CHAPTER II

REVIEW OF LITERATURE

'Aggreedi' is the Latin root for the word 'aggression'. It means primarily "to go forward", "to approach". It is composed of the preposition "ad" and the verb "gradios". As such it may be used to mean anything from 'to approach' to 'to attack' (Pinwicky, 1970). The two contrary meanings implied by the root word have embalmed the trail of controversies revolving around the concept. However, attempts at definitions have most frequently been confined to the negative face of the concept. The present investigation is geared to the assessment of aggression as denoting destructive thoughts, acts and feelings, which are contextual to the psychopathology of several clinical conditions. Since the primary objective of this research endeavour is to provide a questionnaire measure of aggression, the review will highlight the definitions, concepts and theories that contribute to the clarity of meaning. Further, an overview of the various partial, global and factor analytically derived questionnaire approaches mainly with adult samples will be provided.
Definitions

Generally the concept of aggression has been accepted as 'intentional harm doing behaviour' (Bronfenbrenner and Aiscuitti, 1960; Buss, 1961; Cahoon, 1972; Olweus, 1969 and 1973; Baron, 1977). But while some specify the object of attack as a living being motivated to avoid harm (Baron 1977) others do not specify it (Buss 1961; Cahoon 1972; Olweus 1973), and some suggest a living being or its surrogate (Bronfenbrenner and Aiscuitti 1960). Olweus (1972) is one of the few, (others being Fisher and Minda, 1951; Green and Stacey, 1967) that view it as a resultant expression of active and inhibitory forces within an individual.

The attributes of aggression were systematically revealed by Duncan and Hoeben (1977). About 933 subjects were found to believe that the constructs of ambition, assertion, belligerence, loud-mouthed and self centered are characteristics of aggressive behaviour. Further the aggressive person was described by 10 positive and 10 negative terms, a notable departure from the identification of aggression as a negative trait.

Cahoon (1972) cutting through all definitions ascends to a more general level stating,
Aggressive responses are not topographically unique with respect to non-aggressive responses, the antecedents of aggressive behavior are not specific only to aggressive responses, and the consequences of aggressive responses are not specific only to this class of behavior. What defines aggression is the singular relationship among a specifiable class of responses and a specifiable class of consequences contingent upon these responses.

It is apparent from the above that there is as yet no ultimate definition of aggression. However, it is clear that in general it is the destructive aspect of aggression that is being defined.

Theories

Psychoanalytic instinct theories

The torch bearer of several theories that were to follow, was Freud (1920) who identified aggression as the death instinct. According to him this libidinally bound drive when directed out was termed sadism and when it was directed inward it was termed masochism. Freud's viewpoint was completely accepted by Hamborg (1935) who felt the destructive instinct attempts to protect the ego. Walder (1936) believed that destructive instincts arose in reaction to threats to ambition, self preservation and frustration of the libido. The ego attempted to master the external world and as part of the libido indulged in penetration fantasies. Meninger (1943) was yet another who completely accepted the death instinct viewpoint.
To a certain extent this viewpoint was accepted by Hartmann (1949) and his co-workers. But they believed that aggression could be displaced, reduced to an intent to humiliate, sublimated, or fused with the libido. Adler referred to aggression as the struggle for superiority and Jung explained it as the tendency of the libido to destroy when it could not create. Horney (1939) in further logical terms spoke of it as a reaction to "basic anxiety". In line with the same style of thinking was Sullivan (1956) who viewed aggression as a derivative of anxiety that may assume constancy and drive qualities depending on cultural factors and other circumstances.

The Instinct Theories

Amongst the others who invoked the instinct concept were William James (1917) and McDougall (1908). McDougall (1926) as cited by Berkovits (1962) proposed that aggression was a little different from other instincts. Its intensity varied in proportion to the obstructed impulse. More recently Loreau (1967) viewed aggression as a unitary drive that was instinctive. According to him energy specific aggression accumulates in the central nervous system and is released by appropriate stimuli. If none exist the behaviour may explode in the absence of each stimuli. Once it is released even the aggression
evoking stimuli become ineffective until the energy accumulates again. Amongst the criticisms raised against this theory are, first that aggression is not a unitary drive. Secondly the theory finds no place for psychological factors like learning and social disorganisation in aggression. Bibbe & Bibensfeldt (1973) on the other hand felt that human aggressive impulses are counterbalanced by desire for socialisation. TIMBERGREN (1960) also in contrast to Lorence differed while stating "Man is the only species that is a mass murderer, the only misfit in his own society."

Other ethological viewpoints on aggression are expressed in connection with (1) dominance hierarchies (2) territoriality and (3) crowding. Studies on dominance hierarchies reveal that aggression and leadership are divorced (PILBOA, 1973; KEO, 1977). The territorial aggression hypothesis by ASHDON (1967) also does not hold true for man, who is becoming "extraterritorial" in developing multinational corporations. Lastly the study by FREEDMAN, LEVY, BASHAM and PRICE (1972) and the prime facie evidence revealed through conditions in Bombay and Hongkong prove that crowding does not lead to aggressiveness.

The Behaviouristic Viewpoints

Belonging to a rather different orientation from the instinctivists are the behaviourists who view
aggression as learned and situation specific. The first and foremost amongst these are Dollard, Doeb, Miller, Nower and Sears (1939) who postulated their view stating "the occurrence of aggressive behaviour always presupposes the existence of frustration and contrarywise, the existence of frustration always leads to some form of aggression." However, a revised statement (Miller, 1941) explains, "frustration produces instigation to a number of different types of response, one of which is an instigation to some form of aggression." Further it is stated that the strength of the instigation to aggression varies directly with (a) the strength of instigation to the frustrated response (b) the degree of interference with the frustrated response and (c) the number of frustrated response-sequences. In terms of inhibitory effects, Miller (1948) proposed that aggression would depend on (1) the strength of the instigation (2) the strength of inhibition against such behavior and (3) the stimulus similarity of each potential victim to the frustrating agent. The last point has been elaborated by Zillman (1978) to the effect that generalization of the instigation was more effective than the inhibition of such behavior. The same point had been made earlier by Baron (1977).

While the above reflections on aggression were chiefly causal in nature there were others who further
described the phenomena. Buss (1961) defined it as "a response that delivers noxious stimuli to another organism", and as an act with the intent to injure a person or to damage property. Buss also differentiated anger, "as an emotional response with facial and skeletal and autonomic components" from hostility which he states, "is an attitudinal response that endures, an implicit verbal response involving negative feelings (ill will) and negative evaluations of people and events".

These views have been upheld by Baron (1977) to some extent, the difference being that he believed that an act of aggression could take place in 'cold blood' without the element of anger. He emphasised that aggression must have identifiable intention to do harm so as to differentiate it from the accidental or instrumental aggression of surgeons or dentists. Further the injury must be directed to living beings who wish to avoid it and do not derive pleasure from it.

Olweus (1973) in dealing with the dynamics of the aggressive response felt it was influenced by the strength of habitual aggressive tendencies (AL) and strength of habitual aggression inhibitory tendencies (IH) as well as other dispositional tendencies. These tendencies in turn were influenced by the cognitive
appraisal of the situation which could have an aggressive activation value or aggression inhibitory activation value. In a similar manner Leger (1971) posited inhibitory mechanisms which consisted of primary neural mechanisms and secondary social mores. According to him when effective stimuli come into play the stimulus analyzer interprets these. But before the effector response, the inhibitory mechanisms may operate or redirect aggression through displacement and sublimation. These views to a certain extent have also been expressed by Green and Stacey (1967) and earlier by Miller and his co-workers (1948).

