CHAPTER V

DISCUSSION.

It has been the concern of the investigator in the present study to provide a means to the assessment of human aggression, which today appears to be the zeitgeist of a majority of institutions, unions and nations, despite all the peace talks and peace awards. There have been several approaches to the understanding of the phenomena of aggression like the anthropological, sociological, physiological, neurochemical and neurological. Most of these approaches however, deal with aggression in a global sense, or within a restricted framework that may not apply to the human being. More recently the multifaceted nature of aggression has been emphasised in physiological studies by Moyer (1968). The neurochemical studies by Pradhan (1979), indicate the need to identify various neurotransmitters for each type of aggressive behaviour. However, the psychological approach to the understanding of the multifaceted nature has perhaps been one of the richest.
The psychological techniques used in the attempts to assess aggression have centred around laboratory experiments, projective techniques and questionnaires. Most of these, except for a few recent questionnaire studies, have dealt with aggression as a global concept or as 'anger in' and 'anger out' states. Amongst the questionnaire studies (refer p. 93) most of the approaches were singular dealing with isolated aspects of the phenomena. Approaches by Bendig (1961; 1962), Blackburn (1962), Foulds and Bedford (1977), Buss (1961), Green and Stacey (1967) and lately by Olweus (1975) and Zelin et al. (1977) have revealed that the nature of human aggression is multifaceted.

The present investigation was a questionnaire approach to aggression that would help evolve a tool for the assessment of the varied nature of aggression as it exists in the population studied. It may be said to be similar to other multifaceted approaches as it is based on the premise that aggression is not a unitary trait. However, it is unique on certain methodological bases namely, the validational approaches, its reliability measures and finally the manner in which the nature of aggression is explained in terms of the first and second order factors.

1. Validation Approaches.

a. **Content Validity.** As regards the validation approaches
there have been few studies that have systematically pooled the items of various aggression and hostility tools and put them to the test of various item elimination procedures. In the present investigation the items were systematically eliminated in terms of duplication, ambiguity and cultural specificity. To some extent subjectivity did enter in at this stage but the effect was buffered as the items were rejected or retained on the concurrence of all three judges. A total of 451 items was reduced to 390 at the end of this stage, thus ensuring the content validity of the scale.

b. Construct Validity. The next step in scale construction which was largely quantitative was significant in several ways particularly in the manner in which it provided the construct validity of the scale. As it involved the application of Thurstone's technique which would later be subjected to the Scale Product Technique of Eysenck and Crowne (1949), it differed greatly from previous approaches in which no such intervening step was taken before the factor analysis. The merits of the procedure were felt to be multiple:

1) Firstly there have been very few multifaceted questionnaire approaches to aggression which have considered the need to assess the intensities of different types of aggression. The study by Olweus (1975) took into consideration the fact, and utilized Likert's Scale.
In the present investigation Thurstone's 11-point scale was preferred. According to Sellitz, Jahoda, Deutsch and Cook (1966) the Likert method ranks the individual in terms of his favourableness towards an object but does not provide a basis for saying how much more favourable one is than another. Secondly, they argue that the total score of an individual is not really meaningful, as different patterns of response to the various items produce the same score. In Thurstone's technique the scale values of the statements provide the scores for each individual and the mean of these scores provide the position the individual holds as regards his attitude towards the object. The score becomes more meaningful as there is no scope here for different patterns of response to produce the same score.

11) Further the Thurstone Scale seems to overcome the problem of the neutral point as there is no mid point to the possible range of scores, that is to the score of 50 on a 25 item scale (Edwards, 1957). Only a test of normality would determine the actual neutral point.

111) Finally the use of Eysenck and Crowne's Scale-Product Technique (1949) as applied to the Thurstone Scale contributed towards a modified form of the original method which was applied to the Likert Scale. It is reported in a comparison of the spread of Scale value of statements endorsed by respondents when no restriction
is placed to when it is restricted to three categories, that 82 percent of the respondents covered a range of 7 to 10 points (Yadav, Govinda and Thomas, 1976). The authors concluded that restrictions led to the comparative evaluation of all the statements, inhibiting a free natural response. It is probable that the same principle would be operating when the scale product technique is applied to the Thurstone Scale, although the fact is not claimed as such. However, the scale product technique does carry with it the advantage of scores being based upon the individual subjective rating multiplied by the scale position of that item.

iv) This stage of scale construction not only provided the advantages of the use of scale values and the scale product method, it also contributed to the construct validity of the scale. This contribution was derived from the fact that Q values indicating the degree of agreement amongst the ratings of the judges on the items were calculated. Further all items about the median of the Q values indicating ambiguity were rejected. It is apparent that the opinion of the experts had to be given due weight. Perhaps the pool of items with the elimination of items that were duplications, if factor analysed would provide a better means of assessment. However, such a step was not feasible under the circumstances. In fact the items had to be reduced by means
belonged to. However, this was not possible within the limits imposed by time and financial economy. In fact what would be required is the addition of suitable items for factors, repeat factor analyses and finally the derivation of factor scores.

On comparison with other studies the scale as such may be compared to the Green and Stacey (1967) factor analytic study and the multifaceted approach by Olweus (1975), as these were the only two studies that are comparable on grounds of straight factor analysis of the selected item pool. The other studies of factor analysis of apriori aggression scales (Buss & Durkee, 1961; Bendig, 1961; 1962, Blackburn, 1972; Zelin et al., 1971) differ from the present investigation on the aforementioned point. Points of comparison regarding the kind of factors that emerged will be taken up later. As compared with the results of the Green and Stacey (1967) study and the Olweus (1975) study the variance accounted for by the emerging factors on all these studies was fairly small. According to the authors this could be attributed to the nature of the psychological phenomena itself. In the present study the first factor accounted for 21.0 percent of the variance whilst the principal component in the Green and Stacey study accounted for 8.9 and 8.0 percent on Form A and B of the Aggression Questionnaire respectively. In the study by Olweus wherein image
factoring was used the eigenvalues were 2.71 and 2.63 in samples A & B respectively.

It may be pointed out here that the three investigations differ somewhat in the technique of factor analysis. While the present investigation used principal factoring with communalities and durations followed by oblique rotation, the study by Olweus used image factoring with squared multiples of each variable with the others as lower bound estimates of communality and orthogonal rotation. The Green and Stacey study used principal components with orthogonal varimax rotation. Further the three studies differ greatly in the item collection and item selection approaches as well as the validation procedures adopted. Whilst in the present study the questionnaire contained items representing a wide variety of scales and facets of aggression applicable to an adult population the Green and Stacey Questionnaire was embedded largely in a psychoanalytic framework but applied to an adult population. On the other hand the items of the aggression scale by Olweus represent specific aspects of the phenomena that were thought to constitute it, the content being applicable to boys. The factor analytic results too were based upon data gathered on school boys. However, the author has stated that the scale may be applied to adults also.
d. Clinical Validation of the Aggression Scale compared with similar other scales.

The clinical validation of the present scale was carried out on 2 groups. One group consisted of psychiatric patients and criminals and the second of normals. The groups were matched in terms of age, sex, education and income. Scales that differentiate the two groups may be compared with findings on similar scales or factors reported in other studies. In drawing comparisons it may also be worthwhile to throw light on the relevance of these scales to the understanding of various clinical conditions. However, it may be noted at the outset that whilst several studies correlate their findings on the normal population, with criterion groups drawn from the clinical populations, the present investigation due to various limitations could only interpret the results to differentiate between the normal and clinical populations. Comparisons of the clinical validity of the subscales and the Fullscale with the validity of other similar scales will be discussed below.

Scale I: Impulse Control.

The first principal factor constituting a scale of aggression was that of Impulse Control. Accounting for 21.0 percent of the variance, it emerged as the most dominant component underlying the psychological phenomena of aggression. It has been measured variously by reaction
time measures, the Rorschach and decision making tools. In recent years it has been studied through questionnaire measures developed by different researchers (Eysenck and Eysenck, 1977; Monroe, 1970; Schalling, 1975; Thorndike, 1966). Although impulse control has been studied largely on children and abnormal groups it has been most frequently associated in the clinical groups with psychopathic deviates or criminals and the depressives or attempted suicide cases.

In the present investigation the difference between the normal and clinical groups on impulse control is significant at 0.01 level (refer Table 12) with the clinical group being more impulsive. Since the clinical group was a heterogenous one and representative of psychiatric diagnoses associated with aggression, the finding is indicative of the fact that differences do exist between the two populations on this scale. Studies on psychopathic personalities have identified impulsivity as characteristic of them (Blackburn, 1969; Buss, 1966; Glueck & Glueck 1950 as cited by Eysenck, 1977; Gibbens, 1963, as cited by Eysenck 1977). Blackburn (1969) reported that the MMPI measures of impulsivity namely extrapunitiveness, psychopathy and overt-covert hostility intercorrelated positively in psychopathic offenders. Climent, Ervin, Rollins, Plutchik and Batinelli (1977) reported a study on aggressive impulses stating that violent behaviour together with suicidal attempts in homosexual female prisoners supports
the hypothesis that aggressive impulses may be expressed externally or toward oneself due to impairment of control mechanisms. Arieti, (1967) identifying impulse control in psychopaths related it to a lack of impulse-control training in the families of psychopaths (cited by Eysenck, 1972). Impulsivity in the form of dyscontrol was also identified in epileptics and male prisoners as being significantly higher than in the college populations. (Plutchik, Climent and Ervin, 1976). Studies on depressives and attempted suicides on the impulse control variable have not used questionnaire measures as such. Similar is the case with other psychiatric diagnoses.

