

STUDY OF NEUROSES: I LIFE EVENTS AND PERSONALITY DIMENSION*

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SUMMARY

With an object to study neurosis through stressful life events, personality dimension, family interactional patterns and other sociological variables, certain hypotheses are tested in two populations, namely 60 neurotics and 60 normals, matched at individual level for age, sex, and education. This paper is divided into two parts. In this part the main observations are that neurotic patients experience more stressful life events as compared to normal population. Stress in the area of education is related with hysteria and anxiety, and bereavement with depression. Neuroticism dimension is related to neuroses as such. However, experience of stressful life events is independent of personality dimension.

Historical Perspective

Tracing the history of the concept of neurosis, Knoff (1970) says that 'neurosis' did not spring from the head of Freud, as many think. The creator of the term was one of the most famous physicians of his time. He was William Cullen (1710-1790), professor of physic (medicine) at Edinburgh.

In 1769, Cullen published his nosology in which he classified all diseases by their symptoms into classes, genera, and species. The class 'neuroses' contained what we today might call neurological, psychosomatic, neurotic, and psychotic disorders. He sub-divided 'neurosis' into four orders: comas (including convulsions and hysteria), and vesanias. He defined neurosis as, "those affection of sense or motion... which do not depend upon topical affection of organs but upon general affection of the nervous system".

To Cullen and most of his contempora-

ries, neuroses were physical afflictions - diseases without fever or local pathology. To Pinel, according to Knoff (1970), they were not only nervous disorders but also 'moral' disorders. Pinel concluded that his patients suffered from 'mental alienation'. He saw heredity and faulty education as contributing causes. Unlike Cullen, Pinel was not a unitarian. Multiple factors in nervous disorder were beginning to be recognised.

Between Pinel and Freud, lay a century in which the medical model of disease dominated the practice of psychiatry. Griesinger's axiom, "Mental diseases are brain diseases" became a slogan.

In 1894 neurosis and psychosis were viewed by Freud, for the first time from the vantage point of what would be called, in 1896, unconscious defense. Cullen's system was neurological and the key word was 'nervous'; Freud's was psychological and the key word was 'repression' (Knoff, 1970).

Adler (1924) rejected the sexual etiolo-

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gy of neurosis, given by Freud and contended that feelings of inferiority were the true causes. Adler felt that a person's development was conditioned by his social environment rather than by biological forces and insisted that an individual could be analyzed and understood in terms of his present purposes or life goals rather than in terms of his infantile past.

Life Events

It is through Winters (1951) work on Adolf Meyer, we learn about the recognition of preceding life circumstances of the patient and the episode of mental illness. Based on his observations not only of the threatening events but the events which demanded a definite shift or transition of some kind from the individual, Adolf Meyer developed a method for charting the possible events of a person's life, both medical and non-medical. These charts demonstrated that for many patients events preceded most illness episodes, whether physical or mental.

In spite of the interest in understanding the influence of man's environment on his health, the focus had been on physico-chemical factors, supplemented, since the discovery of microorganisms, by micro biologic agents thought to be directly pathogenic to the human organism. Then, the inability of these factors to explain the occurrence of many diseases of modern societies had led to a search for new categories of environmental factors potentially capable of producing disease.

Cannon (1935), Selye (1946) and Wolff (1949) propounded the stress concept of disease. Recent investigators have extended it and pointed out that one of the important features of the environment in disease etiology is the presence of the environment for

community studies has been expanded from physical and micro-biologic to include the social.

In the field of psychosomatic medicine, Wolff and his colleagues were able to develop relationships between certain life events and the appearance of symptoms of illness. Holmes, a former colleague of Wolff, started developing and testing an instrument containing a list of common life events that require a certain amount of social readjustment on the part of persons who experience them (Holmes and Rahe, 1967).

These advancements have revised the etiological model. As held now, illness is the consequence of numerous correlated potential factors, like the presence of stressful environmental conditions, perception by the individual that such conditions are stressful, the ability to cope with or adapt to these conditions, genetic predisposition to a disease, and the presence of a disease agent.

