

**THE SEXUAL BEHAVIOUR OF A SAMPLE
OF
MALE EGYPTIAN EPILEPTICS**

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ABSTRACT

Seventeen male patients suffering from sexual disturbances associated with epilepsy were submitted to a psychiatric interview and neurological examination in El-Hussein University Hospital, using dental patients as controls.

All the patients were subjected to complete:

- (1) Eysenck and Wilson questionnaire of sexual behaviour and attitudes.
- (2) Questionnaire devised by Kinsy et al.
- (3) Wechsler Adult Intelligence Test.
- (4) EEG was done and detailed history of epilepsy was taken.

A positive relation was found between family size, duration of illness, precipitating factors, time and frequency of fits, type of epilepsy and the development of sexual disorders.

The scores of the patients and controls on the Eysenck and Wilson questionnaires were statistically significant in the following dimensions (Pronography, shyness, sexual disgust, sexual excitement).

INTRODUCTION

The relation between epilepsy and disorders of sexual behaviour has been recognised by experts and laymen alike. The Russian novelist Dostoevski has portrayed in fascinating detail, the combination of lust, aggression and epilepsy in the person of one of the heroes of the "Brothers Karamazov".

As early as 1868, the German physician Wilhelm

Griesinger remarked on the association between epilepsy and impotence. More recently, the discovery of the functions of the limbic system by Papez and MacLean in 1937 has shed new light on the possible scientific explanation of such an association. The same may be said of the work of Kluver and Bucy in 1939 on the temporal lobes of monkeys. These two findings have lent considerable impetus to the investigation of the epilepsy-sexuality inter-relationship. Thus, Gastaut and Colomb (1954) reported the loss of libido and erectile dysfunction in cases of temporal lobe epilepsy (TLE). Hieron and Saunders (1966) found that cases of TLE suffered from weak erections with preservation of libido; while Taylor (1969) remarked that libido was lost and erection preserved in the same disorder and attributed the phenomenon to loss of central neural integration. Italiano and Lombardelli (1977) distinguished between fits precipitated by sexual activity which they considered as a form of reflex epilepsy, and seizures manifesting themselves in sexual behaviour which may or may not be precipitated by masturbation or intercourse. Currier et al. (1971) state that intermittent sexual activity or sensations may occur in association with temporal lobe epilepsy or abnormalities of the hypothalamus, especially during the post-ictal stage.

The sexual disturbances associated with epilepsy may take one of several forms:

1- Impotence

Johnson (1965) mentions the occurrence of impotence in epilepsy; while Blumer and Walker (1975) report that two thirds of their patients with TLE suffered from impairment of libido, poor erections of both especially when the fits were frequent. The same phenomenon was reported by Hoenig and Hamilton (1960), Hierons and Saunders (1966), Lawall (1976) and Solomon (1985). Taylor (1969), describes the various stratagems used by epileptics to escape sexual commitments, such as frequent postponement of the date of marriage for specious reasons.

"chronic engagement", attributing their sexual inadequacy to physical exhaustion, and their choice of epileptics as marital partners.

2- Hypersexuality

Is not as frequent as once commonly believed. Its occurrence has been reported by Lennox and Lennox (1960), Williams (1966), Taylor (1969) particularly in association with TLE, and Lishman (1980) who comments on the frequent association of sexual hyperactivity and aggression in epileptics.

3- Masturbation

Occurs frequently in epileptics as observed by many authors such as Robinson, (1983) and reflects the rejection experienced by these patients which forces them to solitary and infantile methods of gratification.

4- Homosexuality

Is rare in epileptics and when it occurs is usually associated with TLE (Blumer and Walker, 1967), or occurs as a manifestation of generalised sexual hyperactivity (Freeman and Nevis, 1969).

5- Exhibitionism

Hooshmand and Brawley (1969) distinguish between two types of exhibitionism which occur in epileptics; "psychogenic exhibitionism" which affects males only, usually in between their second and fourth decade, and which victim is exclusively female; and "epileptic exhibitionism" which is associated with TLE, affects both sexes, with no particular age incidence, and which victim may be male or female.

6- Sado-masochism

The occurrence of these disorders is rare according to Allen (1962) and Scott (1978). However, Taylor (1969) describes the behaviour of two epileptic masochists; one male and one female.

7- Transvestism

A relation between cross-dressing and TLE has been reported by David and Morgenstern (1960) in relation to cysticercosis of the temporal lobe and by Green et al. (1951), Hunter et al. (1963) and Williams (1966).