Social Learning Theories

Belonging to the behavioristic school of thought but fixed in a social context is the theory proposed by Bandura (1973). According to him a complete theory of aggression must explain (a) how aggressive modes of behavior are acquired through observation, experience, symbolic modeling and familial influence (b) what provokes people to behave aggressively and (c) what maintains aggressive actions like external and vicarious reinforcements.

Yet another variation of the behavioristic viewpoint is that of Berkowitz. He maintained that stimuli having strong associations with aggression, act as cues for
aggressive responses (Berkowitz, 1960; 1962; 1964). It has also been stated that arousal produced by frustration should energize the cue-elicited responses (Berkowitz and Dees 1966, 1967).

The Existential Viewpoint

The existentialists view aggression as being chiefly a response to the boredom and meaninglessness of modern life. According to Sartre (1968) aggression was a response to existential anxiety. Others like Genet and Kestler also hold similar viewpoints. Rollo May (1972) in a rich and extensive account of power and violence presented five ontological phases of power present as potentialities in every human being's life. The first is the power to be, without which neurosis, psychosis or violence can result. The second is self-affirmation. The third is self assertion followed by aggression and finally vice.

Krich Fromm's (1973) viewpoint is somewhat different. For him aggression has two faces, the benign and the malignant. Benign aggression consists of pseudo aggression and defensive aggression. The former is split further into accidental, playful and self preservative aggression. It arises from threats to freedom and to the narcissistic self image. Defensive aggression arises against repressed material
coming into awareness. It takes the form of resistance or it may be conformist. The other form of aggression is the malignant form which consists of spontaneous forms like vengeful and ecstatic destructiveness and character rooted forms like sadism, masochism and necrophilia. All these forms of aggression arise from the need to find significance the need to effect or from sheer boredom.

The Neurophysiological Viewpoint

A vast amount of research in this area has been released to unravel the mysteries of the phenomena of aggression. However, only a few will be touched upon to bring out the significance of this viewpoint. Drawing heavily on the findings of Cannon were two scientists namely Ax (1953) and Fundenstein (1954; 1955) who identified physiological indices of anger and fear, while consistent noradrenaline effects accompanied anger, adrenaline actions were associated with fear. However, researchers have come a long way since then. Pradhan (1979) concludes from his investigation that each type of aggression involves more than one transmitter and these together act in a balanced manner, within each behavioural system, thus providing a characteristic multitransmitter profile for each type of aggression.
Somewhat more comprehensive in outlook are the views held by Moyer (1968) and Delgado (1971). Moyer, gleaned from the evidence of Carthy, Bihong, Maclean, Frankenstein and others refuted the concept of unitary aggression and provided six classes namely, predatory aggression, fear induced aggression, irritability, territorial aggression, and maternal and instrumental aggression. According to his model which is causal, aggressive behaviour results from innately organised neural systems that respond destructively in response to certain stimuli; suppressor systems antagonistic to aggression; influences of endocrine balance and; influence of experience and reinforcement.

Delgado (1971) defined human aggression as a behavioural response characterised by the exercise of force in an attempt to inflict injury or damage to persons or property. The phenomenon has three components: (1) environmental circumstances which may be economic, ideological, political, social, and familial; (2) reception of information through sensory pathways and its interpretation by cerebral mechanisms that result in emotional feelings and or responses; and (3) performance of individual and social responses that constitute violence. All behavioural motivations depend on intracerebral activities.
Amongst others in this area of research are Freeman (1971) who differentiated ego-controlled aggression from the primary irrational and spontaneous types seen in psychoses and brain disease. Hill (1970) using electroencephalography distinguished between isolated acts of violence occurring despite normal intelligence and habitual endogenous aggression related to BAS pathology specially of the temporal lobe.

Comment on Viewpoints on Aggression

The review on the more prominent theories of aggression reveals one discernible trend which indicates a steadily growing agreement that even apparently "instinctual non-learned behaviours are influenced by the organism's environment. William Tavolga has been cited by Nelson (1974) as saying "At every level of organisation from amoeba to man, behaviour develops out of the interaction between the cytoplasm and the environment. You cannot go directly from the DNA molecule to a specific piece of behaviour, and there is no special or separate category of behaviour that can be called instinctive".

Apart from the harmony that is evolving as regards the nature/nurture problem the explanations about the phenomena are reported to be confusing. Nelson (1974) quoted Davies (1970) stating that many uses of the term
"utterly mix cause and effect, symbol and reality, fact and value."

A problem common to several areas of research is also prevalent in the field of aggression. There seem to be several definitions and theories expounded on the structural and dynamic aspects of aggression. Out of these only a few have lent themselves to any manner of assessment. Some such theories include those of Miller and Dollard, Buss, Berkowits and Olweus. Fewer still allow the questionnaire assessment of the concepts, and those that do permit such assessment allow treatment of the phenomena mainly from a global viewpoint. A summary of the disadvantages of attempts at the assessment of aggression through various modes will illustrate the point.

Existing Methods of Assessment

The problem of assessing aggression has been attacked from several angles, wherein the investigators have met with setbacks. In the laboratory the subject feels constrained, to keep up at least the etiquette expected of him if not to please the experimenter. Moreover the laboratory is approached as a laboratory not as a spontaneous response evoking situation.
The attempts at replaying natural situations in the laboratory have also met with problems. For one, the subject may not be able to express his anger in the form that is natural to him. Variations in the form of attack used may render results of different studies uncomparable. The same may also hold true for variations in the intensity of attack used and that perceived by the subject. In fact the form and intensity of aggression would vary as a function of the manner in which the attack or threat is perceived.

Amongst the measures used to assess aggression, the ones most often used include the physiological measures such as blood pressure, galvanic skin response, pulse rate, heart rate, respiration and muscle tension. How sensitive these would be in assessing differences in several forms of aggression is not known. At the most they may be effective in differentiating 'anger-in' and 'anger-out' states. Another means of assessing aggression is the use of projective techniques. Regarding the Rorschach, Buss (1961) made the following comments: (1) that Rorschach hostility has no relation to experimentally induced aggression, (2) the Rorschach probably measures enduring behavioural trends not transient ones, (3) the Rorschach hostile content is not found to measure latent hostility which the subject is unaware of, but that which others can attest to also, and (4) it is incapable of finer discrimination of forms of aggression.
Commenting on the Thematic Apperception Test, Buss (1961) on the basis of several studies stated, "TAT aggression is directly related to assaultiveness". The instrument does not assess assertiveness, uncoop-erativeness and other forms of aggression. He concludes on the basis of Kagan's studies (1959) that unambiguous pictures are the best stimuli for yielding indicants of aggression. In a comment on projective techniques Buss (1961) has stated that intensity of aggression on projective techniques is determined jointly by habit strength of aggression and transient states viz., anger. While the aggression score of a non angry subject is determined only by habit strength, that of an angry subject is determined by habit strength and the transient drive. In most situations it is the aggression score of a non angry subject that is obtained.