Rabkin and Struening (1976) in their efforts to critically evaluate the literature in this field followed the sequence of conditions: social stressors, mediating factors, stress, onset of illness. Similarly, Dohrenwend (1979) discussing general paradigm of the stress response, following Selye's formulation of four main elements, extends the model stating that, "stressors can range from extreme situations, such as natural and man-made disasters, to the more ordinary stressful life events that we have been considering. Mediating factors can be expanded to include both inner resources and deficits (e.g., intellectual ability, physical health, inherited vulnerabilities, and vulnerabilities acquired from, say, death of a parent before age 11) and external resources or deficits (e.g., material wealth, social support in the form of family and friends, or the absence of such assets)".

Life Events Research

In the field of medicine several authors have found modest but statistically significant relationships between mounting life change and the occurrence or onset of sudden cardiac death, myocardial infarctions, accidents, athletic injuries, tuberculosis, leukemia, multiple sclerosis, diabetes and the entire gamut of minor medical complaints.

Similarly in psychiatry, a large group of workers have reported high scores on checklists of life events and their association with psychiatric symptoms and disorders, and such scores have been found to differ between psychiatric and other samples.

In general, most of the workers are interested to demonstrate a temporal relationship between the onset of illness and a recent increase in the number of events that require socially adaptive responses on the part of the individuals. Many investigators continue to focus on linear relationships between independent and dependent variables without consideration or control of interacting mediating variables.

Methodology

It has been often contested, and rightly so that mere exposure to stressors is not a sufficient explanation for the onset of illness in ordinary human experience. There are certain other factors which require equal consideration. Rabkin and Struening described them as:

- i) Characteristics of the stressful situation,
- ii) individual biological and psychological attributes, and
- iii) characteristics of the social support systems available to the individual that serve as buffers.

Before starting the study, it was thought necessary to subject these impressions to empirical tests. However, due to certain practical difficulties, except the biological aspect, other areas were given due consideration.

Objective

It was planned to study neurosis through life events, personality dimension, family interactional patterns and other sociological variables. For this purpose, following hypotheses were framed:

1. The life events are experienced more by neurotics (Cl. Diagnosis) than by normals.
2. Certain sub-types of neuroses are connected to certain specific life-events.
3. Eysenck Personality Inventory's (EPI) Neuroticism (N) dimension is related to neuroses.
4. The life events are associated to neuroticism (EPI) as compared to non-neuroticism (EPI).
5. The introverts (EPI) experience less life events as compared to extroverts (EPI).

To test the hypotheses the data were analysed using Fisher's exact probability test, F ratio and student 't' test to understand the differences within and between the groups. To understand the discriminant functions of the tools used in this study a discriminant analysis was carried out for 22 variables.

Hypotheses related to other aspects will be presented in the second part of this paper.

Sample

The study was carried out at National Institute of Mental Health & Neuro

Sciences (NIMHANS) with a design to compare a group of neurotics called experimental group with normals as control group. Groups were matched at individual level for age, sex, and education. Total 120 respondents (60 in each group) and their families were studied in both the groups.

Inclusion Criteria for Groups

1. Neurotic Group

The cases who were 16 years and above, coming first time for consultation and diagnosed as neurotics by the Consultant following ICD formed the experimental group.

2. Normal Group

A person who was never treated for any type of mental illness, had no family history of mental illness and had no psychiatric symptoms at the time of interview formed the control group.

Sources and type of Information

Information was obtained from complete case records on file at out-patient department of NIMHANS and transferred to data sheet for the demographic factors. This information was confirmed from the respondent during the initial interview in the out-patient department. The subsequent interviews were always fixed at the convenience of the respondent. The purpose of these interviews in the experimental group was:

1. To confirm the clinical diagnosis.
2. To find out the various life-events acting as stress during the past one year in respondents life preceding the onset of illness.
3. To assess the personality dimension.

In addition to the above information ex-

cept the first aspect the control group was assessed for the following aspects:

1. To know whether the respondent was any time treated for mental illness or showed any psychiatric symptoms at the time of interview. Similarly efforts were made to find out family history of mental illness. Doubtful cases were excluded.
2. In eliciting the information on life events and their corresponding stress in the control group the time was kept in accordance with the corresponding case from the experimental group. For example, when the duration of illness was six months for case number 10, the information on life events for respondent number 10 in the control group was collected for one year preceding six months. This was done in order to keep the time element constant for life events for both the groups.