8- Fetishism

Has been reported in cases of TLE by Mitchell et al. (1954) with improvement of the paraphilia as well as the frequency of seizures after temporal lobectomy. Lishman (1980) noted the occurrence of fetishism 10 years after the onset of epilepsy.

9- Mutilation of the sexual organs

Has been mentioned by Taylor (1969) in relation to epileptic psychotic patients.

The causes of the occurrence of sexual disorders in epilepsy may be grouped under three main headings:

A. Psycho-Social Causes

Which role is major according to Taylor (1969) and Gunn (1975). These include among other things: the rejection of the epileptic by the opposite sex on account of the stigma and misconceptions attached to the illness, the pervasive feelings of rage and frustration which characterise the social attitude of many epileptics, Ohara (1977) and the religiosity which is encountered in some cases. According to Taylor and Falconer (1968), organic factors alone are insufficient to account for sexual disorders in epilepsy. In support of their view, they state that temporal lobectomy may improve the seizures but does not necessarily lead to as concomitant correction of the sexual disorder. Furthermore, they point out the absence of any correlation between a high frequency of fits and a greater occurrence or greater severity of disturbed sexuality.

B. Biological Causes

In his detailed review of the neuropsychiatric effects of prolactin release, Sayed (1985), reports the elevation of serum prolactin in 43% of complex partial seizures (TLE). He also states that all the individual anti-convulsants increase basal and stimulated levels of prolactin with the exception of valproate. These findings are of considerable importance in explaining the sexual inadequacy associated with seizures and with anti-epileptic medication.

C. Iatrogenic Factors

Anti-convulsants depress sexual desire and erection, especially phenobarbitone, methosuzimide, methoin, and primidone, Money and Musaph (1978) Laurence and Bennet (1980), Osman (1982), and Sayed (1985). In addition to their action on sexual activity in general, the lethargy and dysphoria produced by these drugs interfere with the epileptic's ability to communicate properly and skilfully with the same and opposite sexes. Phenytoin in addition to its neurological side-effects leads to hypertrophy of the gums and hirsutism which constitute a definite cosmetic disadvantage.

Patients and Methods

Seventeen male epileptic patients with sexual disorders were selected from the epilepsy outpatient of El-Hussein University Hospital in the course of 1983. Twenty randomly selected healthy control and closely matched subjects from the Dental outpatient of the same hospital were also included.

Each patient was subjected to the following procedures:

- (1) A complete psychiatric interview and neurological examination.
- (2) A detailed sexual history along the lines of the questionnaire devised by Kinsey et al. (1948).
- (3) A detail history of epilepsy.

- (4) The patient's wife was interviewed when feasible in order to verify the former's statements regarding his sexual life.
- (5) Eysenck and Wilson (1976), questionnaire of Sexual Behaviour and Attitudes which consists of 159 questions, adapted and translated by (AMD) were presented to each patient and control. The questionnaire measures 11 factors: sexual permissiveness, satisfaction, neurotic sex, impersonal sex, pronography, shyness, prudishness, sexual disgust, sexual excitement, physical sex and aggressive sex.
- (6) Wechsler Adult Intelligence Test was administered to the experimental group.
- (7) An EEG was done to each patient using the 10-20 international electrode placement of Jasper and Kornmuller and a Nihon Kodan 16 channel machine.

FINDINGS AND DISCUSSION

The mean age of the sample was 30.97 ± 5.7 . Their socio-economic status was classified according to Barker (1976) into: Class I (1), Class II (3), Class III (2), and Class IV (6). Most patients as seen from the previous distribution belonged to the lower socio-economic strata which conforms with the social level of the patients in that particular hospital catchment's area.

Nine patients were illiterate, five had finished the intermediate level and 3 had complete the secondary school. The marital status of the patients was as follows: 6 were married and 11 single. The number of single patients is considered high even when corrected for age and socio-economic background. This observation reflects the reluctance of epileptic patients to get married as reported by Taylor (1969).

Table (1) shows the distribution of the patients according to the size of their families. Eleven patients

or 65% came from large families. This observation agrees with the findings of El Kott (1982) who found a large incidence of psycho-sexual disorders in large families which he attributed to lack of privacy and overcrowding. The same observation was made by Allen (1962), in relation to incest and by Demerdash (1977), in relation to impotence.

Table (2) shows that 59% of the sample belonged to the middle ranks of their sibship. It seems therefore that no particular rank is more susceptible to develop epilepsy and sexual disorders in combination.

The number of patients who had been suffering from epilepsy for more than one year was 12 or 71% of the sample as seen in table (3). These when further broken down into 4 years intervals, showed that 42% had been suffering from seizures for a period of 1-5 years. It would seem therefore that a seizure disorder of moderate or long duration could favour the development of sexual abnormality. This could be accounted for by secondary personality changes, social factors, and the effects of anti-convulsants as reported by Rutter et al. (1970) and Taylor (1972).