Objective behavioural ratings of aggressive behaviour constitute another means of assessment. Areas of aggression tapped thus are limited, and very often subject to misinterpretation as the antecedents of aggression may not be known.

In view of the shortcomings of various assessment techniques mentioned above, the questionnaire measure is resorted to frequently, despite the usual drawbacks of
subjectivity on the part of the subject. Yet it is considered the most direct method that can encompass in its fold a variety of forms of aggression and different intensities of the same. It is apparent that questionnaire techniques provide uniformity in terms of the stimulus categories covered. Such uniformity permits the application of refined statistical techniques. However, it must be remembered that while the questionnaire allows a more comprehensive means of assessing aggression, the information actually reflects dimensions of self-concept. Results of the questionnaire cannot be assumed to mirror the actual behaviour (Mischel, 1968), but for the assessment of aggression it has been considered one of the most suitable measures (Buss, 1961).

**Aggression Inventories**

A review of various scales, inventories and questionnaires constructed for the assessment of aggression is provided as it has a bearing on the construction of a fresh scale of aggression which was the main purpose of the present investigation. The review deals with (1) inventories that include aggression as one of many traits being measured, termed partial approaches, (2) inventories that were global in approach, termed global approaches (3) inventories that were factor analytically derived, and finally, (4) factor
analytic studies based on various scales leading to
different dimensions of aggression.

**Partial Approaches**

Amongst the better known personality inventories, a few have provision for the assessment of aggression or like traits. The Sixteen Personality Factor Questionnaire developed by Cattell and his co-workers has six forms and four editions of the test published between 1949 and 1969. Amongst the "primary personality factors" identified there is no factor on aggression as such. However, suspiciousness (L) and Self-sufficiency ($Q_2$) correlated with the Extravertiveness Scale of the Personality Deviance Scale (PDS) constructed by Foulds and his coworkers (1976); low-ego strength (C-), guilt proneness (O) and tenseness ($Q_4$) correlated with the Intropunitiveness Scale of the PDS; while dominance (E) surgency (F) forthrightness (N-) and venturesomeness (H) with the Dominance scale of the PDS. The study was carried out by Foulds (1976) on 52 normal subjects with a mean age of 21.42 years ± 4.79, using 16 PF Form A (Cattell, Ebery and Tatsuoka, 1970). The results in Table 1 are
TABLE 1

Pearson Product-Moment Correlations between the PDS and 16 PF for 52 normals

Extrapunitiveness and L 0.53 O 0.41
Intropunitiveness and C -0.35 O 0.49 O 0.48
Dominance and E 0.56 F 0.47 M- 0.47 H 0.46

P < .003 for the lowest correlation

reported by Foulds (1976 p.123) in "The Hierarchical nature of Personal Illness".

The Edwards Personal Preference Schedule (EPPS) (Edwards, 1959) was designed to measure independent normal personality variables taken from Murray's list of manifest needs. Norms were collected on 1509 college students and on another adult sample of 8963 individuals. Amongst the 15 EPPS variables Aggression constitutes one of them. It is defined as attacking contrary points of view, telling others what one thinks of them, making fun of others, telling off others when disagreeing with them, taking revenge for insults, getting angry, blaming others when things go wrong, and reading newspaper accounts of violence. Men score significantly higher than women across samples. The internal
consistency for the scale was 0.94 and its stability with one week interval gave a correlation value of 0.78. It has a negative correlation of -0.25 with the dominance scale (N=1509) and correlations of -0.37 and -0.51 with co-operativeness and agreeableness of the Guilford Martin Personnel Inventory (N=106).

The Motivation Analysis Test (MAT) (Cattell, Horn, Sweeney and Radcliff, 1964) measures 10 dynamic personality traits. Five are ergs or sources of reactive energy or drive and five are sentiments. Out of these Pugnacity-Sadism is the erg consisting of hostile destructive urges. Assessment of it is made on the basis of Integrated scores which means scores on the 2 subtests, namely Information and Paired words, and Unintegrated scores of 2 subtests namely Estimates and Uses. The reliability and validity of the test includes (1) a dependability coefficient of 0.51 with N=156; (2) an alpha coefficient of 0.39 with N=227; (3) arbitrary split halves of 0.33 with N=151; (4) stability coefficient of 0.41 with N=101 over a 5 week interval and; (5) correlation between factor estimates of 0.72. According to the authors this trait is influenced by our constitutional endowment, chiefly the neurological make up early experience (imprinting and repression) current degree of environmental stimulation and reduction of tension by gratification. In a study
by Tryon, Stein and Chu (1968) in which there was a
regrouping of the MMPI items into homogenous clusters,
two of the seven clusters or scales were: (1)
Suspicion and Mistrust and (2) Resentment. The
internal consistency of the scales is said to be high
but their independence is not ensured.

The Personality Research Form (PRF) as reported
by Weiner (1976), was designed to measure broadly
relevant personality traits which were based upon
Murray's 20 traits (Jackson, 1972a). It consists of
fifteen, 20 item scales which are independent of each
other. One of the scales in this Inventory is that of
Aggression. A factor analytic study of the PRF
(Stricker, 1974) also led to the emergence of the
hostility factor. Stability coefficients of the PRF
range from 0.69 to 0.90 for the 20 scales with a one
week interval (Bentler, 1964). The internal consistency
values of the scales have a median value of 0.925
(Jackson, 1967a). The scale is reported to be a
useful research instrument. Technically too, it is
said to be exemplary, with high convergent and discri-
minant validity. This scale may be referred to as a
state measure of aggression.

The Hildreth Feeling Test (Hildreth, 1946)
incorporates amongst its other scales a hostility
scale. It was designed to measure short term changes. It consists of four subscales, each designed to measure an aspect of hostility: irritability, hostility towards others, perceived hostility of others towards self and co-operativeness. Each subscale consists of 6 or 7 randomly ordered statements covering a range of possible degrees of hostility. For example for irritability, the most hostile statement is "I feel really furious" and the least hostile is "I feel quite easy going". The item analysis involved judges' ratings of the items on a 100-point scale, and facilitated the selection of items for the scale. The subject chooses the statement from each subscale which describes him most nearly at that moment.

The Comrey Personality Scales inventory, according to Demaree quoted in Buro's Seventh Mental Measurement Year book, represents eight major areas of the adult personality domain, with items rated on a 7-point rating scale. Amongst the factors, the scale measures, is, Social Conformity Vs. Rebelliousness (C). The scale is said to be unusually promising in terms of the homogeneity of the scale. The strongest construct validity was shown by the social conformity Vs. Rebelliousness scale. The scale has not been applied to clinical groups nor has it been used for guidance and counselling purposes.
Yet another inventory that includes a factor connected with aggression is the Emotionality, Activity, Sociability, and Impulsivity (EASI). Inventory developed by Buss and Plomin (1975), Initially each of the scales was unitary, but in the later revision two components for each temperament were suggested. As such this inventory was named EASI-III. Under the Emotionality scale were included fear and anger. Data collected (Plomin, 1974) for children and their parents using EASI-III revealed "Fear and anger were positively and significantly correlated for the parents' ratings of their children and for the parents' ratings of their spouses. Anger correlated higher with general emotionality across samples than fear. But the pattern may not be invariable".

