THE VALIDITY OF CLINICAL DIFFERENTIATION BETWEEN ANXIETY AND DEPRESSIVE NEUROSES BY FACTOR ANALYSIS

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SUMMARY

Ninety subjects consisting of 30 patients of generalized anxiety disorder, 30 of dysthymic disorder (depressive neurosis) according to D.S.M. III criteria and 30 patients of mixed anxiety-depressive disorder were given a detailed psychiatric examination, in addition, they were administered the Hamilton rating scales for anxiety and depression, and also the Taylor manifest anxiety scale and Amritsar depressive inventory. All the symptoms elicited were then subjected to factor analysis, five factors were isolated; two of them co-relating with the depressive rating scales and three with the anxiety rating scales. However, there was considerable overlap with anxious mood having highest loading on the depressive factor. Thus anxiety and depression could not be isolated as distinct entities factorially.

The Validity of Clinical Differentiation Between Anxiety and Depressive Neuroses by Factor Analysis

One of the most difficult tasks in psychiatric practice is the decision whether to label a patient as suffering from anxiety neurosis or depressive neurosis, since a majority of patients present with an admixture of anxiety and depressive symptoms, the pure case of anxiety or depression being the exception rather than the rule (Pollitt and young 1971). This clinical impression has been confirmed in numerous studies, some using structured interviews while others used various rating scales (Derogates et al 1972, Breier et al 1985). Further, the co-relation between anxiety, and depressive scales is rarely below 0.5 and this has led Mendels et al (1972) to question the validity of differentiating anxiety and depression on this basis, instead the diagnosis 'mixed anxiety-depression' has gained some acceptance (Downing and Rickels 1974, Finlay Jones and Brown 1981).

On the other hand, some studies using discriminant function analysis e.g. Prusoff and Klerman (1974), Gurney et al (1972), Roth et al (1972), and Mountjoy and Roth (1982) support a distinction between anxiety and depressive states, but this was not confirmed by Johnstone et al (1980) who reported that the rating scales for anxiety and depression were highly co-related and it was not possible for anxiety neurosis to be separated from depressive neurosis on their basis. In these studies, a number of symptoms were identified by discriminant function analysis as being important in discriminating between the two diagnostic groups. Depressed mood, early awakening, suicidal ideation and psychomotor retardation were strong discriminators in identifying patients of depression, while the presence of panic attacks, agoraphobia and compulsive features best discriminated patients with anxiety disorder. One study (Gurney et al 1972) reported that the symptom of panic alone accounted for one-third of the predicted variance. Similarly in the study of Mountjoy and Roth (1982) panic was found to be the single most powerful item in identifying anxious patients, whereas cross sectional symptoms of generalized anxiety failed to discriminate between anxiety and depressive states.

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Studies using factor analysis have generally shown that factor structures were different in patients diagnosed as anxiety neurosis from depressive neurosis (Deroqatis et al. 1972) but their cohort included all types of cases under the general heading of anxiety neurosis - thus including panic anxiety, phobic and compulsive symptoms. Recently a genetic study by Torgersten (1985) reported a remarkable difference in the concordance of M. S. and D. Z. twins in the pure anxiety neurosis which was not seen in the mixed anxiety depressive cases or pure depressive cases. However, when he analysed his data according to DSM III criteria, he found that the higher concordance in M. Z. over the D. Z. twins was present for all other categories of anxiety disorder except the category of generalized anxiety disorder. In view of the fact that in almost all the previously reported studies, the category of anxiety neurosis has included patients of generalized anxiety disorder and panic attacks, phobic disorders and obsessive compulsive symptoms. Since the later categories especially panic attacks are now recognized to be distinct from generalized anxiety disorders both clinically, genetically and in response to anti-depressant drugs it was felt that a factor analytic study would be useful comparing only the pure generalized anxiety disorders' with the 'minor depressive disorders' to see if they can be factorially discriminated.