Impulsivity as a factor emerging on variance scales of personality and temperament does not uniformly differentiate the clinical groups from the normals. A personality scale devised by Marke and Nyman(1962) measures three of Sjobring's dimensions: stability, validity and solidity. The subsolid is the impulsive individual whom Sjobring(1973, p. 138) described, stating "Given the small extent of the personality in function at this moment, it is chiefly a matter of ephemeral primitive reactions, ranging from mild effective outbursts on the basis of a state of tension or mood disturbances characterised by marked lability, all the way to extreme dynamic reactions in the form of ecstasy, elation, rage, anguish or despair".
On Coppen's (1966) translation of the scale devised by Marke-Nyman no change on solidity across diagnostic groups including neurosis depression and schizophrenia was found. The solidity scale correlated negatively with extraversion and neuroticism factors of Eysenck's Scale, (Segraves, 1971).

The Rhathymia factor taken as the equivalent of impulsivity by Buss and Plomin (1975) and belonging to the Guilford - Zimmerman Temperament Schedule, in terms of Jung's hypothesis differentiates the hysterics and psychopaths from the dysthymics. Hildebrand (1957) found the hypothesis to be true. However, the scale did not differentiate between schizophrenics and normals and neurotics and psychotics. It did show the difference between neurotics and normals to be significant.

The 16 P.F., scales associated with impulsivity by Buss and Plomin (1975) included Factor F viz. Surgency versus Desurgency; Factor G viz. Character or Superego strength versus Lack of internal standards and Factor G3 viz. will control versus Character stability. When applied to the clinical population Factor F revealed no significant difference between normals and anxiety neurotics (Nagalakshmi, 1979) between normals and obsessive compulsive neurosis (Krishnamurthy, 1975).
between field independent and field dependent normals, and dysthymsics and hysterics (Arora, 1974). Hysterics and controls differed significantly on the scale (Verghese, 1975). Factor G differentiated normals and anxiety neurotics (Nagalakshmi, 1969) controls and obsessive compulsives (Krishnamurthy, 1975) and hysterics and controls (Verghese, 1975), significantly. However, no significant difference emerged on the field independent and field dependent subgroups of the normals, dysthymsics and hysterics (Arora, 1974). Factor Q3 did not differentiate normals and anxiety neurotics (Nagalakshmi, 1969) hysterics and controls (Verghese, 1975) and the field independent and field dependent groups (Arora, 1974). The obsessives and controls on the other hand differed significantly on Q3 (Krishnamurthy, 1975). The depressives and attempted suicides differed significantly at 0.01 level on Factor F, G and Q (Rao, 1976).

From the above studies it may be concluded that impulsivity is in itself multifactorial as some of the scales differentiate the diagnostic categories from the normals and some do not. Differences, however, could be due to various factors but the question regarding the multifactored nature of impulsivity does arise. In fact the study by Eysenck and Eysenck (1977) established the fact. Another possible conclusion from the above studies
is that the diagnostic categories differ on various scales of impulsivity.

In the present study the scale on impulsivity incorporated mainly impulsive aggressive items. The scores of the clinical and normal groups reveal that the clinical conditions were associated with greater impulsive aggressive scores. As such the point of comparison with other studies lies in the existence of impulsivity as an underlying component of personality in clinical groups. But the other studies do not tap aggressive impulses specifically.

SCALE II:

Hostility To Self (Negative)

The clinical validity of this scale was brought out in the significant difference it revealed between the clinical and normal groups. The former group with a mean of 328.425 scored higher than the normals with a mean of 203.419. The scale as such is indicative of intropunitive trait of personality, as the items of the scale indicate a hostile self punitive attitude resulting from felt inadequacies, wrong doing and guilt. It could most nearly be compared with the intropunitive scale of the MDHQ (Foulds, 1965). Whilst the latter in various studies was used to differentiate the subgroups on the clinical conditions the present investigation was limited on that aspect. However, the intropunitive scales of the MDHQ comprising the Delusional Guilt Scale and Self
Criticism Scale were clinically validated by Foulds and his coworkers (1965). Summarizing the analysis of their results in terms of the clinical diagnosis, Foulds et al. (1965) reported that schizophrénics were highly punitive and were as likely to have intropunitive as well as extrapunitive delusions. The melancholics were abnormally punitive with intropunitive-ness being markedly high, particularly on Self-Criticism and Delusions of Guilt. The neurotics in general were abnormal on their intropunitive scores.

Of all the psychiatric diagnoses the one most closely associated with the intropunitive trait has been depression, although outward direction of hostility has also been reported. Studies supporting the psychodynamic formulation that during depression the hostility which had been directed outward is now directed in, include those of Abraham (1911), Bibring (1953); Gershorn (1966); Verma (1974); Freud (1917), and Kendell (1970). However, in another study (Schless, Mendels, Kipperman and Cochrane, 1974) on 37 depressed patients, amongst other measures used were the Buss Durkee Inventory, Cochrane's expression of anger ratio, hostility control, hostility, overt hostility and inhibition of anger scales. Factor analysis by principal component and varimax rotation provided four factors including:
Factor I: Anxious, guilt-ridden, inward turning of hostility with resentment.

Factor II: Verbal hostility with negativism.

Factor III: Anxious, suspicious, resentful control of hostile feelings.

Factor IV: Assaultive, verbally abusive outward expression of hostility.

Further the study reported no correlation between degree of depression and degree of hostility turned inwards. In fact, studies report the presence of the outward direction of hostility in normals with depressed mood (Wessman, Ricks, and Tyl, 1960; Zuckerman, Persky, Echman and Hopkins, 1967). The equivocality of results, in general, has been attributed to the heterogeneity within the subgroups of depressives, as they include depressives with hysterical features, personality disorders and suicide attempts (Weissman, Klerman and Paykel, 1971).

Researches on the intrapunitive scales of the HDHQ, namely the Delusional Guilt and Self Critical Scales, reveal that they differentiate significantly the paranoids versus the normals (Kang, 1966; Foulds, 1965); introvert normals from introvert schizophrenics (Dubey, 1968); extroverted schizophrenics versus extroverted normals (Dubey, 1968); depressives, depressive attempted suicides
and attempted suicides and normals (Rao, 1976).

These scales did not differentiate neurotics from normals (Sinha, 1968) and schizophrenics from normals (Gupta, 1967). A study on the psychosomatic cases including asthma, peptic ulcer, neurodermatoses, hypertension and thyrotoxicosis when compared with normals revealed a higher general punitiveness score than normals, the scores on self criticism and guilt being significantly greater, (Daley, 1963; Indira, 1975; Koninckx and Dengier, 1970; and Henryk, 1973).

In the interpretation of the varied results on the intropunitive factors of self-criticism and delusional guilt it has been stated that psychiatrically ill groups tend to be more intropunitive about their extrapunitive feelings. (Foulds and Bedford, 1976). Amongst the diagnostic groups it has been reported that in depression the clinical state itself is the primary emotional signal and hostility serves as the defense (Schless et al., 1974). A review by Kendell (1970) supported the hypothesis that in depression the hostility that was directed outward is now directed in ward. As regards the psychosomatic group it is pointed out that patients have difficulty in handling their hostility effectively and therefore, it constitutes a pathologic factor. (Alexander, 1950; Dunkel, 1949; Robbins, 1972; Saul, 1939; and Wolff, 1973).
The studies of aggression with obsessonals are meagre, as compared with the depressives. Amongst the few sources of information is the report by Barnett (1969). According to him anger is not reflected but denied or suppressed after withdrawal. The study by Foulds and his group (1965) revealed that the aggression of melancholics who had high obsessoid scores, was intropunitive. The two reports seem to differentiate between intropunitiveness and the inhibition of aggression.

The role of this aspect of hostility is well demonstrated by the studies mentioned above. However, future studies may reveal the effectiveness of the present scale with various groups.

**SCALE III**

**Material Destructiveness**

On this scale the clinical sample scored significantly higher than the normal sample with the mean of the former being 126.37 and of the latter 87.604. The scale as such would most nearly compare with the Indirect hostility scale of the Buss Durkee Inventory (1957), though the items on that scale contain more items relating to human beings than to material objects. In the study reported by Buss (1961) the psychiatric samples from two different hospitals give lower scores on Indirect hostility than the scores of four other samples from different regions. Such
differences in the scores of the clinical sample and the
normals in the present investigation and those of Buss's
study may be attributed to differences in the nature of
items. It is possible that the clinical group in this
study could express hostility or aggression in the form
of material destructiveness and not in the form of
hostility towards persons.

Further the Indirect hostility scale fails to
differentiate between the suicidal group and nonsuicidal
group, (Lester, 1967). The results were also repeated in
a later study in which the effect of the neuroticism
factor was partialled out (Lester, 1968). The clinical
validity of the scale was also studied in a research
endeavour on the obsessive compulsive neurotics(Koshy,
1978). The scale did not differentiate between the
obsessive compulsive and normals.

Results of the present study explain how there is
withdrawal of hostility and a redirection of it, rather
than retroflection of it. The point is illustrated in
the report about obsessionals by Barnett (1969). Accord-
ing to Barnett (1969) the guilt (described as part of
covert hostility) of the obsessionals, results from fear
of blame, disapproval and rejection which results from
the influence of parents, who define right and wrong in
terms of their needs, not the needs of the child. So the obsessional according to Barnett lacks true guilt as he is limited in inference making and concern for the needs of others. Consequently, there may be less of covert hostility and more indirect hostility. However, further investigation on the matter is required.