The questionnaire approach to the measurement of personality, as revealed above does seem cognizant of the aggressive trait although the concept is rarely, clearly defined. In fact anger, hostility and aggression are not differentiated from each other. In the global approaches to the assessment of aggression a trend towards such differentiation may be discernible, as each scale seems to deal with a slightly different aspect of the
Global Approaches

1. Expression of aggression:

The earlier hostility inventories view aggression and hostility as a unitary phenomena. One of the earliest aggression inventories derived from the MMPI was devised by Moldawsky (1935). He used judges' ratings in the selection of items from 100 items. Forty five items were agreed upon and retained for the inventory. Dinwiddie (1954) in a further study found significant correlations between the inventory and therapists' ratings. Charen (1955) reported that the scale did not correlate with ratings of hostility by the nursing staff while retests showed that the scale scores were stable. The inventory is said to tap a generalised negative attitude towards the world.

Cook and Medley (1954) produced a hostility inventory consisting of 50 items belonging to the MMPI. The aim in developing this inventory was to assess a person's ability to get along with others. The MMPI protocols of those teachers in Minnesota who were rated in the top and bottom 8 per cent of the teachers in the state on the basis of the Minnesota Teacher Aptitude Inventory (MTAI) were compared. The MTAI is said to predict pupil teacher rapport, consequently those on the extreme end of the distribution were taken. Fifty of the items that discriminated between those
groups were selected by five judges. The inventory has internal consistency. It has reliability coefficients of 0.86 for the hostility scale and 0.88 for the pharisaic virtue scale. Its correlation with the MTAI are -0.44 and -0.46 for the two scales respectively. McGee (1956) correlated the scale with the scores on the Szondi pictures test. Subjects rated these pictures as dangerous, tricky, deceitful or none of these. A correlation of 0.44 was obtained between the 'danger' score and the scale. This suggested that the inventory is related to perception of others as threatening. The scale scores were also correlated with judges' ratings of hostile word associations by students. There was no correlation between the judges' ratings and the scale nor between the hostile word associations themselves and the scale scores.

Schultz (1954) dealt with the problem of the degree to which aggression or overt hostility is expressed. He used a strictly empirical approach, selecting items that correlated with a criterion. Five criteria based on therapists' ratings of male psychiatric clinic patients were used: (1) adequacy of methods dealing with hostility (2) frequency of overt aggression (3) direction of aggression (4) duration of aggressive impulses prior to expression and (5) frequency of covert aggression. The ratings for each criterion were divided into
quartiles. The upper and lower quartiles were used to select items. Using the 0.10 level of confidence, 574 items were significantly related to the five criteria (there being item overlap of the 550 MMPI items among the five criteria). Therapists' ratings and the MMPI scores were collected on a new sample. Fifty-five items held up on replication.

It has also been found that the therapists' rating categories were related. It was possible to combine these into three categories with a total of 55 items related to them. According to Buss (1961), Schultz was assured of retaining a fair number of items by chance alone even with shrinkage after cross validation. More conservative confidence limits namely 0.01 and not 0.10 should be used in such instances. In another attempt at validation Shipman and Marquette (1963) found negligible correlations between manifest-hostility and ratings of hostility of 94 outpatients attending a psychiatric clinic.

Siegel (1956) constructed an MMPI derived hostility scale based upon the premise that hostility and authoritarianism are related. The premise is drawn from the views stated by Fromm (1941), Maslow (1943) and others. He selected 110 MMPI items adding four of his own. Out of these, items on which there was 80 per cent agreement were selected. As a result there were 50 items. These items along with the
Rorschach and the F scale were administered to male college students and clinical patients. On the basis of the F scale scores the high, middle and low authoritarians were differentiated. The high authoritarians scored higher on the hostility inventory than the low authoritarians. Correlations of the inventory scores with the Elizur Rorschach hostility content scale scores approached zero, implying that the scale did not measure covert hostility. Results regarding its relationship with the F scale are criticised by Buss (1961) because the item contents overlap. For meaningful results it is desired that instruments be independent.

Another study based upon an empirical approach was that of Fisher (1956). He administered 667 items, some of which were constructed afresh and some borrowed, to 20 male psychiatric patients, 10 assaultives and 10 nonassaultives. Out of 667 items, 221 were found to discriminate the two groups. The discrimination procedure was followed in further samples of assaultive and non-assaultive groups, till the items dropped to 13. The point biserial correlation between the two groups on these items was 0.54. With a third sample of patients from psychiatric hospitals the correlation dropped to 0.33. According to Buss (1961) this kind of shrinkage is expected in the absence of a rationale
for the construction of the scale.

Panton (1958) devised the Adjustment to Prison scale consisting of 36 items. They were empirically derived from protocols of 56 nonadjusted male prisoners versus 72 adjusted inmates. Adjustment was defined as absence of severe infractions such as fighting, assaulting a guard, or refusing to obey orders. The scale thus derived was validated on two adjusted samples which together consisted of 177 subjects and three non-adjusted samples totaling 204 subjects. This study cited by Megargee and Mandelsohn reported that the scales held up with \( P < 0.01 \) on these cross-validations.

Sarason's hostility scale (Sarason, 1958, 1964, 1962) is an MMPI derived scale. It consists of 23 items of true-false nature. The scale was designed to assess the degree to which a person admits to experiencing feelings of negativism and anger in various situations. In a study with 80 male college students, which brings out the validity of the scale, Sarason (1961) reported that the correlations of the scale with the Buss-Durkee Inventory Subscales were 0.13, 0.53, 0.17, 0.22, 0.40, 0.36, 0.33 and 0.52, for guilt, verbal hostility, suspicion, resentment, negativism, irritability, indirect hostility and
assault respectively. The correlations with the guilt and suspicion scales were not significant. With 60 female college students it correlated significantly with the verbal, negativism, irritability, indirect and assault scales. The hostility scale is also reported to differentiate male from females.

Zaks and Walters (1959) devised an aggression scale that constituted a part of a larger inventory. Out of 33 items administered to male assaultive criminals and male noncriminal controls, 12 items discriminated the two groups. It was also found to discriminate institutionalized juvenile offenders from high school students, the drug addicts from controls and the just frustrated group from the controls. The criticism raised by Buss (1961) on the scale is that reliance for the validity of the scale is placed on t-tests, while it is known that with large populations minor differences in means will yield significant t-values. It is suggested that the scale be validated against other aggression scales.

Wiggins (1966) in his effort to develop substantive dimensions of self report in the MMPI item pool provided a manifest hostility scale. It consists of 27 items which reflect sadistic impulses and a tendency to be cross, grouchy, competitive, argumentative, uncooperative
and retaliatory in interpersonal relationships. It also taps competitive and socially aggressive tendencies. The internal consistency in terms of the coefficient alpha across several samples ranged from 0.72 to 0.81. However, evidence regarding its effectiveness in discriminating psychiatric groups is limited but significant. For a sample of six inpatient diagnostic groups the largest contributors to group discrimination along with the first discriminant function are hostility and authority. Conflict group means on the scales indicate that they effectively discriminate sociopathic and brain disorder groups from the schizophrenic, neurotic and personality disturbances. For females belonging to the six psychiatric groups, hostility and depression along with authority conflict contribute to the third discriminant function. On the hostility scale, schizophrenic and personality groups are high while brain disorder and affective psychotic groups are relatively few. A note of caution emphasised by Wiggins is that these findings are based on only six groups which are (a) brain disorders, (b) affective psychoses, (c) schizophrenic psychoses, (d) psychoneurotic disorders, (e) personality disorders and (f) sociopathic disorders.

