

Anxiety : A Concomitant of Some Psychiatric Disorders (A Psychophysiological Approach)

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ABSTRACT

This is a study of the emotion anxiety and its presence in association with other psychiatric disorders. It is based on the detection of the physiological high level of arousal known to exist in anxiety. Patients were chosen from the outpatient clinic at Ain Shams university hospital.

Patients had a consistently lower alpha time per cent, higher basic skin conductivity level and a slower rate of habituation than controls. Also they had higher neuroticism and lower extraversion scores and showed a less stress-basal difference upon stimulation. Physiological measures could not support reactive-endogenous dichotomy in depression. Moreover, depressed patients did not differ from other patients as regards anxiety. Patients with obsessive-compulsive neurosis came on the top of the list of arousal.

The authors suggested to view anxiety not as a pure disease on its own, rather, a heterogeneous cluster of symptoms.

INTRODUCTION

Anxiety is the commonest psychiatric disorder and probably the most widespread medical illness and is a component of various psy-

psychiatric illnesses (Okasha et al., 1981). Ali Ibn Hazem noted: *no one is moved to act or resolves to speak a single word, who does not hope by means of this action or word to release anxiety from his spirit* (Lader, 1971). Anxiety neurosis was introduced by Freud in 1920 as a syndrome in which there is a subjective alarm associated with visceral disturbances, a state of expecting danger or preparing for it even though it may be an unknown one. Okasha (1977) defined anxiety as referring to a condition of predominant tension and apprehension, experienced mentally and physically, persisting independently of external factors and not secondary to medical or psychiatric illness. The physiological basis lies in the increased autonomic nervous system activity, both the sympathetic and parasympathetic. So far as anxiety as a syndrome on its own right is concerned. Where does it stand as regards other psychiatric disorders? Its association with depression is so intimate that Lader and Marks (1971) announce the differentiation between anxiety and depression as one of the commonest and most difficult problems in psychiatric patients. As to hysteria, generations since Freud have been taught that "even in its most severe symptoms no admixture of anxiety is found". Kelly (1980) however compared a number of hysterical patients with a group of controls and found the former to be significantly more anxious and he postulated that 'la belle indifference' seen in some patients, who appear to show little concern for gross disablement, is probably an outward mask to conceal the high levels of anxiety and arousal being experienced. On studying patients with obsessive compulsive neurosis he reported an anxiety level higher even than that of patients with chronic anxiety. Beech and Perigault (1971, 1974) report that obsessionals tend to have exaggerated arousal and habituate slowly, indicating a high level of anxiety. Anxiety has also been questioned in association with antisocial personality disorder.

This study aimed at studying the emotion anxiety as a syndrome on its own and to test its presence in association with other illnesses, with no claim on it being causal, contributory or resultant. The tools were intended to include clinical and psychometric measures in addition to physiological measures denoting heightened or reduced arousal.

Okasha (1977) agrees that anxiety is a condition associated with a high level of arousal at rest; and arousal induced artificially in normals or arousal with no cognitive clues about its source can be equated with anxiety (Lader, 1981). Thus heightened anxiety level was expected to be associated with increased arousal, some of its manifestations being a reduction in the alpha time per cent of E. E. G., increased sweat gland activity at rest, reduced responsivity to stimuli due to the high prestimulus level and a delayed habituation to stimulation (Lader, 1975).

MATERIALS AND METHODS

Materials

1 - The patients

The patients were attendants of the outpatient clinic of the Ain Shams University Hospital. They were of both sexes, different ages, social and educational levels. The studied disorders included: conversion hysteria, depression - depressive neurosis and major depressive episode, obsessive-compulsive disorder, anxiety, hypochondriasis and antisocial personality disorder. The diagnoses being checked upon the Statistical and Diagnostic Manual (DSM - III, 1980). The patients were conditioned not to have received any psychotropic drugs for a period of at least one week prior to the examination.

2 - The controls

The controls were normal individuals using the criteria for normality given by Lader (1975). They were matched for age, sex, educational and social level.