**SCALE IV**

**Suspicion**

This scale revealed significantly higher scores for the clinical sample than the normal sample. The mean for the former group was 243.099 while the mean for the latter group was 162.885. The items on this scale are nearly comparable to those of the suspicion scale of the Anger Self Report Inventory (Zelin, et al., 1972). In the Suspicion scale of the present study, the highest factor loading is on the item on jealousy, which would be clinically relevant for certain diagnostic categories. The scores on the Suspicion scale of the BDHI for the normal samples, were lower than those of the psychiatric samples, but not significantly lower (Buss, 1961). This scale was related positively with depression in another study of feelings of hostility and personal control as related to depression (Becker and Lesiack, 1977). As regards the obsessive compulsives (OCM) findings indicate a significant difference between normals and
OCMs, with the latter having higher scores (Koshy, 1978). On the delusional hostility scales of the HDS the scores of the paranoics differed significantly from those of the schizophrenics, normals and neurotics (Foulds, 1965). In the same study the scores of the anxiety states differed from the depressives at a significant level. This was also true of the paranoics and paranoid schizophrenics as compared with the melancholics. In some of the other studies the scale differentiated to a significant extent between the paranoid schizophrenics and normals (Kang, 1966); male neurotics from male normals (Sinha, 1968); extroverted schizophrenics from extroverted normals (Dubey, 1968) and schizophrenics from normals (Gupta, 1967).

The clinical validity of the scales on suspicion has been projected significantly in most of the studies. This could be due to two reasons: (1) The item content of the scales, which in the case of the delusional hostility scale have now been accepted as reflecting symptoms rather than traits, with the clinical population scoring higher than the normal. (2) This trait of personality may be an essentially marked one that differentiates the normal from the clinical groups because of the psychopathology involved. In fact Thorne (1953) elucidated the fact that "Paranoid attitudes and disorders constitute attitudinal manifestations of
chronic anger states". According to him underlying hostility dominates the psychic sphere and stimulates the distortions of perception, thinking, reality testing and identification with other people, so much so, that neutral stimuli continue to threaten till systematised delusions provide a rational escape from the acceptance of hostile urges arising from suspicion.

Amongst the hostile urges that take the form of suspicion the feelings of jealousy are marked. Whilst summarizing the views of many workers Shepherd (1961) stated that they "represent morbid jealousy" as a pathological reaction different in kind from the potential responses of a healthy person in so much as it constitutes a form of psychological regression and rests ultimately on a delusional basis. Minkowski (1929) as cited by Shepherd emphasises the difference between "Jalousie inauthentique" and "jalousie passionelle". The two states of jealousy differ in psychotic and neurotic illness, in terms of the above interpretations as they do differ in psychopathology too. In the psychosis jealousy becomes projected in delusional form but this does not happen in the neuroses.

**SCALE V**

**Resentment towards others**

This scale indicated a significant difference between
the clinical and normal groups with the former having a mean of 97.494 and the latter a mean of 244.741. The scale may be comparable to the resentment scale of the BDHI. Other scales of aggression and hostility do not specifically encompass this factor though stray items on resentment may occur in them. The scores of the psychiatric patient samples of Buss's (1961) study have slightly higher scores than the normal samples. The scale has also been found to differentiate suicidal individuals from non-suicidal individuals (Lester, 1967). However, when the effect of the neuroticism factor had been partialled out, the previous finding for an association between resentment and the extent of prior suicidal preoccupation was not confirmed, (Lester, 1968). The scale also differentiated significantly, the OCNS from the normals with the former having higher scores than the normals (Koshy, 1973).

The above studies provide some evidence for the clinical validity of this factor of aggression and the scale, that emerged consequently, in the present study.

**SCALE VI**

**Inhibited Hostility to others**

The scores of the clinical sample when compared with those of the normal sample were much higher but not significantly so. The mean of the clinical group was 103.324
and that of the normal group was 93.057. This scale would be comparable to some of the MMPI scales like that of Harris and Lingoes (1955) called the Inhibition of Aggression Scale. According to Dahlstrom and Welsh (1960) there has not been much work on the validation of this scale. However, the significance of this scale and also this facet of aggression, was brought out in a study by Megargee and Mendelsohn (1962). They report that this scale apparently differentiated the combined assaul-
tive criminal groups from the combined control groups, i.e. the extremely assaul-
tive, moderately assaulтив from non-
assaultive criminals and from noncriminals and nonassaultive, criminals. The mean of the assaulтив group was found ironically to be higher than that of the nonassaultive group, i.e., the extreme assaulтив and moderately assaul-
tive from nonassaultive criminals and noncriminals. The findings indicate that the assaulтив inhibi thei

gression more than normalsan nonassaultives. The results in the present study reveal a somewhat similar trend, with the clinical sample showing greater inhibition of aggression.

Other scales that would be comparable to the present scale would be the overcontrolled hostility scale (Megargee, Cook, and Mendelsohn, 1967); Hostility control scale (Schults, 1954); and the aggression inhibitory responses scale (Olweus, 1975). As regards the O-H Scale it has been found to significantly differentiate between the overcontrolled and undercontrolled assaulтив prisoners
of the Texas State Prison, in a study by Megargee, Cook and Mendelsohn (1967). In the same study it was found that the incidence of psychosis with increasing scores on the scale was apparent in the moderately assaultive and nonviolent criminal groups. No psychotics were identified amongst the extremely assaultive. When the data of these two groups which were diagnosed as psychotic was combined and tested for significance the chi square was found to be significant. According to the authors the finding suggests that O-M in addition to measuring attitude of conformity and control is also sensitive to serious breakthroughs of unconscious or id impulses which might be expressed either in extreme assaultive acts or in a psychosis.

Megargee (1966) while providing a psychopathology in terms of overcontrolled hostility for the assaultives criminals or psychotics states that rigid inhibitions against overt aggressive impulses build up so much, that only aggression of murderous intensity is resorted to in order to overcome them. In other words a murderously assaultive group is the more controlled less aggressive type.

As regards the hostility control the scale by Schults (1954), it has been found to correlate significantly with the O-M scale. The scale was also reported
to discriminate between patients of a counselling centre who had been rated for their hostility control. The scale correlated 0.30 with ratings of the counsellors and was found to be statistically significant.

Reports on the clinical validation of the aggression Inhibitory responses scale (Olweus, 1975) are not yet forthcoming. As such no comparisons are possible. However, the significance of a scale representing this facet of aggression is well illustrated by the preceding studies and the present investigation.

Anger-Rejected

On this scale the clinical sample scored significantly higher than the normal sample. The former had a mean of 187.529 and the latter a mean of 138.109. This particular scale is comparable to the Condemnation of Anger scale of the Anger Self Report (Zelig, et al., 1972), though the item content differs considerably. The latter correlated significantly with the suicidal thoughts scale of the Problem Appraisal Scale by Endicott and Spitzer (1972). The scale was also found to differentiate significantly the psychiatric patient group from the college sample group.

The inhibition of anger scale with higher scores for the clinical sample than the normal is psychopathologically significant. In terms of Foulsdian theory the
findings appear to be in tune with the reports, that all psychiatric groups are found to be intropunitive (Foulds and Bedford, 1976). The same motion has also been elucidated by Thorne (1953). He stated that "the decreased frustration tolerance, stimulating acute or chronic anger reactions and manifested by overt or repressed hostility and aggression constitutes a primary etiologic mechanism which clarifies the dynamics of many syndromes including paranoid reactions. "In the psychosomatic patients these anger reactions", he explained, "result in cardiac arrests, gastrointestinal upsets, frigidity and other problems".

**SCALE VIII**

**Hostility to others.**

The scores of the clinical sample on this scale were significantly higher than that of the normal sample, the mean for the former being 199.040 as compared to 150.609 of the latter. This scale would be comparable to the overt hostility scale devised by Schultz (1954); and the Judged Manifest Hostility scale devised by Siegel (1956) and Wiggins' Manifest Hostility scale (1966). As regards the Judged Manifest Hostility scale Siegel (1956) reported significant differences between the high and the low and the high and the middle authoritarian groups (as measured by the F scale) in
the University population and the high and low P scale
groups in the Veteran population. The hostility scale
devised by Wiggins (1966) was reported as differentiating significantly the psychiatric patient groups from
the normal groups. Buss (1961) through his findings on
the BDHI concluded that his psychiatric samples
harboured greater hostility against others but were
verbally less aggressive.

Various subgroups have been studied in terms of
their hostility to others but this is usually along the
extrapunitive dimension of the HDHU. In this regard the
schizophrenics were significantly higher on Acting-Out
Hostility and Criticism of Others. Further it is
reported that Paranoids scored significantly more than
normals on the extrapunitive scales, (Foulds, 1965).
In some of the other studies the paranoid schizophrenics
scored significantly higher than normals on Acting Out
hostility, Delusional Hostility and Criticism of Others
(Kang, 1966). Further studies made on schizophrenics
and normals have given equivocal results on the extra-
punitive dimension (Bubey, 1968; Gupta, 1967). However,
its significance in understanding and differentiating
the clinical groups is well illustrated by the studies
mentioned above.
Alienation Home-Environment

On this scale the clinical group had a significantly higher score than the normals. The mean score of the clinical group was 163.982 and that of the normal group was 109.177. This particular scale as such is different from other hostility scales. It reflects one of the facets of aggression which has not been dealt with at all in other studies on aggression. However, this facet of aggression has contributed to the trait validity of the Overcontrolled Hostility scale. According to Megargee, Cook and Mendelsohn (1967) "The O-H scale appears to assess two personality constructs which are not normally found together, impulse control and hostile alienation. The hypothesis was tested by comparing Texas undergraduates and undercontrolled assaultive Texas State prisoners. The undergraduates as expected did score lower, but they were not matched on sample characteristics. However, in another study (Spencer, 1966, cited by Megargee et al., 1967) the hypothesis was verified. Further support for this scale is gained from a study which reports significant correlation between alienation and hostility and alienation and depression, (Tolor and LeBlan 1971). Although the above studies are very recent, modern authors such as Fromm, Mailer and Genet regard violence as a possible response to boredom and meaninglessness of modern life. Similar viewpoints have been
expressed by Koestler and political writers like Debray and Fanon. As such the relevance of the present scale in understanding aggression is apparent.