Methods
Ninety consecutive patients attending the psychiatry out patient department of Rajendra Hospital, Patiala and clinically diagnosed as anxiety neurosis, depressive neurosis or mixed anxiety-depressive neurosis were taken up for the study. Each patient was then given a detailed psychiatric history and mental state examination using a standardised proforma. Those patients who fulfilled the inclusion and exclusion criteria for generalized anxiety disorder (Code No. 300.02 of D. S. M. III) constituted group of generalized anxiety disorder. Those patients who fulfilled the criteria laid down for dysthmic disorder (Code No. 300.40 of D. S. M. III) constituted the second-group of Dysthmic disorder (depressive neurosis) while those who had symptoms of both these categories but did not fulfill all criteria for inclusion into either, constituted the third 'mixed' anxiety-depressive group, 30 subjects were taken in each group. All patients with a primary diagnosis of any other psychiatric disorder including panic disorder, phobic or obsessive compulsive neurosis, psychoses, alcoholism, personality disorder or organic brain disorder were excluded from the study, as also if the anxiety or depression was secondary to some other medical illness.

All patients included in the study were then administered the following four instruments - a) the Taylor manifest anxiety scale (Taylor 1953) and b) the Amritsar Depressive Inventory (Singh et al. 1974). Both these scales consist of a number of statements which the subject is required to tick as true or false. The original English and the Gurmukhi versions of these scales are available having previously been used in the development of Amritsar Depressive Inventory by the first author. In the case of literate subjects they were given the instruments to complete themselves, while in the case of illiterate subjects, the statements
readout to them and checked according to patients response. The other two instruments used were c) the Hamilton Rating Scale for Anxiety (Hamilton 1959) and d) the Hamilton Rating Scale for Depression (Hamilton 1960). These are filled out by the psychiatrist based on the symptoms of anxiety or depression as elicited during the psychiatric examination. On the basis of the symptoms elicited clinically as well as on the four scales mentioned above, a factorial analysis was carried out. The staff of the Regional Computer Centre, Chandigarh were responsible for the programming and the statistical analysis of the data.

Results

Factor analysis was carried out and nine factors were generated after rotation. Using the criterion that any factor to be meaningful should have a loading of more than 0.4 and with a minimum of 3 items in each factor, we were then left with the following five factors: The loadings given in front of each symptom in the first column refer to its weightage or the relative positive contribution of that particular item to the total factor, while in second column it shows the factors relative weightage or correlation with the particular test used. A negative sign shows a negative correlation.

| Factors            | Loading on Factor | Loading on instruments | Percentage of variance accounted for |
|--------------------|-------------------|------------------------|--------------------------------------|
| **Factor I (D1 Factor)** |                   |                        |                                      |
| 1. Anxious mood    | .543              | H.D.S. = .907          | 19.10                                |
| 2. Depressed mood  | .860              | A.D.I. = .864          |                                      |
| 3. Worthlessness and hopelessness | .657            |                        |                                      |
| 4. Suicidal        | .768              |                        |                                      |
| 5. Loss of interests and work | .641            |                        |                                      |
| 6. Psychomotor retardation | .404         |                        |                                      |
| **Factor II (P Factor)** |                   |                        |                                      |
| 1. General somatic (sensory) | .583            | H.A.S. = .641          | 36.76                                |
| 2. Cardiovascular  | .797              | T.M.A.S. = .511        |                                      |
| 3. Respiratory     | .818              |                        |                                      |
| **Factor III (AA Factor)** |                   |                        |                                      |
| 1. Anxious mood    | .477              |                        |                                      |
| 2. Tension         | .504              |                        |                                      |
| 3. Agitation       | .749              | H.A.S. = .417          | 43.80                                |
| 4. Genitourinary   | .606              |                        |                                      |
| 5. Psychomotor retardation | -.572          |                        |                                      |
| 6. Loss of appetite| -.588             |                        |                                      |
| **Factor IV (AS Factor)** |                   |                        |                                      |
| 1. General somatic (Muscular) | .444            | H.A.S. = .448          | 62.36                                |
| 2. Gastrointestinal | .792              |                        |                                      |
| 3. Hypohydrosis    | .790              |                        |                                      |
| **Factor V (Da Factor)** |                   |                        |                                      |
| 1. Loss of libido  | .736              | H.D.S. = .404          | 66.26                                |
| 2. Loss of interests and work | .506            |                        |                                      |
| 3. Initial insomnia| -.408             |                        |                                      |

H.A.S. = Hamilton rating scale for anxiety  
H.D.S. = Hamilton rating scale for depression  
A.D.I. = Amritsar depressive inventory  
T.M.A.S. = Taylor manifest anxiety scale.
Factor I - D1 Factor: This factor includes high loadings on anxious mood (.54) and depressed mood (.86), ideas of worthlessness and hopelessness, suicidal ideas, loss of interest in work and other activities and psychomotor retardation. Apart from the symptoms of anxious mood, all other symptoms are in clinical practice considered to be typical of a depressive illness. Hence it was called the Depression Factor - D1. This is reinforced by its high correlation with the Hamilton Rating Scale for Depression (.902) and the Anxietar Depressive Inventory (.844). However this factor accounted for only 19.1% of the total variance.