The relation between the duration of epilepsy and the development of epilepsy could well be in the authors view a kindling phenomenon. Thus, Ballenger and Post (1978) suggested a kindling model to explain the evolution of alcohol withdrawal syndromes over a time course. By a similar token, the same model could explain the development of sexual disorders, personality changes and psychosis in epilepsy. Periodic low intensity stimulation of the limbic system by subthreshold epileptic discharges could lead to electrophysiological changes then more permanent changes leading to a progressive evolution of symptoms from simple affective changes to discrete disorders of sexual behaviour, then more manifest personality or psychotic changes.

The practical implications of such a model are manifold:

- i) It explains the lack of correlation between the degree of demonstrable pathology and the occurrence of sexual disorders as expressed by Taylor and Falconer (1968).
- ii) It underlines the importance of creating sub-clinical seizures even if they are not manifest or frequent preferably with an anticonvulsant which does not promote prolactin secretion such as valproate.
- iii) It emphasises the importance of a thorough neurophysiological study of cases of so called "psychogenic impotence" before implementing psychological methods of treatment.

No precipitating factors were reported by 4 patients or 24%; while 13 or 76% reported precipitating factors to their seizures (table 4). Contrary to expectation, sexual events constituted a mere 15%. However, the high incidence of psychological factors points to the overall vulnerability of the patients to minor or moderate stress.

The post-ictal phenomena reported by the patients were: automatisms (7), generalised fatigue (6), Todd's paralysis (2), and depression (1). Three patients with automatisms reported the occurrence of exhibitionism; but no hypersexuality was reported.

Table (5) shows the distribution of the types of epilepsy in the sample. As seen, 71% suffered from TLE which agrees with the majority of other workers.

TABLE(1) DISTRIBUTION OF PATIENTS ACCORDING
TO FAMILY SIZE

SIZE	NUMBER	
SMALL(3-4)	2	12%
MEDIUM(5)	4	23%
LARGE(6-<6)	11	(65%)
TOTAL	17	100%

TABLE(2) ORDER OF BIRTH

RANK	NUMBER	
FIRST RANKS	2	12%
MIDDLE RANKS	10	59%
LAST RANKS	5	29%
TOTAL	17	100%

TABLE(3) DURATION OF EPILEPSY IN THE SAMPLE

DURATION	NUMBER	
> THAN ONE YEAR	5	29%
1-6 MONTHS	3	17%
7-12 MONTHS	2	12%
< THAN ONE YEAR	12	71%
1-5 YEARS	5	29%
6-10 YEARS	2	12%
11-15 YEARS	2	12%
16-20 YEARS	3	18%
TOTAL	17	100%

TABLE(4) DISTRIBUTION OF PRECIPITATING FACTORS

PRECIPITATING FACTORS	NUMBER	
NEGATIVE	4	23%
POSITIVE	13	77%
FRUSTRATION	6	46%
FATIGUE	3	23%
SEXUAL AROUSAL	2	15%
FEAR	1	8%
INSOMNIA	1	8%
TOTAL	17	100%

TABLE(5) TYPE OF SEIZURE

TYPE	NUMBER	
TEMPORAL LOBE	12	71%
GRAND MAL	3	18%
OTHER TYPES	2	11%
TOTAL	17	100%

TABLE(6) DISTRIBUTION OF FITS DURING 24 HOURS

TIME	NUMBER	
DIURNAL	4	24%
NOCTURNAL	8	47%
DIURNAL & NOCTURNAL	5	29%
TOTAL	17	100%

Table (6) shows that 76% of the patients had their fits at night or in the evening. This finding helps to explain the occurrence of sexual inadequacy in the sample in view of the fact that sexual activity usually takes place at the end of the working day. The occurrence of seizures at this particular period would certainly interfere with normal sexual activity. Another interesting factor which has to be explored is the nocturnal increase in prolactin secretion during sleep in all epileptic patients and the relation of such a circadian happening to sexual inadequacy (Sayed, 1985).

Table (7) shows that 47% had one or more fits daily and 46% weekly fits. Such a high incidence is usually associated with personality changes according to Taylor (1972) and leads to sexual disturbance as a part of the disordered affectivity and cognition resulting from a high fit frequency.

Table (8) shows the incidence of psychiatric disorder in the sample. None were found in 35%. Among the remaining 65% the incidence of neurosis in the form of neurotic depression and anxiety neurosis was 82% and 18% respectively. These conditions may be attributed to the impact of the epilepsy itself and the disordered sexuality as well.