In a study by Higdon and Brodsky (1973) the
Wiggins hostility scale reflected the effects of experimentally induced stress, while the Hand Test Acting Out ratio (AOR) by Wagner (1962) did not. The AOR did not correlate with the Wiggins Scale either. It was concluded that anger resulting from frustration is best measured by straight questions.

Lachar and Alexander (1978) identified correlates of the 13 MMPI Wiggins content scales using both single sample and cross validation paradigms in a sample of 384 male clients. Characteristics of both high scoring and low scoring clients were obtained for each scale content as well as psychometric properties and correlated characteristics. It was found for example that with T greater than 59 on the Manifest Hostility scale, the individual admits to problems in adjustment related to unmodulated expression of anger, resentment of perceived injustices, need for interpersonal dominance and limited self control. In client populations the combination of hostility, moodiness and impulsivity may be associated with assaultive or other antisocial or violent behaviour. The study provided rich validational findings regarding the scale.

Climent and Plutchik (1972) introduced the Feelings of Anger and Violence (FAV) scale. It consists of
30 questions concerning feelings and acts of violence to be rated on a 3-point rating scale in the form of self report. In a study reported by Plutchik, Climent and Ervin (1976) the self-referred violent patients scored the highest compared to other groups of patients like the temporal lobe epileptics, pain patients, other patients and college samples.

A hostility scale for Form R of the MMPI was devised by Maclachlan (1974) It was formed by combining items from the Wiggins hostility scale that were among the first 399 items that constituted form R, until a satisfactory internal consistency was obtained. Three additional items of the TSC Aggression scale (Tryon, 1968) were also included. These items were selected as they are free of inferences about hostility by projection or introjection. There were 16 items in this scale. Its internal consistency (KR-20) was 0.70 for 100 females and 0.73 for 100 males. Its retest reliability on 50 alcoholics with an average interval of 2.23 years between admission and readmission (and a range of 4.4 years) was 0.70. It correlated at 0.87 with the Wiggins scale with a sample of 126 chronic alcoholics. The scale is said to be worthy of inclusion on other short form versions of the MMPI other than Form R.
The review so far has been restricted to only questionnaires assessing mainly the expression of aggression. Other inventories of word lists, proverbs or thematic categories are not included as interest revolves around questionnaire approaches alone.

Hostility Control

The other viewpoint taken in the construction of aggression scales is hostility control. A number of scales have been devised to assess this aspect of aggression. Schultz (1954) developed a scale to measure hostility control. The thirty four items constituting the scale discriminated the top and bottom 25 per cent therapy patients, of the Veteran's Administration Hospital rated by therapists on the adequacy of methods they used to deal with hostility. The items were also cross-validated on 52 subjects from a University counselling center who were rated by their therapists along a similar dimension of hostility. These scores correlated 0.30 with the HS scale proving its independence from it. The internal consistency derived by the Kuder-Richardson formula 21 was 0.75. The content of the scale is fairly subtle with respect to hostility. Many of the items deal with general self-restraint which may reflect the level of inhibition.

Dealing with a similar theme is the Inhibition of
Aggression Scale (Hy-5) by Harris and LINGOES (1955). It is reported by Dahlin and Welsh (1950) that additional validational material has not been forthcoming on this scale. However, Levy, Southcombe, Cramer and Freeman (1952) found that prisoners convicted of violent crimes differed in the magnitude of their scale 5 scores from those whose crimes did not involve violence. Megargee and Mendelsohn (1962) reported that the Hy-5 differentiates the assaultive criminal groups from the non-assaultive criminal groups and from the control groups. The mean of the assaultives was higher than that of the non-assaultives. The 7 item scale is claimed by the authors to reflect the inhibition of aggression (Megargee and Mendelsohn, 1962).

Another fairly well established hostility control scale is the Overcontrolled Hostility Scale (O-H) devised by Megargee, Cook and Mendelsohn (1967). In an earlier study (Megargee and Mendelsohn, 1962) cross validation of 12 MMPI indices of hostility and control on 4 groups namely the most hostile and violent, moderately hostile and uncontrolled, control groups of nonviolent criminals and finally normals was carried out. Five scales and one index: Ho, Hostility; Hv Overt hostility; Jh, Judged Manifest Hostility; Nu, Neurotic Under control; Be, Bimodel control; and FTI, Frustration Tolerance Index, showed no significant differences
whatever in 60 comparisons. Five other scales and one index, Ap, Adjustment to Prison; Hc, Hostility control; Hy-5, Inhibition of Aggression; Im, Impulsivity; Bo, Ego overscontrol AHI, Active Hostility Index, showed some ability to discriminate criminals from non-criminals but not the assaultive and non-assaultive groups. The significant finding was reversals on scale scores indicating greater control among the assaultives.

Consequently the MMPI protocols of 4 groups classified as above were subjected to item analysis which resulted in six provisional assault scales (Megargee and Mendelsohn, 1967). These differentiated different pairs in the 4 groups. These scales were administered to assaultive and non-assaultive criminals. Scale 3, with 55 items was markedly superior. Further cross-validation data led to the elimination of items which reduced the total to 31. The internal consistency in terms of the Kuder-Richardson Formula 21 on 50 male undergraduates was 0.56. The split half reliability coefficient was 0.58. On the basis of several construct validity studies the authors concluded that the scale is sensitive to a mixture of self-control, hostility and alienation. The scale helps to classify the over-controlled and undercontrolled criminals.

In further validational studies the youthful offenders were divided into low and high O-H scorers.
Then they were administered the 16 PF Form C on which the high O−H group scored significantly higher on Factor C, G, and Q₃ and significantly lower on Factor E, L, M and N thus adding evidence for the construct validity of the O−H scale (White, McAdoo and McGargee, 1973). When validated against the Rosengweig P−F test high O−H subjects were significantly more impulsive than low O−H subjects and low O−H subjects were more extra-punitive than high O−H subjects (White, 1975). The findings were consistent with the O−H personality typology.

However, an attempt to validate the O−H scale in distinguishing over-controlled aggression from under controlled aggression, utilising felons who were (a) chronically violent (UC−V), (b) typically non-violent but acted violently on one occasion (OC−V) and (c) Non-violent (N−V) was unsuccessful. It was believed that since the OC−V were whites and the UC−V Negroes with the latter scoring higher on the O−H scale a race-related factor namely social alienation should be taken into account in predicting overcontrolled aggression (Fisher, 1970).