3 - The Hamilton Anxiety Scale.

4 - The Eysenck Personality Inventory.

5 - The EEG - 100 biofeedback apparatus designed to assess the alpha time per cent in the background of the electroencephalogram.

- 6 - The SCL - 100 apparatus designed to assess the sweat gland activity.

METHODS

- 1 - All the patients were subjected to a psychiatric interview applicable in the Neuropsychiatric Department of Ain Shams University Hospital and the diagnosis was checked upon the DSM - III (1980).
- 2 - The Hamilton Anxiety Scale was applied to all patients by the examiner.
- 3 - The EPI was applied to all patients and controls.
- 4 - The alpha time per cent for a period of 4 minutes was recorded for both patients and controls.
- 5 - The basic skin conductivity was recorded for both patients and controls for a period of 10 minutes, followed by their galvanic response to a loud tune of 1 second duration and their rate of habituation after repeated application of the auditory stimulus.
- 6 - The results were tabulated and patient-patient and patient-control comparisons drawn using the mean, standard deviation, t- test and the probability (p).

RESULTS

- 1 - The distribution of the patients over the disease groups is shown in Table (1). Due to the small size of the individual groups no attention was paid to the sex differences and the group was considered as a whole.
- 2 - Comparing patients with controls it was found that all patients, regardless of their diagnoses had a mean basic skin conductivity higher than that of controls, a smaller stress-basal difference (galvanic response), a slower habituation rate, a lower alpha time per cent, a higher neuroticism and a lower extraversion score.

Patients with obsessive compulsive disorder were the only exception as regards the stress-basal difference which was higher in patients than controls (Table 2).

- 3 - No significant differences could be elicited between patients with depressive neurosis and patients with major depressive episode along any of the used parameters except for neuroticism which was higher in patients with major depressive episode.
- 4 - Intergroup comparisons drawn between patients revealed the following: (Table 3) .
 - a - **Hamilton Anxiety Scale:** Patients with major depressive episode received the highest score on the scale followed by depressive neurosis, anxiety, hypochondriasis, conversion, obsessive compulsive disorder and antisocial personality disorder. Statistical significance was found between major depressive episode and depressive neurosis on the one hand and conversion disorder, obsessive compulsive disorder and antisocial personality disorder on the other ($p < 0.05$).
 - b - **E.P.I.:** Patients with major depressive episode proved to be the most neurotic followed by patients with antisocial personality, anxiety, depressive neurosis, conversion disorder, hypochondriasis and finally obsessive compulsive neurosis, in each case with no significant difference.

TABLE I

Number and Mean Age of Patients in Each Disease Group

Disease	No.	Mean Age (Years)
Generalized Anxiety Disorder	12	23.83
Depressive Neurosis	10	34.40
Major Depressive Episode	10	31.60
Conversion Disorder	11	23.09
Obsessive Compulsive Disorder	8	17.13
Hypochondriasis	10	29.90
Antisocial Personality	10	16.70

TABLE II
Comparison between Patients and Controls

Item	Anxiety		Depressive Neurosis		Major Depression	
	Patients	Controls	Patients	Controls	Patients	Controls
B.S.C.	11.25	7.50*	14.80	7.50***	11.50	8.30
Max. S.B.D.	29.33	30.17	25.80	32.40	13.70	34.20
Habituation	5.50	3.90*	5.30	4.10	5.10	3.90
Alpha χ	36.25	50.83*	33	54 **	33.50	54 ***
E	9.83	13.33	9.90	12	10.30	11.90
N	19.00	13.67**	18.10	15.80*	21.50	14.50***

TABLE II (Continued)