Instruments

1. Interview Schedule

This was prepared especially for this study to collect demographic factors, information regarding the family, and other important variables which were thought to be stress producing.

2. Indian Psychiatric Interview Schedule (IPIS) by Kapur et al (1974).

This was used to rule out the psychiatric manifestations in the normal population.

3. Scaling of life events manual by Paykel et al (1971) and subsequently revised in 1976 was used to elicit life events and stress. The latest version

obtained from the author had 82 items pertaining to ten different areas. We had to drop 18 items and change the scoring procedure after the pilot study. The adopted scoring procedure was :

- i. When event was independent,
- ii. respondent had no control over it,
- iii. respondent had severe negative impact (subjective), and
- iv. respondent had severe negative impact (objective).

The score was one for such an item. When the reported event did not fulfill the above mentioned conditions, event was not considered. Thus the score range was 0 to 64.

It is necessary to clarify why we preferred Scaling of life events (Paykel et al) as compared to Social Readjustment Rating Scale (SRRS), by Holmes and Rahe (1967). It is well pointed out by Caplan (1975) that the use of predetermined weights may be appropriate when the characteristics of the proposed sample more or less match those of the sample used in developing the weights. It is also documented that the use of predetermined weights have no added advantage over other procedures (Chiriboga, 1977). Finally, Pakelian instrument is a manual and does not demand validation and reliability tests.

4. *Personality Assessment*

To assess the respondents personality dimension, Eysenck Personality Inventory was used.

As mentioned earlier, the hypotheses

concerning family functioning and sociological variables will be presented in the second part of this paper.

Results

General Characteristics of the Groups

	Experimental Group (N = 60)		Control Group (N = 60)	
	No.	%	No.	%
Religion				
Hindu	47	78	56	93
Muslim	10	17	4	7
Christian	3	5	-	-
Age				
16 - 20	15	25	15	25
21 - 25	12	20	12	20
26 - 30	10	17	10	17
31 - 35	9	15	9	15
36 - 40	8	13	8	13
41 - 45	4	7	4	7
Sex				
Male	35	58	35	58
Female	25	42	25	42
Education				
Illiterate	3	5	3	5
Elementary	12	20	12	20
Secondary	18	30	18	30
College	26	43	26	43
P. Degree	1	2	1	2
Occupation				
Employed	31	52	39	65
Not Employed	29	48	21	35
Marital Status				
Ever Married	35	58	28	47
Never Married	25	48	32	53
Residential Area				
Rural	4	7	-	-
Urban	56	93	60	100
Diagnostic Break up				
1. Hysteria Neurosis	12	20		
2. Anxiety Neurosis	22	37		
3. Neurotic Depression	26	43		

The above table demonstrates the distribution of respondents of both the groups according to religion, age, sex, education, occupation, marital status, residential area, and diagnostic break up of the experimental group. It is obvious that groups had optimal level of matching.

Table 1
Total Life Events in Both Groups According to Ten Areas

Area	Experimental Group (N = 60)			Control Group (N = 60)			Statistical Findings
	No.	Score	%	No.	Score	%	
1. Work	27	38	45	4	4	7	$X^2 = 23.0083$, d.f. = 1, $P < .01$
2. Education	15	28	25	6	7	10	$X^2 = 4.6753$, d.f. = 1, $P < .05$
3. Financial	50	101	83	21	21	35	$X^2 = 29.0083$, d.f. = 1, $P < .01$
4. Health	26	33	43	-	-	-	$X^2 = 33.1914$, d.f. = 1, $P < .01$
5. Bereavement	8	9	13	3	3	5	$X^2 = 2.5020$, N.S.
6. Relocation	4	4	7	1	1	2	$P = 0.2129$, N.S.
7. Dating (Engagement)	5	5	8	-	-	-	$P = 0.1227$, N.S.
8. Legal	1	2	2	-	-	-	$P = 0.2479$, N.S.
9. Family and Social	25	49	42	-	-	-	$X^2 = 31.5789$, d.f. = 1, $P < .01$
10. Marital	24	26	40	1	1	2	$X^2 = 26.7284$, d.f. = 1, $P < .01$
Total		295			37		
Mean		4.9166			0.6166		
S.D.		1.9954			0.5830		
			Sum of Squares			d.f.	Variance
Between Groups			554.7			1	554.7
Within Groups			259.3114			118	2.1975
			$F = 252$.4232,		$P < .01$