Some of the other scales connected with hostility control include the Impulsivity Scale (Im) (Gough, 1960). This consists of 21 items of the self control scale of
the CPI. Those scoring high on Im are "... impulsive, shrewd, excitable, irritable, self centered, and uninhibited, aggressive and assertive" (Gough, 1960 p.12). Cross validation yields positive correlations with ratings of impulsivity in normal samples. The Ego overcontrol scale (Eo) (Block, 1955) consists of 23 items, and is said to be empirically derived. The Neurotic undercontrol (Mu) scale (Block, 1955) contains 33 items. According to Dahlstrom and Welsh (1960) it measures "... susceptibility of the personality structure to stress and anxiety in which the anxiety is handled by impulsive acting out, aggression and erratically directed hyperactivity". Block is quoted (Megargee and Mendelsohn, 1962) as stating that the scale is effective only if the subject is neurotic and undercontrolled. Block (1955) constructed another scale called the Bimodal Control scale consisting of 48 items. It is geared to assess the inconsistencies in behaviour which may be overcontrolled at times and undercontrolled otherwise.

Other Global Approaches

Attempts at the assessment of aggression through a combination of different scales at times leading to the development of an index have been made. One of these is the Active Hostility Index (AH) (Welsh and Sullivan, 1952)
cited by Dahlstrom and Welsh (1960). The AH is the sum of the T scores on Scales 4 and 9; the passive aggressive index was PAI = (Hy + 100) - Pd + 2 Pa). All scales belong to the MMPI group. Another configural index of frustration tolerance has been used by Beall and Panton (1957) with prisoners. It consists of a ratio of T scores on 4 clinical scales:

\[ PTI = \frac{Pd + Ya}{D + Hy} \]

Cochrane's MMPI ratio (1963) deals with inward and outward hostility as follows:

\[ \frac{\text{Hostility out}}{\text{Hostility in}} = \frac{4/3(Pd \text{ and } Pa \text{ and } Ma)}{(Hs \text{ and } Hy) \text{ and } (D \text{ and } Pt)} \]

The rationale of the ratio was based upon MMPI profiles of patients. It provides the balance of aggressive drives expressed directly (Pd + Pa + Ma) as compared with the inward direction of those (D + Pt) or the denial or inhibition of such drives (Ma+Hy). Marks and Seeman (1963) have found that 7 groups classified as delinquent by criminal and delinquency records scored the highest on these ratios whereas 6 out of 7 of the patient groups, classified as non-delinquent had the lowest ratios. It is also reported to be highly related to a ratio devised from a nursing check list (Schless, Mendels, Kipperman, and Cochrane, 1974).

The Fourie adjustment questionnaire (1968) which contains 4 scales namely (1) emotional control and
anxious insecurity (2) confidence and decisiveness (3) selfishness and tactlessness and (4) overt aggression, was abbreviated (Liddicoat, Coulter and Fairbairn, 1972) and used to classify aggressive and non-aggressive psychopaths and non-psychopaths. The overt aggression scale was reported to differentiate the groups fairly well. But further work on reliability and validity is required.

Very recently the sum of MMPI scales F, 4 and 9 as a measure of aggression was devised by Huesman, Lefkowitz and Eron (1978). Concurrent and prior aggression on a sample of 426, 19 year olds from the general population was measured. Aggression was also measured through peer nominations obtained concurrently and 10 years earlier. Correlation and regression analysis indicated the sum of T scores for scales F, 4, and 9 as a valid measure of aggression. Using an additional 285 subjects from the delinquent populations, it was demonstrated that the composite was an excellent means of discrimination between delinquents and the general population samples of males and females when intelligence and social status were controlled.

Comment

A few cross-validational studies on different sets of MMPI derived hostility scales, have been carried
out. Results of one such study by Megargee and Mendelsohn (1962) were discussed earlier in connection with the Overcontrolled Hostility Scale. Out of the 12 scales 6 alone could differentiate to some extent the criminals from noncriminals. A cross-validation study of 17 experimental MMPI scales related to antisocial behaviour was carried out (Johnson, 1974). Out of these the ones on hostility, namely, Manifest Hostility (Wiggins), Hostility control (Schults), Impulsivity (Gough), Judged Manifest Hostility (Siegel), Overcontrolled Hostility (Megargee, Cook and Mendelsohn), Inhibition of Aggression (Harris and Lingoos) and Overt Hostility (Schults) along with the other scales revealed no significant differences between the criminals arrested for felony who applied for treatment and those who applied for treatment but were not on the court calendars. Another validity study of the MMPI hostility scales (Shipman, 1965) with 6 scales namely, the Iowa Hostility Inventory of Moldawsky, the Manifest Hostility scale of Siegel, the Cook and Medley scale and Schults's scale which assessed (1) adequacy in expression of hostility (2) frequency of expression of overt hostility and (3) frequency of expression of covert hostility was carried out. Separate ratings were made in terms of verbal hostility, physical hostility and hostile attitude. All test and rating correlations
were significant except for hostile attitude and Moldawsky's scale.

Deiker (1974) made a cross validation attempt with 21 experimental scales of hostility and control, 13 basic MMPI scales and 4 response-bias scales with non-violent, threat, battery and homicide groups. All but 1 of the 17 hostility scales showed group differences which confirmed Megargee's prediction of lower scores on hostility measures and higher on control measures for aggressive individuals.

Most of the scales reviewed so far are valid and reliable. However, they do not seem to differentiate hostility aggression and anger very specifically. Further a review of the scales derived factor analytically is provided below to study the possible differentiations that may emerge.

**Multifaceted Scales of Aggression**

The multifaceted scales of aggression include those that bring out different aspects of aggression and those that deal with multifacets of one particular area of aggression. A review of these scales follows.

One of the earliest contributions towards the construction of scales on aggression was that of Grace (1951). Grace's hostility inventory deals with
the study of different types of hostile responses in different situations. In all there were 90 situations from 3 fields: everyday, professional and international. The categories of response were: autohostile, laissez-faire, verbal heterohostile and heterohostile. Chi square and test of significance of difference between means were used on the raw scores of the odd and even items to test the reliability of the inventory. The measures conformed to each other on the basis of data collected on 210 graduate students. The fields were found not to be significantly different by the analysis of variance technique. The categories were highly significantly different as demonstrated by analysis of variance technique. The subgroup interaction (field categories) was found to be significantly different by analysis of variance.

Amongst the earliest aggression scales that considered the direction of hostility was the Hostility Direction of Hostility Questionnaire devised by Caine, Foulds and Hope (1967). The scale consists of 51 items from the MMPI, grouped in five sets to measure (a) urge to act out hostility (b) criticism of others, (c) projected delusional (i.e. paranoid) hostility, (d) self criticism and (e) guilt. The normal sample used consisted of 47 hospital employees and surgical ward patients. Normative data were derived from two
neurotic samples representing consecutive admission to two hospitals. No criterion measures were used. The correlations among the five subtests with the three samples mentioned earlier were subjected to a principal component analysis. The first component was interpreted as degree of hostility and the second was the intro-punitive - extrapunitive dimension (Philip, 1968). On the basis of these findings hostility is measured by the sum of the 5 subtest scores. The direction is computed as the difference between the weighted sum of scores on the intro-punitive and extrapunitive subtests.

The reliability of the test in terms of test-retest correlation with a one year interval, range from 0.23 to 0.70 for the subsets and 0.75 and 0.51 for hostility and direction of hostility respectively. No internal consistency scores have been available.

Validation results were available from the discriminant function technique applied across the subscales and clinical groups: namely, Hysterics of hysteroid personality, dysthymsics of obsessoid personality, Melancholics, Paranoid states and Psychopaths. Results indicated that with the exception of hysteroid hysterics and hysteroid dysthymsics the discriminant function was significant at the 1 per cent level and frequently at 0.1% also. Sex differences were there but less marked
in their similarities (Foulds, Caine and Creasy, 1960).