**SCALE X**

**Self Critical**

On this scale the clinical sample had a mean of 163.739 which was significantly higher than a mean of 114.938 obtained by the normal sample. The scale is comparable to the Self Criticism scale of the HDHQ. The study by Foulds and his coworkers (1965) reports that melancholics, schizophrenics and neurotics scored significantly on this scale. Paranoics were the only ones who did not. The scale was also found to significantly differentiate the normotensives from the hypertensives with the latter having higher scores. Amongst the Indian studies the self criticism scale significantly differentiated the paranoid schizophrenics from normals (Kang, 1966) and the schizophrenics from the normals (Dubey, 1968). It failed to differentiate neurotics from normals except when the neurotics were compared after being split in terms of sex (Sinha, 1968).

The self criticism scale of the HDHQ formed part of the Intropunitive dimension of personality described by Foulds. The latter has been discussed earlier with regard to the Hostility to Self scale in terms of the significance it has for the psychopathology of psychiatric illness.
SCALE XI

Low Threshold for Tolerance

On this scale the clinical sample obtained a mean of 228.150 which was significantly higher than a mean of 162.720 obtained by the normal sample. As the items on this scale reflect intolerance, impatience and inability to control one's irritability and anger, the scale would be most nearly comparable to the Irritability Scale of the BDHI and the Irritability Scale recently developed by Smith, Constantopoulos, Jardine and McGuffin (1978).

As regards the findings on the BDHI scale of Irritability the scores of two psychiatric samples and scores of three normal samples seem to differ amongst themselves. The mean scores of the patients from Carter Hospital for men are 5.0 and women 5.7 and the mean scores of Eastern State Hospital for the group that signed the forms are 4.0 for men and 4.2 for women. The normal sample means of the Indiana sample for men was 5.9 and for women 6.1; for the Pittsburgh students it was 3.9 for males and 4.5 for females; and for the Washington State College sample it was 5.51 for men and 4.6 for women who signed their forms. If the figures of the first normal sample are compared with those of the psychiatric patients the former would be said to have higher scores than the latter. The results in the present study are however,
reversed. This could probably be attributed to the condition of the patients in the two groups at the time of test administration. In later studies the irritability scale significantly discriminated between the suicidal and nonsuicidal groups (Lester, 1967; 1968) and it was also found to correlate significantly with depression (Becker et al., 1977).

The Irritability scale developed recently by Snaith et al., (1978) has been reported to have clinical validity as it was based on a patient population. Further correlations of the psychiatrists ratings for inward and outward irritability with the self-report evaluations were 0.84 and 0.79. However, the scale is a state measure of irritability which makes it different from the Low Threshold for Tolerance scale. Despite the differences among the three scales what is common to all is the clinical validity and its relevance in the assessment of the trait.

**SCALE XII**

**Non-Specific Hostility**

The Mean score of the clinical sample on this scale was 100.016, which was significantly higher than a mean of 66.775 for the normal samples. This scale would be most nearly comparable to the hostility scale devised by Grace (1951), Moldawsky (1953), Cook and Medley (1954) and the Aggression Scale by Zaks and Walters (1959).
These hostility scales do not measure specific aspects of hostility as independent traits. Instead they assess different components of hostility in a general manner. Of the scales mentioned above the scale constructed by Moldawsky is the only one on which some reports of clinical validation are available. But these are equivocal as the study by Dinwiddie (1954) gives significant correlations between the scale and the therapists ratings while the study by Charen (1955) provides negative findings. The Aggression scale by Zaks and Walters was reported to discriminate the criminal from the noncriminal groups, but further studies with other clinical groups have not been available.

However, the relevance of non-specific hostility measures seems to be pertinent, in view of the findings on the present scale and a few of the other scales mentioned above.

**SCALE XIII**

**Physical Aggression (Negative)**

The mean score of the clinical sample being 134.978, was higher than that of the normal sample, mean score for the latter being 114.946, but there was no significant difference between the two groups on this scale. The findings are somewhat in keeping with the fact that the
clinical group had higher scores on Inhibition of Hostility to Others and Anger-Rejected scales. It is also possible that the sample differed from the more excited physically aggressive clinical group whom it was not possible to test. Had it been possible to aggregate the various clinical conditions according to degree of assault, comparisons with the normal group would be more meaningful in terms of the findings reported by Megargee et al., (1967).

The scale as such is comparable to the Assault scale of the BDHI, the Acting-Out hostility scale of the HDHQ, the Overt Hostility scale by Schultz (1954) and the Manifest Hostility scale by Wiggins, (1966). Out of these, the hostility scales contain only a few items relating to physical aggression and so would not be as comparable as the Acting-Out hostility scale. The Acting-Out hostility scale has been reported to differentiate the hypertensives, free of neuroticism, from the normotensives (Mann, 1977). Outward expression of hostility amongst depressives has also been reported to be significant in various studies, (Wessman, Ricks and Tyl, 1960; Weissman, Klerman and Paykel, 1971; and Zuckerman, Perskey, Echman and Hopkins, 1967).

On the BDHI the scores on the Assault scale for the psychiatric samples, for men, is lower than that of the normal sample but that of the women is the same,
except in one sample where the normal women score a little higher. However, the differences when they do exist are in terms of decimals. These results could be taken to be somewhat similar to the results of the present study as the scores on the physical aggression scale do not differentiate the two groups markedly. Results with the obsessives have also been reported to be similar (Koshy, 1978).

**SCALE XIV**

**Physiological Reaction (Negative)**

The mean scale score of the clinical group was 139.718 as compared to 110.422 of the normal sample indicating a significant difference between the two groups. This scale being composed of items that reflect physical changes felt during aggression is unique to the aggression scale. This factor does not appear in any of the aggression and hostility scales so far constructed. The above finding seems to be in the expected direction, as generally the aggressive potential in the clinical groups is higher and physical changes associated with it would be felt to a greater extent than the normal group, as would be inhibition of these.

**SCALE XV**

**Angry Outburst**

On this scale the mean score of the clinical group
was 163.617 while that of the normal group was 122.210 marking a significant difference between the two groups. This scale is comparable to the general expression of Aggression Scale of the Anger-Self Report Questionnaire. The latter was found to differentiate the psychiatric sample from the college sample at a highly significant level.

The relevance of the scale is brought out as the nature of the items is such that it taps the differences between the normal and clinical samples, a matter of importance to the clinical understanding of patients. This has been particularly emphasized by Thorne (1953) cited earlier on a similar point.

**SCALE XVI**

**Physical Reaction**

This scale revealed no significant difference between the clinical group which had a mean of 96.089 and the normal group which had a mean of 80.950. However, the clinical group scored higher than the normal group in expressing physical reactions to feelings of anger. The composition of this factor being unique as it included both physical and physiological reactions, there was little to be gleaned from the literature for purposes of comparison.
SCALE XVII

Verbal Aggression

The mean score of the clinical group being 79.550 as compared to 52.741 of the normal group a significant difference was obtained. This facet of aggression has been included in various scales of aggression and hostility such as the BDHI, the Anger Self Report and the HDHQ scales vis. Self Criticism and Criticisms of Others. The verbal aggression scale of the BDHI revealed higher mean scores for the normal samples than for the psychiatrically ill samples, (Buss, 1961). The findings were the same for the verbal aggression scale of the Anger Self Report also, the normal sample having a much greater mean score on the Scale (Zelin, et al., 1972). However, there is evidence that obsessive compulsives have significantly higher mean scores than normals, (Koshy, 1978). The findings of HDHQ criticism scales will not be discussed here as these scales have been discussed elsewhere in their appropriate places.

Earlier to the BDHI there have not been explicit scales for verbal aggression. However, it is an important dimension of aggression, which has revealed the clinical samples to be less verbally expressive of their anger states. In the present study, though the clinical samples had higher scores than the normals the difference
was not significant. In other words the trend seemed to be similar in the various studies as far as verbal aggression was concerned. The psychiatrically ill seem generally to be less expressive in their aggression whether the aggression be physical or verbal. However, they seem to maintain a hostile stance and higher level of anger than the normals.

Scale XVIII

Anger

The anger scale differentiates the clinical group from the normal group significantly. While the mean score of the clinical group was 130.488 that of the normal group was 101.420. This scale is to some extent similar to the Awareness of anger scale of the Anger Self Report and the Reaction Inventory to measure Anger (Evans and Strangeland, 1971). Whilst the latter two scales discriminate the psychiatrically ill sample from the college sample at a significant level, reports of the same with clinical groups are lacking.