The above table demonstrates that except the events in the areas of bereavement, relocation, dating and legal, neurotics experience life events as stressful in other six areas.

Table 2
Life Events and Types of Neuroses

Area	Hysteria (H)	Anxiety (A)	Depression (D)	Statistical Findings
	(N = 12)	(N = 22)	(N = 26)	
	%	%	%	
Work	50	36	50	F Ratio = 0.4745, N.S.
Education	42	32	12	F Ratio = 6.8815, $P < .01$ H. And D.T. = 3.8161, d.f. = 36, $P < .01$ A. And D.T. = 2.3550, d.f. = 46, $P < .05$ H. And A.T. = 1.2426, d.f. = 32, N.S.
Financial	83	86	81	F Ratio = 2.3492, N.S.
Health	58	45	35	F Ratio = 0.5139, N.S.
Bereavement	8	5	23	F Ratio = 3.2392, $P < .05$ D. And A.T. = 3.91009, d.f. = 46, $P < .01$ A. And H.T. = 0.9244, N.S. D. And H.T. = 0.4604, N.S.
Relocation	-	9	8	F Ratio = 0.0363, N.S.
Dating (Engagement)	8	5	12	F Ratio = 0.4047, N.S.
Legal	-	5	4	F Ratio = 0.0125, N.S.
Family and Social	33	32	54	F Ratio = 0.4563, N.S.
Marital	33	27	54	F Ratio = 1.3276, N.S.

Area	Hysteria (H) (N = 12) %	Anxiety (A) (N = 22) %	Depression (D) (N = 26) %	Statistical Findings
Mean	4.75	4.95	4.96	
S.D.	1.2990	2.1421	2.1390	
	Sum of Squares	d.f.	Variance	
Between Groups	0.4418	2	0.2209	
Within Groups	240.1666	57	4.2134	

F Ratio = 0.0524, N.S.

This table shows that except stresses in the areas of education and bereavement no other life events have a definite correlation with the types of neuroses.

Table 3
EPI 'N' Score in Both Groups

	Experimental Group (N = 46)	Control Group (N = 3)	
Mean	16.5869	12.333	
S.D.	3.2542	0.9427	
	Sum of Squares	d.f.	Variance
Between Groups	221.6405	1	221.6405
Within Groups	489.8189	47	10.4216

F Ratio = 21.2674, P < .01

In experimental group 77% respondents scored on neuroticism dimension whereas it is 5% in the Control group. It is statistically significant.

Table 4
Life Events Score and High-Low 'N'
in Experimental Group

	High 'N' 11 + (N = 46)	Low 'N' 11 (N = 14)	
Mean	5.0434	4.5	
S.D.	2.0216	1.8803	
	Sum of Squares	d.f.	Variance
Between Groups	4.4291	1	4.4291
Within Groups	237.5	58	4.0948

F Ratio = 1.0816, N.S.

Within the same group life events have no relation with High 'N' & Low 'N'.

Discussion

The confirmation of hypothesis one forces us to enter the issue - do life events perpetuate neuroses? In this regard,

Table 5
Life Events Score and High-Low 'N'
in Control Group

	High 'N' 11 + (N = 3)	Low 'N' 11 (N = 57)	
Mean	0.3333	0.63	
S.D.	0.3848	0.5886	
	Sum of Squares	d.f.	Variance
Between Groups	1.3204	1	1.3204
Within Groups	20.1976	58	0.3482

F Ratio = 3.7916, N.S.

Within the same group life events have no relation with High 'N' & Low 'N'.