Table (9) shows the distribution of sexual disorders in the sample. The most frequent disorder was loss of libido (35%) followed by erectile failure (24%), premature ejaculation (24%) and exhibitionism (18%). Our findings agree with those of Taylor (1969) who remarked that libido was frequently lost and erections preserved as a result of disruption of central neural integration. The incidence of premature ejaculation can be attributed to the high level of anxiety reported elsewhere. The three cases of exhibitionism were of the "psychogenic" type described by Hooshmand and Brawley (1969).

Eleven patients were started on anticonvulsants by one of us (MHK), 4 patients were already on medication before consulting us but were taking it irregularly,

Eleven patients were started on anticonvulsants by one of us (MHK), 4 patients were already on medication before consulting us but were taking it irregularly, and 2 patients were taking them regularly under our supervision for 18 months. Ten patients received the combined preparation Antisaccer, 3 patients were on Carbamazepine and Phenylhydantoin.

TABLE(7) FREQUENCY OF SEIZURES

FREQUENCY	NUMBER	
DAILY	8	47%
WEEKLY	7	41%
MONTHLY	2	12%
TOTAL	17	100%

TABLE (8) DISTRIBUTION OF PSYCHIATRIC DISORDERS
IN THE SAMPLE

PSYCHIATRIC DISORDER	NUMBER	
NONE	6	35%
PRESENT	11	65%
REACTIVE DEPRESSION	9	82%
ANXIETY	2	18%
TOTAL	17	100%

TABLE(9) SEXUAL DISORDER IN THE SAMPLE

TYPE	NUMBER	
LOSS OF LIBIDO	6	35%
PREMATURE EJACULATION	4	24%
ERECTILE DYSFUNCTION	4	24%
EXHIBITIONISM	3	17%
TOTAL	17	100%

Table (10) shows the distribution of EEG abnormalities in the sample. 35% had normal records, 54% had right-sided abnormalities (right temporal 4, right parietotemporal 1 and right Jacksonian 1); while 45% had left temporal abnormality. The slight and insignificant predominance of right-sided abnormality correlates with the high incidence of neurosis in the sample and the lack of psychotic or personality changes abnormality. This observation agrees with that of Shukla and Katiyar (1980) who found that in cases of temporal lobe epilepsy, the incidence of neurotic symptoms were significantly associated with right temporal foci. The predominance of temporal lobe abnormalities is consistent with the findings of most workers who reported on the association between sexual disorders and epilepsy.

The results of the Wechsler Adult Intelligence Scale showed that: 1 patient was above average, 4 or 24% average, and 12 or 70% below average. This noticeable lowering of intelligence can be explained in the light of the factors enumerated by Scott (1978) namely, the brain damage which occurs as a result of anoxia caused by repeated fits, the occurrence of subclinical seizures, excessive or improper use of anti-convulsants, personality and psychotic changes, and the presence of bilateral temporal foci in cases previously believed to have one focus only.

Table (11) shows the scores of the patients and the controls on the Eysenck and Wilson Questionnaire of Sexual Attitudes and Behaviour. The difference between both groups was statistically significant on the following 5 dimensions:

1- **Pornogragphy**: the epileptics had lower scores on this dimension. This factor according to the authors of the questionnaire relates to a tendency towards voyeurism. The low scores of the epileptics seems to suggest a reluctance to practice an activity which could be quite innocuous yet contrary to their religiosity or their

lowered interest in sex.

2- Shyness: epileptics were more shy and inhibited in regard to sex on account of the stigma attached to their illness.

TABLE(10) DISTRIBUTION OF EEG FINDINGS

RESULT	NUMBER	
NORMAL	6	35%
PATHOLOGICAL	11	65%
RIGHT TEMPORAL	4	36%
LEFT TEMPORAL	5	45%
RIGHT PARIETO-TEMPORAL	1	9%
RIGHT JACKSONIAN	1	9%
TOTAL	17	100%

Table (11) Scores on Eysenck & Wilson Questionnaire of Sexual Attitudes & Behaviour

AS		PS		IS		NS		S		P		SE		SD		PR		SY		PN Factors		Scores
C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	
11	11	4	6	12	9	13	7	3	6	7	11	2	8	14	1	11	1	11	1	1	10	Low
5	1	11	10	7	5	5	9	10	5	13	5	14	8	6	7	6	15	8	14	12	6	Moderate
4	5	5	1	1	3	2	1	7	6	-	1	4	1	-	9	3	1	1	2	7	1	High
20	17	20	17	20	17	20	17	20	17	20	17	20	17	20	17	20	17	20	17	20	17	Total
1.73	3.53	2.06	2.86	4.42	5.38	8.22	22.55	15.33	9.36	12.43	X ²											
N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	(P)

Abbreviations: PN = Pornography, SY = Shyness, PR = Prudishness, SD = Sexual Disgust, SE = Sexual Excitement, P = Permissiveness, S = Satisfaction, NS = Neurotic Sex, IS = Impersonal Sex, PS = Physical Sex, AS = Aggressive Sex, E = Experimental Group (N=17), C = Control Group (N=20).