Item	Conversion		O.C.N.		Hypochondriasis	
	Patients	Controls	Patients	Controls	Patients	Controls
B.S.C.	10.64	6.64**	18	6.38***	11.40	8.10
Max. S.B.D.	21.82	30.18	35.25	30.50	35.10	32.60
Habituation	4.73	4	8.38	4.25*	6.80	4 *
Alpha χ	41.55	52.27	35.63	55.63*	23	56.5 ***
E	9.10	13.36*	10.25	12.13	11.70	12
N	17.91	15.36	17.13	16.50	17.40	15.80

TABLE II (Continued)

Item	Antisocial Personality Disorder	
	Patients	Controls
B.S.C.	9.70	7.80
Max. S.B.C	30.70	31.20
Habituation	4.30	3.80
Alpha %	43.50	56
E	13.20	14.30
N	20.30	16.10***

B.S.C. = basic skin conductivity measured in unit deflection.

Max. S.B.D = maximal stress-basal difference measured in unit deflection.

Habituation = measured in the number of stimuli necessary to induce habituation.

Alpha % = the percentage of the EEG background which is occupied by the alpha rhythm.

E = extraversion.

N = neuroticism.

* = statistically significant ($p < 0.05$)

** = statistically highly significant ($p < 0.01$).

*** = statistically very highly significant ($p < 0.001$).

On the extraversion scale, patients with antisocial personality disorder were the most extravert, followed by hypochondriacal patients, patients with major depressive episode, with depressive neurosis, anxiety and lastly conversion disorder. The difference was statistically significant between patients with antisocial personality disorder on the one hand and patients with conversion disorder ($p < 0.001$), anxiety ($p < 0.01$), depressive neurosis ($p < 0.05$) and obsessive compulsive neurosis ($p < 0.05$) on the other hand.

TABLE III

Profile of Patients Arranged from the most to the Least Anxious

Alpha Time Per Cent	Basic Skin Conductivity	Stress Basal Difference	Rate of Habituation
Hypochondriasis	Obsessive Compulsive Neurosis	Obsessive Compulsive Neurosis	Obsessive Compulsive Neurosis
Depressive Neurosis	Depressive Neurosis	Hypochondriasis	Hypochondriasis
Major Depressive Episode	Major Depressive Episode	Major Depressive Episode	Generalized Anxiety Disorder
Obsessive Compulsive Neurosis	Hypochondriasis	Antisocial Personality Disorder	Depressive Neurosis
Generalized Anxiety Disorder	Generalized Anxiety Disorder	Generalized Anxiety Disorder	Major Depressive Episode
Conversion Disorder	Conversion Disorder	Depressive Neurosis	Conversion Disorder
Antisocial Personality Disorder	Antisocial Personality Disorder	Conversion Disorder	Antisocial Personality Disorder

- c - The alpha time % was least abundant in patients with hypochondriasis, followed by depressive neurosis, major depressive episode, O.C.N., anxiety, conversion and lastly antisocial personality. The difference was significant only between hypochondriasis on the one hand and antisocial personality ($p < 0.01$) and conversion ($p < 0.05$) on the other.
- d - The basic skin conductivity was significantly higher in patients with obsessive compulsive neurosis than in any other patient group. Depressive neurosis, major depressive episode, hypochondriasis, anxiety, conversion and antisocial personality disorder followed in that order of descending sweat gland activity, yet with no significant differences.
- e - Reactivity to stimuli was highest in patients with obsessive compulsive neurosis followed by hypochondriasis, major depressive episode, antisocial personality disorder, anxiety, depressive neurosis and lastly conversion disorder. Significant differences were detected between conversion disorder on the one hand and O.C.N. ($p < 0.05$) and hypochondriasis ($p < 0.05$) on the other.
- f - Habituation was slowest in patients with O.C.N. followed by hypochondriasis, anxiety, depressive neurosis, major depressive episode, conversion disorder and finally antisocial personality disorder. A significant difference was found only between patients with O.C.N. and patients with antisocial personality ($p < 0.05$).