Table 6
Life Events Score and Neuroticism
Dimension on EPI in Both Groups

	Experimental Group (N = 46)	Control Group (N = 13)	
Mean	5.0434	0.3333	
S.D.	2.0216	0.3848	
	Sum of Squares	d.f.	Variance
Between Groups	271.7768	1	271.7768
Within Groups	188.4444	47	4.0098

F Ratio = 67.7849, P < .01

Between the groups life events score is high in the Experimental Group.

Dohrenwend and Dohrenwend (1978) say that in order to arrive at a correct casual inference much "depends on the investigator's ability to date the event in relation to the

Table 7
Life Events Score and Introversion-Extraversion
Dimension in Experimental Group.

	Introverts 13 (N = 47)	Extraverts 13 + (N = 13)	
Mean	4.9148	4.9230	
S.D.	2.0925	2.0023	
	Sum of Squares	d.f.	Variance
Between Groups	0.0010	1	0.0010
Within Groups	245.3721	58	4.2305

F Ratio = 0.000004, N.S.

Within the same group life events score do not differ in relation to personality dimension.

Table 8
Life Events Score and Introversion-Extroversion
Dimension in Control Group

	Introverts 13 (N = 44)	Extraverts 13 + (N = 16)	
Mean	0.5625	0.6136	
S.D.	0.4613	0.5986	
	Sum of Squares	d.f.	Variance
Between Groups	0.0392	1	0.0392
Within Groups	19.1765	58	0.3306

F Ratio = 0.1185, N.S.

Within the same group life events score do not differ in relation to personality dimension.

Table 9
Life Events Score and EPI 'E'
Dimension in Both Groups

	Experimental Group (N = 13)	Control Group (N = 16)	
Mean	4.9230	0.5625	
S.D.	2.0925	0.4613	
	Sum of Squares	d.f.	Variance
Between Groups	137.8505	1	137.8505
Within Groups	60.3297	27	2.2344

F Ratio = 61.6937, $P < .01$

Between the groups the extraverts experience greater degree of life events in experimental group.

onset of somatic or psychological disorder and to learn something about whether the onset of the event was within or outside the control of the subject. Event was taken as stress producing provided it was independent, respondent had no control over it, produced severe negative impact and this impact in terms of disturbances in the respondent was confirmed by significant others.

The element of control has a direct bearing on the cause-effect relationship. In case, the respondent has control over the event there are least chances of stress leading to manifestations. On the other hand, when the respondent has no control over the event there are greater chances of stress leading to manifestations.

The confirmation of disturbance by significant others is to counteract the popular 'belief' that neurotics are prone to exaggerate the reality.

Ninety two percent respondents had stress in more than one area in the experimental group, compared to this only 40% respondents had stress in just one area in the control group. 62% respondents experienced stress more than three areas during the last one year in the experimental group. The mean number of stressful life events experienced by neurotics (table 1) over a period of one year was around 5, which is much higher than the normal population reported by Gurmeet Singh et al (1984) for Indian population. Based on these observations, we would like to say that neurotics experience multiple stressful life events as compared to normal population.

Regarding second hypothesis, stress in the area of education have definite relationship with hysteria and anxiety; and bereavement with depression. Barrett (1979) observed that "certain types of events, those

having to do with performance, were experienced as more stressful by those with anxiety disorders, compared to those with depressive disorders, whereas certain other types of events, those involving changes in important interpersonal relationships, were experienced as more stressful by those with depressive disorders compared to those with anxiety disorders". The stress in the area of education in the experimental group was clustered around items 14; 'important academic failure', and 15; 'prepare for or take an important examination'. Both these items are related to performance. Authors have not come across any study on stressful events and undesirable events, life events and hysteria. In that case the only comment can be made that hysterics may also experience stress pertaining to events related to performance.

Regarding bereavement and its relation with depression is well established. Dohrenwend (1979) while commenting on 'Single Recent Events', picks bereavement as the first item for discussion. Bereavement is an exit event and its relationship with depression is well established in the literature (Paykel et al 1975, Paykel and Tanner 1976, Venkoba Rao and Nammalvar 1976, Ilfeld 1977, Chatterjee et al 1981).