The clinical relevance of the anger scale could be accepted if there was acceptance of the fact that the unacknowledged aggressive impulses often express themselves indirectly through psychiatric symptoms. Awareness of one's anger would be the first step in dealing with one's problems and the other steps would be developing appropriate methods to overcome these.
What applies to the anger scale in terms of therapeutics also applies to the other scales. However, the clinical validation of the 18 scales of aggression as elucidated in the aforementioned pages cannot be accepted as being enough. Further validation in terms of subgroups under various diagnostic categories would be necessary before the scale can be applied.

The Full Scale

The full aggression scale provided a highly significant difference between the clinical group and the normal group. The mean of the clinical group was 1689.249 as compared with a mean of 1252.872 of the normal group, thus establishing the clinical validity of the scale.

As the components of aggression held by this particular scale were many more compared with the BDHI or the HDHQ, the Anger Self Report, the Personality Deviance Scale, the Aggression Questionnaire and the Multi-faceted Aggression Scale it would be related to these scales in a limited way. Of these scales, the Aggression Questionnaire by Green and Stacey (1967) and the Multifaceted Aggression scale by Olweus, (1975) have not been viewed in terms of clinical validation at the time of construction. Later researches on these scales have also been scarce as further standardization of these tools in places where
they have been used has not been established. The BDHI and other tools mentioned above have proved useful in certain studies in discriminating the clinical and normal groups. The BDHI covert scales correlated positively with depression but not the overt scales (Becker, et al., 1977; Aaron, 1969). It has also been found to be sensitive in deterioration or improvement in depression (Wessman and Ricks, 1960; Friedman, 1970). Differentiation between the high and low assaultives (Lothstein, 1978) and between the normals and psychiatrically ill when the normal sample of Pittsburgh Students is compared with the patient sample of the Eastern State Hospital, has also been reported (Buss, 1961). In this comparison the patients scored higher than the normals. However, there were other normal samples which revealed higher aggression scores than the clinical groups. These differences according to Buss (1961) was due to the unreliability of the scales. It is also possible that differences arose due to the fact that matching of samples has not been done, as this has not been mentioned in the study. In another study the relationship of hostility as measured by the BDHI and violence among prisoners as measured through ratings from interviews on a 5 point rating scale was lacking (Gunn and Gristwood, 1975). According to these authors the scale did not contribute anything to clinical assessment.

The HDHQ when applied to clinical populations revealed higher scores on hostility in general as
compared to those of the normals (Foulds, 1965).
Further amongst the clinical groups the hypertensives score higher than the normotensives on the HDHQ (Mann, 1977). Similar results have been found amongst psychosomatics compared with normals, in other studies (Daly, 1963; Indira, 1975; Koninckx & Dongier, 1970; and Henryk, 1973). The depressives are another group that have been differentiated from the normals on the HDHQ, being more hostile than the normals (Weissman, 1971; Foulds, 1965; and Rao, 1976). Reports on the obsessive-compulsive groups have been very scarce with regard to their hostility. Foulds and Caine et al., (1965) and Caine (1967) report significant association between hostility and psychotic disorders. Studies in India report equivocal findings on the issue of the HDHQ. In one study the schizophrenics were differentiated from the normals at a significant level (Dubey, 1968) yet in another they were not, (Gupta, 1967). As regards the neurotics no significant differences between normals and neurotics were obtained on the HDHQ (Sinha, 1968).

Currently the HDHQ has undergone further revision. The Delusional Guilt and Projected Hostility scales were dropped as they were found to belong to the symptom-sign universe rather than personality universe (Foulds, 1976). The new scale named the Personality Deviance Scale (PDS) has been found to have clinical relevance as the
psychiatric patients that had been classified according to Extrapunitiveness and Intropunitiveness were arranged in the same hierarchical order on the Delusional Symptom State Inventory (Foulds, 1976, p.137). In other words the severity of illness corresponded to the degree of hostility. This fact could be further supported by the findings of a study in which subliminal aggressive stimulation intensified pathological thinking whereas self-awareness nullified such effects (Silverman, Spiro, Weisburg, and Caudell, 1969). The PDS may in view of the findings reported, be considered a clinically valid scale. As compared with the aggression scale of the present study it differs markedly in terms of component structures, although the two scales do measure the same attribute, namely aggression.

In view of the comparisons on clinical validation that have been made between the present scale and other scales it is worth making two general comments. Firstly the present scale compared to the existing multifaceted scales is more comprehensive. Secondly, the present scale though found to be fairly sound as far as clinical validity is concerned, needs to be studied for the relevance of its subscales in the discrimination of various subgroups of clinical conditions. Perhaps future studies using multiple discriminant analysis would unfold the validity of subscales for subgroups.
Further Validation

Comparison of stress scales with the aggression scales

An evaluation of the relationship between stress and aggression was taken up with a view to examining the existence of a difference between the clinical group and the normal group in terms of their correlations between aggression and stress. At the start it may be worthwhile to state that of the six stress variables only two differentiated the two samples significantly. The first stress variable in the area of interpersonal relationships differentiated the clinical sample from the normal at 0.001 level and the second variable relating to stress caused by heterosexual relations differentiated the group at 0.01 level. The other four variables revealed no significant differences between the groups. These four variables dealt with stress in the areas of household management, occupation, social and recreational and physical health.

Several studies referred to earlier in the section on Further Validation, Aggression-Stress, correlations of stress and aggression, indicate that a positive relationship exists between stress and psychiatric illness. It was also mentioned that stress and psychiatric illness may not be so related.

In the present study the relationship between stress caused by interpersonal relationships and psychiatric
illness was revealed by a positive correlation. This could be explained in terms of the fact that in India there is great dependence on the social support systems, failure of which could easily cause breakdown in most individuals at risk. As regards the second differentiating factor, that is, stress caused by heterosexual relations the breakdown could be attributed to the fact that socio-cultural restraints on sexual relationships are apparently marked. Consequently stress variables connected with this area of life would be difficult to manage.

The relationship of aggression to stress could be made in terms of only the two aforementioned variables, in order to elucidate the clinical and construct validity of the scales. The results presented in the Table in Appendix E indicate significant positive correlations between stress caused by interpersonal relations and various scales of aggression for the normal and clinical samples. The results also indicate significant positive correlations between stress due to heterosexual relations and various scales of aggression in the normal and clinical samples. Comparison of these results with other studies becomes difficult as reports on correlations of stress variables with aggression and its components, in terms of questionnaire measures, have been scarcely available.
However, on the basis of the significant differences that emerged between the normals and the psychiatrically ill, as regards the stress variables, and the manner in which stress is related to aggression, a certain relationship emerges. It may be possible to think in terms of certain stress variables (namely stress due to interpersonal relations and heterosexual relations), causing different types of aggression, and finally resulting in corresponding clinical conditions.

Results of the present study (refer Table in Appendix E) indicate the significance of difference between the normal and clinical samples in terms of their correlations between six stress variables and eighteen aggression scales and the Full Scale. On examination of the results reported, it was found that each of the eighteen aggression scales and the Full scale of aggression were found to correlate positively and significantly with at least one stress variable in each of the two samples. Further it was observed that the two groups differed at least on one such correlation. In this manner the positive correlations differentiating the two groups significantly contributed to the clinical validity of the scale. However, it may be noted that the correlations between stress factors and aggression are higher for the normal group than the clinical group. It is possible that perception of stress differs according to the severity of the illness. Since the present sample was
mixed one, of varying diagnoses the perception of stress in different diagnostic groups affected the correlation with aggression. Consequently the value may have been lower than that of the normal group.

To the extent that each scale correlated with at least one stress variable to a significant extent in each of the two groups, the construct validity of the subscale was also contributed to. Further, to the extent that the Full scale correlated positively and significantly with at least one stress variable the construct validity of the Full scale was contributed to in view of the statements on construct validity by Anastasi (1976) cited earlier in the section on construct validation.

Researches using questionnaire measures while correlating stress and aggression in normals and the psychiatrically ill have been scarcely available in the literature, though experimental studies on the relationship of stress caused by frustration with aggression are often quoted. The study by Lolas and Von Rod (1977) concluded that psychosomatic and psychoneurotics do differ in terms of the pattern of interrelationship of shame and guilt, anxiety, and hostility turned inward and hostility turned outward. Also the correlations for each group were significant. No normal group had been used in this study. However, the fact that correlations of anxiety and hostility were significant and
differentiated the two groups provides some support to the findings of the present investigation. A few of the other studies relating anxiety to hostility include that of Liakos, Markidis, Kokkevi and Stefanis, 1977 (cited by Spielberger and Sarason, 1977). The study reported a strong relationship between anxiety and intro-punitive scores.

The study by Rawn (1958) also reported that those with physical hostile expression had greater overt anxiety while those who indicated low physical hostility showed more covert anxiety. Nevertheless the relationship between anxiety and aggression was evident.

The results of the present study and those of others have provided support for the earlier hypotheses stated by several theorists, that aggression could be a defense against anxiety (Freud, 1923; Novaco, 1976; Rothenberg, 1971; and Sullivan, 1956). Freud was probably the first to state that aggression was a social reaction to the stresses and frustrations imposed by environment, whilst Sartre (1968) on the contemporary scene has linked aggression with the existential anxiety of the times.
As a defense it is apparent that aggression is well related to stress leading to psychiatric illness.
RELIABILITY OF THE SCALES

Test-Retest Reliability

Three types of reliability were undertaken. The first of these was the test-retest reliability, which yielded a value of 0.75, with an interval of approximately one year. This coefficient value is indicative of the stability and consistency of the test over time. As such it would also be a contribution to the trait measure of the test.