DISCUSSION

The application of physiological measures to the assessment of psychological disorders is an approach, which if established and made full use of, would certainly add to the standardized psychiatric interviews, the diagnostic manuals and the psychological scales another un-

surpassable objective measure of assessment. Assessment through sweat gland activity was frequently recommended in the literature, and Lader (1975) recommended it especially for being easy to record, free from artefact and for its utmost sensitivity to minor changes in the autonomic nervous system activity. As to electroencephalography, Eysenck (1967) considered it the only other physiological measure specifically related to introversion-extraversion other than the electrodermal responding.

Patient-control comparisons :

Our findings revealed all patients to have a higher neuroticism and a lower extraversion score than normal controls, a finding in accordance with those of Eysenck (1967), Kelly et al. (1970) and Kelly et al. (1971). As regards the resting physiological variables patients had a consistently lower alpha time per cent, a higher basic skin conductivity level and a slower rate of habituation than controls. This coincides with other expectations and findings that patients scoring high on introversion are expected to have faster brain activity (Broadhurst and Glass, 1966; Eysenck, 1967; Kondo et al., 1978) and higher sweat gland activity (Eysenck, 1967; Buck, 1976). Eysenck (1967) expected patients high on introversion and neuroticism to have a higher electrodermal responding to stimuli than normals. In this point our findings diverge, as all our patients had a stress basal difference upon stimulation less than that of the normal controls. The reason could be that neurotic patients are already in a state of physiological overarousal in the resting state, therefore additional stress has less effect upon them than upon controls who start from a lower pre-stress level.

Patient-patient comparisons :

Comparing patients with depressive neurosis with patients with major depressive episode no significant difference was elicited except for neuroticism being higher in the latter. Thus physiology does not seem to support the 'reactive-endogenous' dichotomy. Noble and Lader (1972) found that the distribution of the EMG, skin conductance, forearm blood flow and salivation of patients of both groups all followed unimodal normal distributions. Lader and Wing (1969) advocated the clinical evaluation of depressed patients in terms of agitated

and retarded, a dichotomy based upon observations and ratings making no assumptions regarding etiology or pathological mechanisms, a notion that deserves further study.

Compared with the rest of the patients depressed patients did not differ significantly from anxiety in any of the items, a finding which is supported by Kelly (1980) who postulated the unrewarding results of attempting to separate the physiological effects of depression and anxiety since the central control of both is by the same monitor, the limbic system.

Patients with obsessive compulsive neurosis came on the top of the lists of arousal, mainly those dealing with sweat gland activity but also showed the highest stress basal difference. The high arousal level and high reactivity to stimuli have been previously postulated by Beech and Perigault (1974). They declare that the development of obsessional ideas and behaviour might be related to the balance between habituation and incubation. They consider that obsessionals are characterized by a tendency to exaggerated arousal and that such states may reach critical levels at which instead of decrement (habituation) additional stimulation may produce increased arousal (incubation) and further generalization of symptoms. They think that the very slow habituation rates usually found in obsessional neurosis may be a fundamental aetiological factor. They present evidence to support the view that obsessionals have high levels of arousal in the resting state and that when stressed their response as measured by anxiety self rating, forearm blood flow, heart rate and diastolic blood pressure is significantly greater than most of the other groups of patients.

Our findings did not exclude the association of anxiety with hysterical disorder. They expressed clinically as well as physiologically more anxiety than normal controls, but their order came at the bottom of the list of arousal or anxiety rating when compared with the other patient groups except patients with antisocial disorder. This agrees with Kelly (1980) whose findings showed that hysterical patients have an

anxiety level (self-rating and physiological) higher than that of controls, though less than that of patients with chronic anxiety, agitated depression and obsessionals.

Patients with antisocial personality disorder presented with the lowest level of anxiety, both ratings, self-rating and physiological; a finding consistent with reports given by Lykken (1957), Hare (1965, 1968) and Schalling et al. (1973). They were the most extravert; a finding supported by statistical significance and consistent with the finding of Eysenck (1967) and Okasha (1977). True, they came second on the list of neuroticism, but they exhibited no significant difference to any of the patient groups following it.