One interesting observation which we would like to share that both experimental and control groups were not different in experiencing the stress due to education and bereavement events whereas within the experimental group, depressives have definite stress in the area of bereavement and hysterics and anxiety neurotics in the area of education. These findings are contrary to the statement by Dohrenwend and Dohernwend (1978) "that the correlates of stressful life events are not limited to any particular type of disorder".

There is a high proportion of respondents in the experimental group who scored high on neuroticism dimension. This being a statistically significant difference proves hypotheses three. Nevertheless, two basic doubts can be raised. One, when the experimental group consisted of only those who are clinically diagnosed as neurotics, why all have not scored high (only 77%) on neuroticism dimension? Two, in control group no respondent was showing any neurotic symptoms why some respondents (5%) had high score on neuroticism dimension? These two doubts lead to two basic issues. One, whether EPI is quite sensitive to differentiate between a normal and a neurotic? Secondly, whether it is necessary that a neurotic (clinically) have to have a high score on EPI 'N' dimension?

The first issue can be contested that even a normal person can score high on 'N' dimension once s/he is trying to be over smart or a person who feels that s/he is in a testing situation. Not only this rather some people try to give false information also. Thus, those who had high 'N' score (5%) in the control group may belong to one of these categories. Moreover, 5% is not a big error.

The second issue is of great concern because it is often contested that it is the neurotic personality which is responsible for neurotic manifestations. Once this contention is accepted, one has every reason to expect almost all respondents in the experimental group to have high score on 'N' dimension. But, it is not so. There are about 23% respondents who did not score high on 'N' dimension in the experimental group. This is not a small size. This establishes the point that clinically neurotic person need not possess definitely a neurotic dimension and also a normal person can score high on

neuroticism dimension. Hence, based on these observations it can be safely concluded that a person showing neurotic manifestations (clinically) need not have a definite neurotic dimension. Somewhat similar observations have been reported by Andrews et al (1978). With the help of their battery for coping style the authors were able to distinguish persons with stress produced neurotic illness from non-patients, "yet showed no significant correlation with the neuroticism scale of the Eysenck Personality Inventory".

With regard to the neuroticism dimension, the high score is suggestive of instability, over-reactivity and tends to detect individuals who are emotionally over-responsive and have difficulties in returning to a normal state after emotional experiences. These individuals are also more prone to neurotic disorders under stress. Low scores on the 'N' scale tend to be better adjusted and more stable emotionally (Cline, 1977).

It is a popular belief that neurotic personality is responsible for the experience of life stress. Recently, Gurmeet Singh et al (1984) reported that "subject with high N-score report greater amount of subjective stress suggests that neurotic patients would be likely to report higher number of experienced life events as well as significantly higher stress scores for the same stress event than the normals". Based on such a contention one has every reason to expect a significant difference in terms of experience of life stresses between high 'N' and low 'N'. However, it is not so either in the experimental group or in the control group. This observation refutes the fourth hypothesis. Nevertheless, between the different populations, 'Neuroticism' has a relation with life events but within the same population

'N' has no relation with life events irrespective of the types of population.

The extravert individuals tending to be outgoing, impulsive and uninhibited as well as having many social contacts, frequently taking part in group activities, whereas the introverts are quite retiring sort of people who are introspective, fond of books rather than the people and who have personal reserve and are distinct except with intimate friends. They do not like excitement, take matters of everyday life with seriousness and like well ordered mode of life (Cline, 1977).

Keeping the above explanation as a frame of reference, one has every reason to expect a significant difference in the experience of life events between introverts and extraverts. To be sure, introverts should experience less stress as compared to extraverts. One fails to find any such difference in both the groups. Hence, hypothesis five is also rejected. In order to strengthen this point, we examined life events score and EPI 'E' dimension, which demonstrated that extraverts experience greater degree of stressful life events in the experimental group as compared to control group. As per personality theory one would however, accept the earlier findings that N dimension is related to life events but even E dimension is having a statistically significant relationships with the life events. This shows that life events are related to both dimensions.

Hence, based on our observations we would like to conclude that personality dimension has no relationship with the stressful life events and stressful life events are independent of personality dimension. Before we conclude this part, we would like to suggest that this specific area requires further systematic explorations.