The correlation coefficient may also be evaluated in the light of the 11-point rating scale that was used. The likelihood of greater consistency in rating is expected on a dichotomous rating scale as compared to an 11-point rating scale. It is creditable in the light of the disadvantage posed by the demands of a sharpened instrument, to have obtained a reliability value of 0.75.

It is felt that shorter intervals of the test re-test period would enhance the correlation value to a desired range between 0.80 and 0.90. However, this was not possible under the circumstances.

Alternate-Form Reliability

Another form of reliability namely the alternate form in which two forms of the scale were obtained by
splitting each scale in two parts, each having almost equal average factor loadings. A reliability of 0.93 was indicative of the consistency of the scale.

**Internal Consistency**

The internal consistency of the subscales expressed in terms of Cronbach's coefficient alpha values were calculated. Except for scales XVII and XVIII all other scales could be considered fairly reliable. The lack of internal consistency on scales XVII and XVIII may be attributed to the need for more items relevant to these scales. Addition of further items would not only increase the reliability but also the validity of the scale. The coefficient alpha of 0.71 on the full scale was a fairly high value for the scale to be considered reliable.

In view of the steps taken towards establishing the validity of the scale it may be stated that the aggression scale has content, construct, factorial and clinical validity. With regard to reliability though the scale to a great extent may be regarded as reliable, further improvement is required on some of the scales as mentioned earlier.

**The Nature of Aggression revealed in the Present Investigation**

The literature related to research in the area of aggression leads to one definite conclusion that the
remotest understanding or it requires a multidirectional approach. The singular nature of research endeavours, in the final analysis leave inconsequential results and cries of despair echoing repeatedly. What is apparent is the fact that whether aggression is investigated from the biochemical, physiological, psychological and socio-cultural viewpoints it is no longer considered a unitary phenomena. Pradhan (1979) in his study on aggression and neurotransmitters, concluded that the investigators demonstrated that aggression is heterogenous and each type involves a multitransmitter profile. Moyer (1968) on the basis of evidence provided byCarthy, Ebling, Delgado, Maclean, Funkenstein, Clemente, Hunsparger and others identified six classes of aggression. Amongst the psychologists there have been at least a few who testify to its multifaceted nature (Blackburn, 1972; Buss 1961; Bendig 1962; Foulds et al., 1965; Green and Stacey 1967 and Olweus, 1975). Thus what seems apparent from the above is that fact that each scientific and consequently further conclusions regarding its genesis or its determinants go awry. Once the different disciplines establish appropriate profiles of aggression and each one can be examined for the extent to which it can be understood from the other viewpoint and also the extent to which certain types of aggression can be identified only by one particular discipline, the substrates of it would crystallize. For example Foulds'
classification which includes a 'self critical' form of aggression could be explained psychologically or socio-culturally but to isolate the neuroanatomical bases or to provide a biochemical theory cannot be thought of with the present scientific progress made.

The present investigation has helped to elucidate the nature of the phenomena from a psychological viewpoint based upon a synthesis of self report measures. Although the statistical techniques applied have contributed to an enriched understanding of the phenomena it was limited by the fact that the entire set of variables agreed upon for assessment that is the 197 which had Ω values below the median of the range of Ω values, could not be factor analysed, due to program limitations. What has emerged as a result of data processing fails to represent certain forms of aggression e.g. Sadism, Masochism and Necrophilia, which carry sexual overtones, and others such as assertiveness. Future research with a larger number of variables may reveal additional components of aggression.

However, despite the limitations faced what emerged may be considered the most pertinent and the most relevant from amongst the set of variables that went through multilevel filters. In other words the variables that comprise the present scale of aggression may be considered the most crucial as compared to the ones eliminated. Consequently the factors extracted represent the most recent forms of aggression contained by the normal
population. If the complete set of variables were analysed on the basis of clinical data certain forms of aggression that are more clearly identified amongst the patients would have emerged.

The eighteen factors that emerged need to be assessed in terms of what they contribute to the understanding of the phenomena. This can be done first by comparing each factor with what has been expounded on it, by earlier scientists in the field, and later by projecting the unique factors.

The first factor Impulse control represented the most important facet of aggression. Apparently it is most characteristic of aggression. In studies with the Psychiatric Status Schedule (Spitzer, Endicott, Fleiss and Cohen, 1970) the Impulse Control Disturbance factor is found to have significant correlations of 0.83 and 0.44 with Antisocial Impulses or Acts and Overt Anger respectively. Such findings support the emergence of the present factor. A similar factor was also identified as Aggressive Impulses by Olweus (1975), but was found to be a weak factor. In studies with the Psychiatric Status Schedule (Spitzer, Endicott, Fleiss and Cohen, 1970) the Impulse Control Disturbance Factor is found to have significant correlations of 0.83 and 0.44 with Antisocial Impulses or Acts and Overt Anger respectively. Such findings support the emergence of the present factor.
However, impulse control as an important component of aggression has been referred to by Freeman, cited by Haward (1976) who spoke of ego controlled and spontaneous irrational aggression and also by Hill cited by Haward (1976) who identified it in isolated acts of violence which occur in the presence of normal EEG, while habitual aggression was related to EEG pathology of the temporal lobe.

Hostility to self was the second most prominent factor which has the nearest parallel in the Intropunitive scale of the PDS (Foulds, 1977) as the latter no longer incorporates items that represent symptoms. It is also similar in item content to the Aggression Inhibitory Responses factor derived by Olweus (1975). Further parallels may be drawn by referring to the anger-in states experimented upon by Funkenstein and Coworkers (1955), wherein physiological changes associated with the condition were identified.

The third factor Material Destructiveness as such does not emerge in the hostility and aggression scales constructed so far. It actually gets enmeshed in the physical aggression factor identified quite frequently. In the present analysis Material Destructiveness has been distinguished from aggression against others. As such it would be similar to the aggression scale, Indirect, in the BDHI as the items in both these scales
represent displacement of aggression to inanimate objects. The importance of assessing and understanding this form of aggression is felt when tracing the psychopathological causes of clinical conditions, or differences arising amongst people even in normal interpersonal relationships.

The fourth factor namely Suspicion has often been discussed as an important component of aggression and hostility. Although the BDHI contains a Suspicion scale nowhere has it appeared as a factor analytically derived scale of aggression. In the form of Projected Hostility and Delusions of Persecution it has been incorporated as a scale on the HLHQ. However, the relevance of this factor in assessing the aggressive potential and its place in psychopathology has been meaningfully stated by Thorne (1953). But according to him "it is the anger state that creates a sort of perceptual filter which makes all sorts of neutral stimuli appear threatening and hostile".

The fifth factor namely Resentment towards others consists of items which convey the meaning implied by Buss's(1957), scale including a Resentment scale. According to him, resentment conveyed a feeling of jealousy and hatred towards others. It "refers to a feeling of anger at the world over real or fancied
mistrustment". However, the item content is different in the two scales. But it is worth mentioning that the items in the present scale do connote the meaning as defined by Hornby (1974) in the Oxford Dictionary. According to him resentment means feeling bitter, indignant, or the feeling that one is ignored, insulted or injured.

The sixth factor Inhibited hostility towards others represents control of hostile urges. Again this factor has not been extracted as such in any of the factor analytically derived scales, although it could be likened to the Aggression inhibitory response factors derived by Olweus (1975) in which a few items reflect the control of aggressive urges felt towards others. The difference in the two scales arises from the fact that in the latter there is retroflection of negative feelings whereas in the former the felt hostility is curbed without further redirection. The emergence of this factor provides a construct that represents a positive manner of dealing with hostility. Schultz (1954) also derived a hostility control scale from the MMPI which generally reflects self restraint and is fairly subtle with respect to hostility. Consequently it differs from the present scale.

Anger-Rejected is the seventh factor to emerge. According to this factor angry feelings are recognised
but are not generally accepted as arising within the individual. Scales on anger have been constructed like the Reaction Inventory to measure Anger (Evans and Strangeland, 1971) and the Anger Self Report (Zelin, et al., 1972), which represents the awareness of anger and anger reactions. However, it is important to note here that all these scales represent psychological aspects of anger and not the autonomic drive state much emphasized by Buss (1961). The psychological expression to some extent was also brought out in the experiments carried out by Schachter (1971) who emphasized that anger was nothing but the cognitive structure given to a state of arousal in the face of stimuli that evoked negative feelings.

Rothenberg (1971) in one of the most vociferous expositions on anger described it as an alerting mechanism. The felt anger is not necessarily followed by hostile expressions or by aggression, violence and hate. It differs from all these. He viewed anger as a means of communication on the basis of which constructive action may follow. The expression of anger is viewed as a non-destructive means of removing the obstruction, which by violence or aggression would be destroyed. Evidences of this aspect is found in the sullen looks in depression, or seductiveness in hysteria and in distorted communications found in marital disharmony all of which are non
destructive ways of communicating. When left unexpressed, it is likely that it will result in aggression or damage of some sort. The same thought has been verified by Megargee and his coworkers.

The next factor that emerged was Alienation Home-Environment. This factor has not been identified in any of the factor analytic studies of aggression. However, it has been referred to in the context of the AAA syndrome that is the Anxiety, Alienation Aggression Syndrome studied by Swang (1975). Further in a study on personality correlates of alienation Tolor and LeBlan (1971) reported positive significant correlations at 0.05 level between hostility and alienation. The manner in which the two relate with each other has been explicitly stated and supported by Rolle May (1976). The characteristics of alienation being powerlessness, meaninglessness, normlessness, isolation and self-estrangement (Seeman, 1953) it is easy to understand the ontological development of the roots of aggression and violence that arise from the need for the power to be and progress to self affirmation, self assertion and finally to aggression and violence, as argued by Rollo May (1976).