The position of anxious patients amongst other patient groups is not clear. In no item, except the psychiatrist's rating for anxiety did anxious patients occupy the front rows as regards the high physiological arousal expected. It could be possible that this ambiguity throws some light on the notion 'anxiety' itself. It could be that anxiety is not a pure disease standing on its own but rather a heterogeneous cluster of symptoms, that have been included under that name. These symptoms could stand on their own (anxiety neurosis), could be added on a depressive background (agitated depression), could mask that depression (masked depression), could be displaced (phobia), could be directed toward one's own health and body (hypochondriasis), could be converted into a somatosensory symptom (conversion hysteria) or could interfere with the normal conditioning-extinction mechanism leading to obsessive compulsive disorders.

REFERENCES

- American Psychiatric Association (1980) **Diagnostic and Statistical Manual of Mental Disorders (DSM-III)**. Washington : The Association.
- Beech, H. R. and Perigault, J. (1971) Ritualistic activity in obsessional patients. **Journal of Psychosomatic Research**, 15 : 417—22.

- (1974) Towards a theory of obsessional disorder. In Ciesielski, K.T., Beech, H.R. and Gordon, P.K. (1981) Some electrophysiological observations in obsessional states. *Brit. J. Psychiat.*, 138 : 479—484.
- Broadhurst, T. A. and Glass, A. (1969) Relationship of personality measures to the alpha rhythm of the electroencephalogram *Brit. J. Psychiat.*, 115 : 199—204.
- Buck, R. (1976) *Human Motivation and Emotion*. University of Connecticut.
- Eysenck, H. J. (1967) The biological basis of personality. *Brit. J. Psychiat.*, October, 1970.
- Hare, R. D. (1965) Temporal gradient of fear arousal in psychopaths. *Journal of Abnormal Psychology*, 70 : 442—445.
- Kelly, D. (1980) *Anxiety and emotions : Physiological basis and treatment*. Charles C. Thomas. Illinois : Springfield.
- Brown, C. and Shaffer, J. W. (1970) A comparison of physiological and psychological measurements on anxious patients and normal controls. *Psychophysiology*, 6 : 429—441.
- Heggs, N. M. and Sherman, D. (1971) Anxiety and the effects of sodium lactate assessed clinically and physiologically. *Brit. J. Psychiat.*, 119 : 129—141.
- Kondo, G. Y., Bean, J. A., Travis, T. A. and Knott, J. R. (1978) Resting levels of alpha and the Eysenck Personality Inventory. *Brit. J. Psychiat.*, 132 : 378—380.
- Larder, M. H. (1971) The responses of normal subjects and psychiatric patients to repetitive stimulation. In Levi, L. (Ed.), *Society, Stress and Disease*, Vol. I. London : Oxford University Press.

- (1975) In Silverstone (ed.), *Psychophysiology of Mental Illness*. London and Boston : Routledge and Kegan Paul.
- (1981) A psychophysiological approach to pathological anxiety. In Okasha, A. (Ed.), *Proceedings of Symposium on Psychopathology of Anxiety and Its Management*. Cairo.
- and Marks, I. (1971) *Clinical Anxiety*. Heinemann (Ed.) London.
- and Wing, L. (1969) Physiological measures in agitated and retarded depressed patients. *Journal of Psychiatric Research*, 7 : 89—100.
- Lykken, D. T. (1957) A study of anxiety in the sociopathic personality. *Journal of Abnormal and Social Psychology*, 55 : 6—10.
- Noble, P. and Lader, M. (1972) A physiological comparison of 'endogenous' and 'reactive' depression. *Brit. J. Psychiat.*, 120 : 541—542.
- Okasha, A. (1977) *Clinical Psychiatry*. Cairo : General Egyptian Book Organization.
- Ashour, A., Kamel, M., Sadek, A., Bishry, Z. and Lotaief, F. (1981) Psychodemographic study of anxiety in Egypt. *Egypt. J. Psychiat.*, 4 : 57—70.
- Schaffing, D., Libberg, L., Levander, S. E. and Dahlin, Y. (1975) Spontaneous autonomic activity as related to Psychopathy. *Biological Psychology*, 1 : 83—97.