References

- ADLER, A. (1924), *The practice and Theory of Individual Psychology*, New York: Harcourt.
- ANDREWS, G., TENNANT, C., HEWSON, D. & VAILLANT, G. E. (1978), Life events stress, social support, coping style, and risk of psychological impairment. *Journal of Nervous and Mental Disease*, 166, 307.
- BARRETT, J. E. (1979), The relationship of life events to the onset of neurotic disorders. In: *Stress and Mental Disorder*, Eds. Barrett, J. E., Rose, R. M. and Klerman, G. L. p.87, New York: Raven Press.
- CANNON, W. B. (1935), Stresses and strains of homeostasis, *American Journal of Medical Science*, 189, 1.
- CAPLAN, R. D. (1975), A less heretical view of life change and hospitalisation, *Journal of Psychosomatic Research*, 19, 247.
- CHATTERJEE, R. N., MUKHERJEE, S. P. & NANDI, D. N. (1981), Life events and depression. *Indian Journal of Psychiatry*, 23, 333.
- CHIRIBOGA, D. A. (1977), Life event weighting systems: a comparative analysis, *Journal of Psychosomatic Research*, 21, 415.
- CLINE, V. B. (1977), Eysenck's Personality Inventory (EPI). In: *International Encyclopedia of Psychiatry, Psychology, Psychoanalysis and Neurology*, Ed. Wolman, B.B. 4, 424, New York: Raven Press.
- CULLEN, W. (1807), *System of Nosology*. Translated by Stockbridge, U. K.: C. Sturtevant.
- DOHRENWEND, B. P. (1979), Stressful life events and psychopathology: some issues of theory and method. In: *Stress and Mental Disorder*, Eds. Barrett, J. E., Rose, R. M. & Klerman, G. L. p.1, New York: Raven Press.
- DOHRENWEND, B. S. & DOHRENWEND, B. P. (1978), Some issues in research on stressful life events, *Journal of Nervous and Mental Disease*, 166, 7.
- GURMEET, S., DALBIR, K. & HARSHARAN, K. (1984), Presumptive stressful life events scale (PSLES) - a new stressful life events scale for use in India, *Indian Journal of Psychiatry*, 26, 107.
- HOLMES, T. H. & RAHE, R. H. (1967), The social readjustment rating scale, *Journal of Psychosomatic Research*, 11, 213.
- ILFELD, F. W., Jr. (1977), Current social stressors and symptoms of depression, *American Journal of Psychiatry*, 134, 161.
- KAPUR, R. L., KAPUR, M. & CARSTAIRS, G. M. (1974), Indian Psychiatric interview schedule (IPIS), *Social Psychiatry*, 9, 61.
- KNOFF, W. F. (1970), A history of the concept of neurosis, with a memoir of William Cullen, *American Journal of Psychiatry*, 127, 120.
- PAYKEL, E. S., PRUSOFF, B. A. & UHLENHUTH, E. H. (1971), Scaling of life events. *Archives of General Psychiatry*, 25, 340.
- PAYKEL, E. S., PRUSOFF, B. A. & MYERS, J. K. (1975), Suicide attempts and recent life events, *Archives of General Psychiatry*, 32, 327.
- PAYKEL, E. S. & TANNER, J. (1976), Life events, depressive relapse and maintenance treatment. *Psychological Medicine*, 6, 481.
- RABKIN, J. G. & STRUENING, E. L. (1976), Life events, stress, and illness, *Science*, 194, 1013.
- SELYE, H. (1946), The general adaptation syndrome and diseases of adaptation, *Journal of Clinical Endocrinology*, 6, 117.
- VENKOBA RAO, A. & NAMMALVAR, N. (1976), Life changes and depressive disease, *Indian Journal of Psychiatry*, 18, 293.
- WINTERS, E. D. (Ed.) (1951), *The Collected Papers of Adolf Meyer*, P.52, Baltimore: Johns Hopkins Press.
- WOLFF, H. G. (1949), Life stress and bodily disease. *Proceedings of the Association for Research in Nervous and Mental Diseases*, 29, 3.