Self Critical aggression as another aspect of aggression revealed through factor analysis holds an appropriate place in the assessment of aggression. It is associated with lowered self esteem which has been
found to lead to aggression (Berkowitz, 1960). What is implied is that the redirection of anger towards the self is at some point outweighed by aggressive urges turned outward. This factor has been identified as the Self-Criticism scale of the MHQ, and studies related to it as evidence of its worth, have been referred to earlier.

Low Threshold for Tolerance was yet another factor extracted to represent the expression of anger arising from impatience and the inability to tolerate insult or discomfort. As such it differs from the impulse control factor. This factor has not been identified in the earlier studies on aggression, and thus provides a fresh aspect of aggression, to be considered.

The Non-Specific Hostility factor representing items on assault, dominance and guilt, again provides a fairly unique aspect of aggression. It may be said to measure aggression arising from anxiety over guilt leading to a need to assert and dominate.

Physical aggression was yet another factor that emerged as an appropriate aspect. It is a more comprehensive construct of aggression directed outward than material destructiveness. It includes items that represent physical harm perpetrated on others and objects. The factor has been considered invariably in the assessment of aggression in the form of Acting-out Hostility (Foulds et al., 1965), Physical aggression (Olweus, 1975), Manifest
Hostility (Wiggins, 1966) and Overt Hostility Scales (Schults, 1954). This factor represents an important dimension of aggression.

Physiological Reaction as a factor in aggression provided yet another unique aspect that needs consideration in the assessment of aggression. The factor structure, however implies a lack of awareness of the physiological components of the state of aggression. Although the physical changes accompanying the anger-in and anger-out states have been identified in experiments, a measure of subjective self report does not exist. Unlike the case with which subjective feelings associated with anxiety are reported, those accompanying aggression seem to be forgotten. This could be either due to a heightened state of arousal or the major role of the cognitive component.

Angry outburst as a factor that emerged in the present analysis may be likened to the Overt-Anger factor identified by Spitzer et al. (1970). The Overt Anger factor was found to correlate significantly with Antisocial Impulses or Acts (Spitzer, et al., 1970). It has also been found to have an internal consistency value of 0.71 (Dohrenwend, Yager, Egri, and Mendelsohn, 1978).

The Anger Outburst factor differs from Anger-Rejected and Anger, as the items indicate the inability to contain one's anger due to the trying nature of situations that finally evoke it. This factor has not been identified as
such in earlier studies as it is included under the general rubrics of anger.

Physical Reaction as a factor emerged as a unique combination of items dealing with the physical acts expressing anger and physiological reactions to feelings of anger. In other words the factor connotes the motor component of aggression. The physical aggression factor also carries within it the motor component but it differs from the Physical Reaction factor as it does not contain the physiological reaction items. In other words the latter represents a more general physical reaction whilst the former is limited to direct attack of the aggression evoking stimuli.

Verbal aggression in the present analysis has emerged as a somewhat weak factor with only two items signifying verbal expression of aggression. Although the content of the two items is most appropriate to the factor, more items are required, representing a larger sample of situations in which verbal aggression would be evoked. This is particularly felt in comparisons of this factor, with the verbal aggression scales of the BDHI and the anger self Report.

Anger is the last factor to emerge. It represents feelings of anger aroused in response to other people. The factor differs from the awareness of Anger scale constructed by Zelin and his coworkers (1972) as the
latter contains items that reveal conscious feelings of anger rather than actual responses to anger evoking stimuli, that indicate the behavioral aspects of this drive state. Danesh (1977) has identified anger along with fear as the twin mechanisms that arise in conjunction with anxiety in the face of threat. In other words they are innate defense mechanisms. Quoting Gellhorn (1967) Danesh states that "chronic anxiety is due to the simultaneous activation of the ergotropic and trophotropic systems at a high level of arousal or psychologically speaking to fear and aggression".

In view of the fine differentiations revealed amongst the 18 factors, the higher-order factors which provide a broader dimensional framework need to be assessed. The first higher order factor named Anger constitutes the Anger and Low Threshold for Tolerance factors. These two factors dealing with the recognition of anger within oneself and the ease in evocation of angry feelings provide the basic ingredient for further forms of angry aggression. While a few investigators observe anger as a necessary constituent of aggression(Buss, 1961) others like Baron (1977) speak of aggression without anger as revealed in cold-blooded murder, or aggression emanating from the need to effect or to be, which Rollo May (1976) illustrates through several case histories.
The second higher-order factor namely Indirect Aggression reveals aggression displaced chiefly to material objects and effects of aggression in the form of physiological reaction. It is one of the chief dimensions of aggression that could provide psycho-pathological explanations for not only psychotic and neurotic aggressive reactions but also acts of violence and destruction so characteristic of the youth today.

Indirect aggression could be interpreted as a reaction to anxiety which would not necessarily serve as a defense which other forms of aggression do. However, the message conveying the need to effect is conveyed through it.

The third higher-order factor namely Other-directed Aggression is clearly made up of a constellation of variables that reflect various types of hostility directed outward towards others. These variables include resentment toward others, impulse control, verbal aggression, low threshold for tolerance, angry outburst, physiological reaction and suspicion. It is apparent that the third dimension of aggression is composed of several minor components that enrich and define it.

As a defense against anxiety and stress it is probably the most effective mechanism resorted to by
both the normal and clinical populations. The difference may be a matter of degree.

The fourth higher-order factor namely self-directed aggression, though not as clearly structured as the above factor, generally deals with forms of hostility, anger, and criticism, directed towards the self. This factor representing the fourth dimension of aggression, present in the normals, is extremely pertinent to the understanding of the psychopathology of several psychiatric conditions, like depression and various psychosomatic diseases.

The fifth higher-order factor namely Physical Aggression has emerged as an independent dimension of aggression. This indicates how strongly aggression is associated with acts of physical violence rather than other forms of aggression. Its components include hostility to others, physical reaction and material destructiveness. The other components like suspicion and anger also lend some meaning to the construct though it is remote.

The above dimensions of aggression provide a 5 dimensional framework of aggression derived statistically. It contains the components reflecting many subtle differences amongst the forms of aggression. However, it is not necessary to emphasize that the above findings are the result of a fresh endeavour pertinent to the
sample studied. Consequently further verification and improvement would be required.

Comparisons with other Models framed from a Psychological Viewpoint:

Psychoanalytic models which were probably the first in line, do compare to some extent with the present findings. Freud's final conclusion on the masochistic and sadistic drives (1924) would be to some extent contained in the third and fourth dimensions of the above model. Hartman's conjectures on the release of aggression through the displacement of the destructive urge to objects that do not retaliate is also represented in the second dimension of aggression (1949). Further, the hydraulic model expounded by Fisher and Hinds (1951) again offers points of comparison. It deals with deep level hostility controls and surface controls. The latter primarily discharge anger outward and secondarily turn anger inward. The deep level controls normally allow the expression of assertive urges but inhibit the anxiety laden ones. But when too much tension is dammed up the surface controls release hostility outward. The detailed mechanisms of the controls have not been spelled out as such, but this model presents the more dynamic aspects of the current model which may be described as being more structural. In further studies
the latter could be investigated from a dynamic viewpoint as presented by Fisher and Hinde (1951).

Amongst the behaviouristic models, that of Miller, Dollard, Doob and Mowrer (1939) may be considered. The model also being basically an active dynamic model the only point at which some comparison may be drawn is with respect to displacement of aggression. In the current model this aspect is reflected in the second dimension which deals with indirect aggression, chiefly material destructiveness. According to Berkowitz (1962) such aggression would depend upon the aggression-eliciting cues, when anger had been aroused. The situation thus described could to some extent be assessed through the first and second dimensions viz. anger and indirect aggression.

Another behaviouristic model presented by Olweus (1975) contains elements that go beyond the structural framework of aggression that emerged in the present study. The model involves the cognitive appraisal of a situation which may have aggressive activation value (AS) or aggression inhibitory activation value (IS). The response is influenced by the strength of habitual aggression tendencies (AT) and the strength of habitual aggression inhibitory (IH) tendencies as well as the dispositional tendencies.
According to the author "there is a positive co-variation between the strength of the individual's habitual tendency (AH, IH) and the magnitude of the activation value (AS, IS) for a given situation". Finally when the activation takes place he stated, "the strength of the activated tendencies (At, It, etc.) is a function both of the activation value of the situation (As, Is etc.) and the strength of the habitual tendency (Ah, Ih, etc.)." In conclusion he stated, "whether and to what extent responses materialize, will be determined primarily by the mutual relationship between the activated aggressive and aggression inhibitory tendencies". The current model could contribute to tapping the habitual aggressive tendency and the inhibitory aggressive tendency but it does not deal particularly with the situational specificity of the model. However, assessment of aggressive reactions in various situations is embedded in the model. The situational specificity of aggression has been studied by Grace (1951). Ninety situations from three fields, everyday, professional, and international were studied in terms of auto hostile, laissez-faire, verbal hetero-hostile and direct hetero-hostile reactions. The author concluded "fields were found not to be significantly different by the analysis of variance technique". In other words aggression is not specific to the type of situation.
The above comparisons reveal that the present dimensional framework is a fairly comprehensive system which could be used to test models that are dynamically oriented. It could also be considered comprehensive in comparisons with findings of other researchers in the area of aggression such as Foulds and Bedford (1977), Buss and Durkee (1957) and Zelin et al., (1972), who have been referred to in the section on clinical validation. The PDS Scales (Foulds, 1976) consist of the Intropunitive, Extrapunitive and Dominance dimensions without reference to component structures which the earlier form, HDHQ contained. The Buss Durkee model is fairly close to the current model in terms of component structures and the general dimensions of aggression and hostility. Bendig's (1962) factor analytic study of the BDHI scales, leading to overt and covert dimensions could also be said to be analogous to the current dimensional framework, but they are not comprehensive scales. The study by Zelin et al., (1972) was restricted mainly to anger. However, the scaled developed by the authors do represent other aspects of aggression.

