somnambulism?
 60. Irresistible sleepiness: Do you sometimes feel an irresistible urge to sleep during the day (and indeed fall asleep for a short time)?

RÉSUMÉ

La fréquence de certains épisodes psychiques épisodiques (d'ordre dysmnésique, perceptif ou expérientiel) a été étudiée dans un échantillon de 2,500 sujets de la population générale. Des corrélations avec certains facteurs de risque éventuellement associés à une dysfonction du système nerveux (antécédents de crises, traumatisme crânien, accident de voiture, hospitalisation, maladie fébrile, traumatisme obstétrical) ont été calculées. Les sujets présentant un ou plusieurs facteurs de risques signalaient de façon plus fréquente des phénomènes psychiques épisodiques dans la vie de tous les jours. Des corrélations significatives entre phénomènes psychiques épisodiques et troubles du sommeil, céphalées, allergies et antécédents de difficultés scolaires ont également été observées. Les auteurs proposent que certaines dysfonctions infracliniques peuvent être associées à des phénomènes psychiques épisodiques chez des sujets par ailleurs normaux.

(P. Genton, *Marseille*)

ZUSAMMENFASSUNG

Die Häufigkeit einiger episodischer psychischer Symptome wurde in einer Stichprobe von 2,500 Personen der allgemeinen Bevölkerung untersucht. Es wurden Korrelationen berechnet mit einigen Risikofaktoren, die möglicherweise mit einer Störung des Nervensystems einhergehen (Anfälle in der Vorgeschichte, Schädelhirntrauma, Autounfall, Krankenhausaufenthalte, fieberhafte Erkrankungen, Geburtsschädigung). Personen mit einem oder mehreren Risikofaktoren berichteten eher über episodische psychische Phänomene im Alltagsleben. Eine signifikante Korrelation von episodischen psychischen Phänomenen wurde mit Schlafstörung, Kopfschmerzen, Allergien und Lernstörung in der Vorgeschichte beobachtet. Wir vermuten, daß einige subklinische Störungen mit dem Auftreten von episodischen psychischen Phänomenen bei sonst gesunden Personen verknüpft sein können.

(C. G. Lipinski, *Heidelberg/Neckargemünd*)