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الموجـز

« القلق » كمصاحب للاضطرابات النفسية

(دراسة سيكوفسيولوجية)

تعتبر هذه دراسة لشعور القلق ومصاحبه لبعض الاضطرابات النفسية الأخرى ، وهي تعتمد على الكشف عن المستوى الفسيولوجي للانتباه المرتفع والمعروف عن القلق ، ولقد تم اختيار المرضى من العيادة الخارجية لمستشفيات جامعة عين شمس .

ولقد اظهرت عينة المرضى نسبة اقل في زمن ايقاع الالفا وتوصيل جلدي قاعدي اعلى وسرعة في التعود ابطا من العينة السوية ، كما اظهرت انبساطية وعصابية اكثر . ولكن الفارق بين الحالة القاعدية وتحت الضغط كان اقل من العينة السوية . وبالنسبة لجموعة المرضى فشلت الوسائل الفسيولوجية في تدعيم الثنائية (دفاعي / داخلي) في الاكتئاب ، كما لم يختلف المرضى المكتئبون عن بقية المرضى بالنسبة للقلق ، واظهر مرضى الوسواس القهري اعلى مستوى في الانتباه .

ولقد اقترح الباحثون اعتبار القلق على أنه ليس اضطرابا في حد ذاته ، ولكن على أنه تجمع غير متناسق من الأعراض .

ABSTRAIT

L'anxiété en Association avec Quelques Troubles Psychiatriques (un approche psychophysiologique)

Cette étude, traite de l'anxiété, et sa presence en association avec d'autres troubles psychiatriques. Le détection d'un niveau physiologique élevé d'éveil cortical (arousal), est à la base de cette recherche. Les patients ont été choisi à la clinique de l'université d'Ain Shams.

Par comparaison aux controls, les patients ont obtenu, consistement, un plus petit pourcentage d'alpha rythme, conductivité de peaux basale plus élevée, plus lente habitude à la stimulation. Ils avaient aussi le neuroticisme plus élevé et l'extraversion plus petite. Mais la

différence entre l'état de tension et l'état basale était plus petite après stimulation était plus petite.

Les méthodes physiologiques n'ont pas soutenu la notion réactive vs endogène de la dépression. De plus, les dépressifs ne diffèrent pas d'autres patients, à propos de l'anxiété. Ceux avec la névrose obsessionnelle-compulsionnelle étaient au début de la liste de l'éveil cortical.

Les auteurs ont proposé de considérer l'anxiété non pas comme un trouble distinct mais comme une association hétérogène de symptômes.

Work Treatment : Meaning and Rationale

By R. Mahfouz, E. Hamdi, Y. Amin and R. G. Hatem

ABSTRACT

The concept of using work as a treatment technique has led either to expansion of the concept to include many activity therapies or its reduction to the idea of occupying the patient's time with certain stereotyped activities. This paper presents a new definition of the concept which stresses certain common principles between work treatment and psychotherapy. The general plan of this type of therapy, as practiced in a private mental hospital for 7 years, is outlined. Examples of patients' comments are cited.

INTRODUCTION

The idea of using 'work' as a therapeutic measure in psychiatric practice is an old one. Recently, the importance of such a measure has been greatly emphasized in the face of the reductionistic attitudes that view Man only as a series of biochemical reactions, conditioned reflexes, or symbolic achievement.

Occupational therapy, ergo therapy, invalid occupation, manual treatment and moral treatment are various names used to point to this type of therapy. However, the concept of using work as a treatment technique has led either to expansion of the concept to include many activity therapies such as work, play and skills training or reduction of the concept to the idea of occupying the patient's time with certain stereotyped activities.

THE PRESENTED CONCEPT

The salient features of the type of treatment we are going to present, may be emphasized in the following points :