As regards the two major components of the scale, the data revealed declining scores from psychotic through neurotic and normal on the first component. It has been reported that all, except the paranoics, were significantly higher than normals. On direction of punitiveness, all except the schizophrenics were significantly more intro-punitive. On Acting-out hostility and on Criticism of Others, only schizophrenics were significantly higher than normals. On Delusional Hostility, all four groups were significantly higher. On Delusional Guilt and Self-Criticism, all except the paranoics were significantly higher. (Foulds, Caine, Adams and Owen, 1965).

In a recent study the HDHQ was administered to convicted and non-convicted subjects (Gossop and Roy, 1977). The extrapunitive scores discriminated the two groups. Self Criticism failed to discriminate the 2 groups while Delusional guilt did. But the intrapunitive scores did not discriminate the two groups. In another study with hypertensives the acting-out hostility scale failed to discriminate the normals and hypertensives. But when subjects free of neurotic symptoms alone were taken the hypertensives scored higher than normotensives. The criticism of others
scale again revealed no significant differences between the two groups, while scores of the hypertensives were significantly lower than the others on the Self Criticism scale. The score increased markedly with neurosis.

In yet another study by Lyketsos, Blackburn and Tsiantis (1978) the HDHQ was found to be sensitive to changes in the clinical condition of the patients during recovery. Hostility scores except for extrapunitiveness, decreased with improvement. Similar findings were found by Friedman (1970).

One of the criticisms raised with respect to the HDHQ despite the validity repeatedly demonstrated, is that of Eysenck (1972). The HDHQ scales are apriori scales. No factorial validity has been reported. According to Eysenck (1972) the 51 items should be factor analysed to reveal what factor structures are really contained.

Modification of the HDHQ has led to the development of the Personality Deviance Scales, in recent years. A dominance scale was added and Delusional Guilt and Projected Hostility Scales were dropped as the latter belong to the symptom sign universe rather than personality universe. The extrapunitive scale consists of six items intended to assess hostile thoughts and six to assess denigration of others. The intrapunitive
scale is made up of six items intended to measure lack of self-confidence and six to assess over-dependency, both of which strongly a self-critical attitude (Foulds, 1976). These scales were correlated with the 16 PF Form A (Cattell et al., 1970), in a sample of 52 normals (Mean age 21.4 years, S.D. 4.8). Extrapunitiveness was highly correlated with suspiciousness, L (0.53) and self sufficiency, Q₂ (0.4); Intrapunitiveness with ego-strength, C negatively (-0.55), guilt-proneness, O (0.49) and tenseness, Q₄ (0.48); Dominance with dominance, E (0.54), surgency, F (0.47), N negatively i.e. forthrightness (0.47) and venturesome, H (0.46). The lowest Pearson's r was significant beyond P .005. The correlation between the three scales revealed no significant correlations between extrapunitiveness and intropunitiveness. The correlations between extrapunitiveness and dominance was small though significant. The correlations between intropunitiveness and dominance were significant and higher.

For 166 normal subjects the split half reliability by the Spearman Brown prophecy formula was 0.80 for the Extrapunitive scale; 0.84 for the Intropunitive scale and 0.76 for the Dominance scale all P < 0.001). The corresponding test-retest correlations after one month for 66 inpatients were 0.84, 0.67, and 0.76 (P < .001). The stability of the scales was thus demonstrated
scale is made up of six items intended to measure lack of self-confidence and six to assess over-dependency, both of which strongly a self-critical attitude (Foulds, 1976). These scales were correlated with the 16 PF Form A (Cattell et al., 1970), in a sample of 52 normals (Mean age 21.4 years, S.D. 4.8). Extrapunitiveness was highly correlated with suspiciousness, L (0.53) and self-sufficiency, Q_2 (0.4); Intrapunitiveness with ego-strength, C negatively (-0.55), guilt-proneness, O (0.49) and tenseness, Q_6 (0.48); Dominance with dominance, E (0.54), surgency, F (0.47), N negatively i.e. forthrightness (0.47) and venturesome, H (0.46). The lowest Pearson’s r was significant beyond P < .005. The correlation between the three scales revealed no significant correlations between extrapunitiveness and intrapunitiveness. The correlations between extrapunitiveness and dominance was small though significant. The correlations between intrapunitiveness and dominance were significant and higher.

For 186 normal subjects the split half reliability by the Spearman Brown prophecy formula was 0.80 for the Extrapunitive scale; 0.84 for the Intropunitive scale and 0.76 for the Dominance scale all P < 0.001). The corresponding test-retest correlations after one month for 66 inpatients were 0.84, 0.67, and 0.76 (P < .001). The stability of the scales was thus demonstrated.
(Foulds and Bedford, 1977).

A further study by Foulds and Bedford (1977) proved that 'normals with symptoms' (NS) were the most extrapunitive group, the symptom-free normals (N) had the lowest intropunitive scores, whilst the patient group (PS) were the lowest on Dominance. On the Extrapunitive scale the difference between N and NS was significant at 0.001 level; between NS and PS at 0.02 level; and between N and PS it was not significant. On the Intropunitive scale the N and NS groups differed significantly at 0.02 level; N and PS at 0.01 level; and NS and PS did not differ significantly. The dominance scale revealed no significant difference between N and NS but showed significant differences between N and PS and NS and PS at 0.02 level.

The scale is clinically valid but would be strengthened by a straight factor analysis of its 36 items. This would provide factorial validation which is lacking among its psychometric properties.

Another commonly used multifaceted scale of aggression is the ingeniously devised one by Buss and Durkee (1957). The items of the inventory were collected on the basis of hostility ratings of patients made during clinical interviews (1956). The final classification of items into (1) Assault, (2) Indirect
aggression (3) Irritability, (4) Negativism, (5) Resentment, (6) Suspicion, (7) Verbal aggression resulted in a 75 item inventory. Initially there were 105 items. But with frequency of endorsement and item total internal consistency criteria the items were reduced. The scales within the inventory can be divided into Hostility (resentment and suspicion) and aggression (assult, indirect, irritability, negativism, and verbal). The guilt category was retained just to study its inhibiting effect.

The 75 - item inventory was administered to 85 college men and 88 college women. The eight scales were scored and intercorrelated followed by the application of Thurstone's centroid method and oblique rotation. All factor loadings of 0.40 and over were considered meaningful. The first factor was defined by Resentment and Suspicion for men and by Resentment, Suspicion and Guilt for women. Both Guilt and Negativism had positive loadings on their respective factors for the men. The sex differences just noted were slight. The men's and women's factor loadings were generally similar, differences being small and random. This similarity of factor loadings suggested a stable factor structure. The two factors identified were attitudinal component of hostility and a "motor" component. The test-retest reliabilities with
a five week interval for each of the scales were as follows: Assault 0.78, Indirect 0.72, Irritability 0.65, Negativism 0.46, Resentment 0.61, Suspicion 0.67, Verbal 0.72, Guilt 0.64 and sum 1-7, 0.82.