The five-dimensional framework with its several component structures as revealed in the present investigation, differs from several other models on one issue.
The findings mentioned elsewhere indicated that the aggression components of the scale had a firm anchorage in a psychological substrate viz. stress. However, the types of stress leading to different forms of aggression differed greatly. Further, the intensity and pattern of the correlations differed in the two groups - the normal and clinical, with the clinical group obtaining lower correlation values. It may be inferred from these findings that stress is more sensitively perceived by the normal group. The clinical group may be said to have affected perceptual faculties. Whatever the difference existing between the two groups, both reveal significant correlations between stress and aggression. Similar findings have been obtained by Sullivan (1956); Rothenberg (1971); Danesh (1977) and Lolas and Von Rod (1979).

However, the form of aggression resulting from different kinds of stress may vary. And it would be worth investigating the broader dimension to which this form of aggression belongs, as also the manner in which it evolved or burst forth. A few speculations on the matter have been presented as contributions towards a model of aggression.

**Speculations on a Model of Aggression**

A study of the second order factors suggests a
hierarchical emergent model of aggression that is statistically based. Amongst the factors that compose the model anger may be considered the least severe form of aggression and physical aggression the most severe with others as intervening categories. Examination of the statistical outcome indicates that the five factors that were extracted are arranged such that the less severe forms of aggression account for greater proportions of variance. Thus the first factor namely Anger accounts for the maximum proportion of variance which is 45.2 per cent of variance accounted for by the five factors. This outcome lends meaning to the plausibility of anger being the first feeling reaction of a normal individual, in a hierarchical sequence of the intensification of aggression. Failure to effect through this form of aggression leads to a more severe form of aggression, identified as Indirect Aggression wherein cathartic effects are sought through displacement. Quite appropriately this factor accounts for 29.1 per cent of the variance.

When indirect means fail to provide a satisfactory outlet the restraints are further relaxed and aggression becomes other-directed. Again quite appropriately the factor accounts for 11.6 per cent of the variance. When obstacles arise in the face of other-directed aggression or other directed aggression fails in its objective it is retroflected and aggression becomes
self-directed. In accordance with the sequence of the statistically emerging order this factor namely Self-directed aggression accounts for 8.8 per cent of the total variance accounted for by the five factors. Finally physical aggression provides the unleashing of all aggressive tendencies as the last resort. But normally it would be less frequently resorted to. As the last factor to be extracted Physical Aggression accounts for 5.3 per cent of the variance.

The form of aggression that characterizes an individual's behaviour in a particular situation may progress through the hierarchy or it may be expressed directly without passing through various stages. Such direct forms of aggression may be representative of the multiple facets that compose the major dimension of aggression.

The study also suggests that the aggressive reactions may be traced to various stress or anxiety producing conditions. The stress-aggression analysis referred to elsewhere in the present study provides ground for such speculations. In a cause-effect analysis of the results what may be inferred as a sequenced order of events is first the presence of a stressful situation which may be followed by an aggressive reaction which in the individual at risk may lead to some form of psychiatric
illness. The form of stress, the characteristic form of aggression which may be direct or evolutionary in its development and the kind of illness that results may be correlated.

The speculations on a plausible model described above bear some resemblance to those expressed by Kollo May (1972) and Marcovitz (1973). The common factor in the three models speculated on is the hierarchical nature of aggression. However the composition of the hierarchies differs. According to May (1972) the five levels of power that can be discerned, namely the power to be, followed by self-affirmation with its quest for significance and self esteem, followed by self assertion, aggression and ultimately violence are described as ontological. The model contributes largely towards the understanding of modern social aggression and violence.

Marcovitz (1973) like May (1972) also posited a hierarchical model of aggression. According to him aggression is an umbrella term covering a hierarchy of behaviour in relation to objects. It is the "expression of the will directed upon objects or situations". The hierarchy proceeds from the level of alertness and curiosity to self-assertion, assertion of dominance, exploitation, hostility - including instrumental
aggression and the intent to hurt or destroy that which frustrates exploration, self assertion, dominance and exploitation with hatred as the cause of destruction and sadism as the final form of aggression.

The model that is speculated on in the present study differs from that of Marcovitz as its emergence is identified at a higher level of aggressive activity namely anger. Assertion as such does not emerge at all and may according to the results of the present study be considered an almost independent trait. Similar conclusions were drawn by Galassi and Galassi (1975) when correlating the Buss Durkee measures of aggression with the College Self Expression Scale. Except for verbal aggression all other scales were either unrelated or inversely related.

The nature of aggression revealed in the present investigation confirms the existence of what are the major and apparent dimensions of aggression. But the understanding of the phenomena is enhanced more by the emergent order and the components that comprise it. The implications to be related in the following paragraphs may indicate the relevance of the findings in various areas of psychological research and its applications.
Implications:

Since the study of aggression is generally fraught with complexities because of its nature, the present investigation may be helpful as it provides fresh insights regarding the components of aggression. Understanding aggression in the light of the present findings may be one small step that may prove effective in several ways.

As the present endeavour resulted in the development of a tool for the assessment of aggression its areas of application may be viewed as follows:

1. Firstly in the area of psychodiagnosis useful information regarding the personality of the subject may be gathered.

2. Secondly in the area of psychopathology assessment on the scale may reveal the manner in which an individual handles his hostilities. It may help the examiner dealing with a case, to know which forms of aggression the individual resorts to, and the intensity of aggression that can be evoked in him. A profile of the case may sharply delineate the aggressive features of the individual, and to this extent may indicate where in the classification of psychiatric illness he fits in.
4. Lastly in the area of research the relevance of scales of aggression was well emphasized by DiMascio (1973) while stating a number of reasons as to why the phenomena of increased hostility was not more universally known and recognized. It was pointed out that it could be due to "the comparative insensitivity of clinical observations vs. sensitivity of the hostility scales". In other words a need for the objective measurement of hostility was implied.

The scale such as the present one may be particularly helpful in ascertaining changes in aggression accompanying physiological changes. Such attempts have been made by Kreuz and Rose (1972) while assessing aggressive behaviour and plasma testosterone in a young criminal population, and also by others dealing with research on other physiological parameters related to aggression.

Just as the understanding of aggression through this scale may help to specify the physiological changes accompanying major dimensions of aggression, similarly it may contribute to the neurochemical and neuroanatomical researches on aggression. A need for the classification of different types of aggression that may provide clues to the identification of different neurotransmitter profiles has been brought up by Pradhan (1979).
Besides shedding light on the nature of the phenomena the scale may be useful in studying the effects of various drugs, as particularly drugs may prove more suitable for particular types of aggression. Shader (1970) for example recommends oxasepam for an anxious patient with a history of hostile outbursts or temper tantrums. Similarly other drugs are found suitable for irritability or impulsivity.

Just as the control of various aspects of aggression through suitable drugs has been reported, there have also been reports on psychotherapeutic and psychosurgical control of aggression. The methods of control are, however restricted by the extent to which the nature of aggression has been understood. It is hoped that the findings of the present study may contribute to appropriate methods of control, whether it is through behaviour therapy, psychotherapy, pharmacological intervention or psychosurgery.

Limitations and Suggestions for Future Research

The present investigation was limited firstly by the sampling procedures that had to be resorted to. Purposive sampling was the method that had to be adopted due to language constraints. A sample that could represent rural population and various income groups could yield rich information.

Secondly a need for straight factor analysis of the items after the application of elimination procedures using
Thurstone's technique was felt. Several items that were eliminated according to various quantitative criteria could have been retained if facilities for factor analysis of larger matrices were available. Such a method could then have yielded perhaps a greater number of significant items per factor, and also more factors. As this was not possible under the circumstances future attempts dealing with the problem may be made.

Besides the limitations that may be overcome in future research endeavours, the following suggestions for various aspects of research related to the aggression scale are provided.

Firstly, the relationship of aggression to demographic variables may be studied.

Secondly, factor analysis based on data from the clinical population may be carried out to reveal pathological dimensions that may not exist in the normal sample.

Thirdly, various diagnostic subgroups of neurotics, psychotics and personality disorder may be differentiated in terms of their profiles on the aggression scale. Research using multiple discriminant procedures may be most applicable for such purposes.

Fourthly, research dealing with the relationship of aggression and psychoticism may be ventured as the issue has been raised by Forbes (1973, 1976).

Fifthly, the questionnaire measure of aggression
along with experimental and projective measures may be used in a multifactorial approach to the study of aggression.

Lastly, further validation may be carried out together with efforts to increase the reliability of Scales XVII and XVIII. Additional items pertinent to certain factors may be used and the factor analysis may be repeated on a sex-wise basis and across fresh groups.