Factor II - P Factor: is constituted by three symptoms general somatic (sensory), cardiovascular and respiratory symptoms - these are non-specific manifestations of physiological or autonomic nervous system disturbance and hence has been called the physiological or p' factor. This factor has high co-relation with both anxiety scales - Hamilton Rating Scale for anxiety (.641) and the Taylor Manifest Anxiety Scale (.511).

Factor III - AA Factor: consists of a high loading on psychomotor agitation (.749), anxious mood (.477), tension (.564) and genitourinary symptoms (.606). It correlates negatively with psychomotor retardation (-.572) and loss of appetite (-.588). Hence it has been called the Anxious-Agitation factor and has a moderate degree of correlation with the Hamilton anxiety scale (.417). Nevertheless it is responsible for 43.87% of the total variance.

Factor IV - A Factor: consists of general somatic muscular complaints, gastrointestinal symptoms and hypochondriasis, hence termed the Anxious Somatic Factor. This again has a moderate degree of loading on the Hamilton anxiety scale (.448) but is responsible for 62.36% of the total variance.

Factor V - D2 factor: this has positive co-relation with two symptoms i.e. loss of interest in work and loss of libido which is included under the item genitourinary symptoms in the Hamilton rating scale for depression and co-relates negatively with initial insomnia. Since these two symptoms are again part of the clinical picture of depression which included late insomnia this was called the second depressive factor - D2 but was only moderately co-related with the Hamilton rating scale for depression (.404).

Thus the analysis of symptoms of generalized anxiety disorder and depressive disorder gives us two factors - Factor I (D1) and Factor V (D2) which cover most of the symptoms of clinical depression, while symptoms of anxiety are included in Factor I (D1) and Factor III (AA). The remaining two factors II (P) and IV (AS) are non-specific and represent physiological disturbances generally associated with a hypervigilant or aroused (anxious) state. Anxious mood, as such, has almost equal loadings on two different factors - viz D1 - Depressive factor (.543) and the AA anxious-agitation factor (.477). Our findings are thus similar to those of Grinker (1961), Lewis (1966) and Mendels (1970) who also reported that symptoms of anxiety, tension and fearfulness had their highest loadings on the depression dimension, although anxiety and depression are clinically considered distinct mood states. We can therefore conclude that presence of anxiety is an integral part of the clinical and phenomenological configuration of depression as seen from the fact that anxious mood is predominantly integrated with other symptoms of depression in Factor I, while on the other hand, the typical symptoms of anxiety do not cluster together like the symptoms of depression but are reflected in three different factors representing a) diffuse autonomic excitation (AA Factor III), Physiological dysfunction...
(P Factor II) and the somatic factor (Factor IV), in addition to its highest loading in the depressive factor (D1). Thus it is evident that it is not possible to isolate a clear-cut anxious or depressive factor, in fact there is considerable overlap between the two e.g. although factor I (D factor) consists primarily of depressive symptoms, but has a high loading on anxious mood (.543), in fact the loading of anxious mood here is greater than its contribution to the primarily anxiety factor III where its loading is .477.

Whereas descriptive, genetic, and treatment response data in the literature suggests that panic disorder is a distinct diagnostic entity, the validity of generalized anxiety disorder as a separate entity remains in question. Anxiety symptoms occur in conjunction with depressive disorder, panic disorder as well as most psychiatric illnesses. Breier et al. (1985) conclude after a review of the literature that anxiety disorder is actually a prodromal, incomplete or residual manifestation of other psychiatric disorders. The present study also supports the view that anxiety is a more diffuse or generalized reaction of the organism in the face of stress and therefore anxiety is an integral part not only of depressive neurosis but probably all psychiatric disorders. It can be conceptualized as the clinical manifestations of what Selye (1976) describes as the 'general adaptation syndrome'—which includes the various psychophysiological responses manifested by the individual organism during stress.

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