3- **Prudishness:** the high scores of epileptics on that dimension reflect their avoidance of any expression of spontaneous sexual feelings even of a mild and acceptable type. This attitude could also represent a reaction formation to their desire to have sex and the concomitant inability to fulfil this desire.

4- **Sexual Disgust:** the high scores on this dimension may be considered an extreme form of prudishness and an expression of the epileptics frustration with sex and their attempt to take refuge in specious clichés consistent with their religiosity such as "sex is dirty".

5- **Sexual Excitement:** the low scores on this dimension reflect the impaired libido referred to elsewhere in this paper.

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موجز

النشاط الجنسي لمجموعة من مرضى الصرع المصريين (ذكور)

تم فحص مجموعة من المرض الذكور عددهم سبعة عشر مريضاً يعانون من اضطرابات جنسية مصحوبة بالصرع وذلك من خلال استبارات نفسية مع فحص طبي للجهاز العصبي للمترددين على عيادة الأمراض العصبية والنفسية بمستشفى الحسين الجامعي . وقد طبق الفحص أيضاً على عينة ضابطة من المرضى المترددين على عيادة الأسنان بنفس المستشفى وقد فحص جميع المرضى فحصاً كاملاً — شمل — إستبار أيزينك ، ويلسن عن التصرفات والاتجاهات الجنسية — إستبار كينزى — مقياس وكسلر للذكاء — رسم مخ كهربائى .

وقد سجل الجميع درجة عالية على اختيار أيزينك ، ويلسن فى خمسة جوانب هى :—

— الصورة الجنسية — الخجل — التطرف الجنسي — النفور الجنسي —
الاثارة الجنسية كما سجل رسم المخ الكهربائى زيادة فى نوبات الفص
الصدغى فى ٤٥ / من الحالات — — —

ABSTRAIT

LE COMPORTEMENT SEXUEL D'UN ÉCHANTILLON DES MALES EGYPTIENS EPILEPTIQUES

Dix sept mâles patient souffrant des troubles sexuelles associés à l'épilepsie ont été soumis à une entrevue psychiatrique ainsi qu'un examen neurologique à El-Hussein Hopital Universitaire, de même des patients dentales ont été examinés comme controls.

Tout les patients ont été sujet à compléter

- (1) Eysneck et Wilson questionnaire du comportement sexuel et des attitudes.
- (2) Questionnaire faire par Kinsey et al.
- (3) EEG a été fait et une histoire détaillée à propos de l'épilepsie a été menée.

Il y a eu une relation positive entre; la grandeur de la famille, durée de la maladie, facteurs précipitants, temps et fréquence de l'attaque, le genre de épilepsie et le développement de trouble sexuels.

Le nombre de points des patients et du control sur le Eysneck et Wilson questionnaire a été statistiquement significatif sans 5 dimensions (Pornographie, timidité, prudence, dégoût sexuel, excitation sexuelle).

THE KINDLING PHENOMENON : AN INTRODUCTION AND PRELIMINARY APPLICATION

BY

E. Hamdi and W.J. Freed

Abstract

The kindling phenomenon has attracted the attention of neuropsychiatrists in recent years. It is a direct demonstration of neural plasticity, and a model through which the process of epileptogenesis can be studied. Kindling is an experimental model of epilepsy that can be used appropriately to screen for potential anticonvulsant drugs. In this article the literature relevant to the development and technique of kindling, its basic mechanisms and potential theoretical and practical implications for psychiatry are reviewed. The technique used for amygdala kindling in the rat is described in detail, as well as methods of scoring and interpretation of seizure variables. The results of screening for the anticonvulsant properties of betaine, glutamate diethyl ester and cystine ethyl ester in kindled seizures have demonstrated no better effect than saline controls. These results are discussed in the light of methodological problems and recent findings.

Introduction

In the 1950's and 1960's numerous investigators described the seizure inducing potential of focal electrical brain stimulation. The importance of this observation was recognized by Graham Goddard in the late 1960's. Goddard (1967), coined the term kindling because