Norms for the inventory were drawn from four samples of college students from different states. Results indicate (1) that no consistent regional differences exist and (2) that scores were higher for the inventory taken anonymously. Comparison of the scores of normals with those of the psychiatric patients revealed that students scored lower on Resentment and Suspicion suggesting lower intensity of hostility and (2) students generally score higher on verbal. The pattern was consistent with clinical descriptions of many patients as being less expressive of hostility but more resentful in attitude.

The Inventory was found to have a weak relationship with clinical ratings of aggression and a strong relationship with the scrambled sentences task, Iowa Picture Interpretation Test (IPIT) and operant level of hostile responding. It is to be noted that factors of aggressiveness and hostility as such did not emerge in the analysis, which was unique to the study. Another unique feature of the scale was the scaling of items for social desirability, and their correlation with
probability of endorsement. The correlations were small being 0.27 and 0.30 for men and women respectively.

An important study on the BDHI (Buss, Fischer and Simmons, 1962) provided useful information on it. It reported that the correlations of the ratings of psychologist vs. psychiatrists on the sub-scales: Indirect, Irritability, Negativism, Resentment, Suspicion and total score were significant. However, correlations between psychologists and relatives ratings, and the psychiatrists and relatives ratings were in the main, not significant. The reasons for the low correlations among ratings were reported. First the various raters had their own implicit norms. Differences in these norms naturally lead to differences in the manner of rating by the relatives, psychologists and psychiatrists. Second the patients differ in aggressiveness in different situations causing low correlations amongst the raters.

The correlations of the inventory with the Elizur hostility content scales revealed sex differences. For men the correlation were not significant. For women they were significant on Assault, Suspicion, Verbal and Sum. The correlation of the inventory with IPIT showed sex differences, revealed significant correlations between the two tests on assault, resentment, suspicion, verbal and sum, for men. No significant correlations
were obtained for women. As regards laboratory tasks the scrambled sentences inventory correlation was significant for men, with one scale namely assault. For women all correlations were significant except with irritability. Factor analysis of the ratings by psychiatrists and psychologists of psychiatric patients on a 7-point scale in terms of the 7 BDHI scales yielded a somewhat consistent pattern. The composition differed slightly but the two factors that emerged were similar namely aggressiveness and hostility. The Aggressiveness Factor loaded significantly on Assault, Indirect, Irritability, and Verbal scales. The Hostility Factor loaded significantly on Resentment and Suspicion. Significant loadings were taken to be above 0.40. The only difference between the psychiatrists and psychologists was that in the case of the former the aggressiveness factor loaded significantly on Negativism also (Buss, Fischer and Simmons, 1962 p.89). Concerning relatives, Factor I is defined by all the variables except Suspicion, which defines Factor II. This factor pattern differs from the others in that Resentment now loads up on Factor I, whereas in the patterns for psychiatrists, psychologists, and college students, Resentment combined with Suspicion to define Factor II. The factor analysis of the patients' inventories yield no discernible pattern. The results indicating the factor loadings of psychiatrists,
psychologists and relatives' ratings as reported by Buss, Fischer and Simmons (1962) have been provided below.

<table>
<thead>
<tr>
<th>Mode of aggression</th>
<th>Psychiatrists (69)</th>
<th>Psychologists (95)</th>
<th>Relatives (67)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>II</td>
<td>I</td>
</tr>
<tr>
<td>Assault</td>
<td>.55</td>
<td>-.07</td>
<td>.48</td>
</tr>
<tr>
<td>Indirect</td>
<td>.71</td>
<td>.26</td>
<td>.54</td>
</tr>
<tr>
<td>Irritability</td>
<td>.81</td>
<td>.16</td>
<td>.81</td>
</tr>
<tr>
<td>Negativism</td>
<td>.68</td>
<td>.17</td>
<td>.10</td>
</tr>
<tr>
<td>Resentment</td>
<td>.39</td>
<td>.49</td>
<td>.25</td>
</tr>
<tr>
<td>Suspicion</td>
<td>.32</td>
<td>.59</td>
<td>.29</td>
</tr>
<tr>
<td>Verbal</td>
<td>.82</td>
<td>.17</td>
<td>.68</td>
</tr>
</tbody>
</table>

Other validation studies reveal that suicidal and non-suicidals did not differ on physical aggression, verbal and indirect hostility, but did differ on resentment and irritability (Lester, 1968). In yet another study (Gunn and Gristwood, 1975) in which the sample was 96 prisoners, only the indirect hostility, negativism, resentment and suspicion scales
revealed a strong relationship with total hostility. Further the correlation of the total hostility score and a 5 point rating scale for violence as reported in interviews was 0.17. This implied that the BDHI probably measures hostile attitudes not behaviour.

A study on depression (Becker and Lesiak, 1977) showed that overt forms of hostility measured on the BDHI were unrelated to depression while the covert forms correlated significantly. Lothstein and Jones (1978) reported that BDHI was clinically useful in differentiating the high and low assaultive groups. Renson, Adams, Tinklenberg and Buss (1978) also reported that the inventory significantly differentiated the violent and non-violent drinkers.

In a study that differed from the preceding ones the inventory was shown to have high correlations with the Caine and Foulds scale. The sample studied was made up of patients admitted over a 2 month period.

Generally the results on the BDHI were positive. The inventory has provided fresh insight in the manner of assessing aggression but lacks in certain respects. These will be mentioned in the section dealing with methodology.

A modification of the Buss Durkee inventory was
produced by Bendig (1962). In a previous study (1961) the existence of two oblique traits was established and consequently an attempt was made to draw out new scales from the inter-correlation of items. As a result of several factor analyses two factors constituting the covert and overt hostility scales emerged. Twenty two items belonging mainly to the Irritability and Guilt subscales formed the covert hostility scale. Its reliability (KR formula 20) is 0.72. Fourteen items belonging primarily to assault and verbal hostility formed the overt hostility scale. It had a reliability of 0.76. These scales were given to two new groups (150 men and 150 women). The covert and overt hostility scales showed reliabilities of 0.77 and 0.70 respectively for men and 0.73 and 0.69 respectively for women. Bendig concluded that the two measures can be used at least as preliminary measures of two hostility factors. Another factor analytic study with the BDHI (Rumon, Jussila, Kalita, 1974) with 125 patients of a general hospital revealed three factors (1) Hostility (2) Aggression and (3) Remorse. The factors did not differentiate between medical diagnoses, social class or marital status.

Green and Stacey (1967) in their reaction to the BDHI as constituting apriori Scales, produced a multifaceted inventory with 60 items in each of the
parallel forms. The inventory was geared to a psycho-
analytic orientation and several items tap aggression
indirectly. A principal component analysis of the
60 x 60 matrix revealed that hostility and aggression were
blanket terms that referred to a wide spectrum of attitudes
and behaviour. The principal component was best described
as Low Threshold for Anger, with various sub-clusters such
as 'revenge', 'contempt', 'dominance' and 'verbal aggress-
ion'. Men were found to score higher than women and age
correlated negatively with scores. Parallel form reliability
was fairly high, being 0.79.

The outcome of the analysis was marked by a very
small variance, 8.9 per cent in form A and 8.0 per cent
in Form B accounted for by the first principal component
in each analysis. According to the authors since the
components of aggression are the result of learning
experiences they differ from group to group and person
to person, it is not surprising that the principal
component accounted for only a small part of the total
variance.

Certain implications of the above viewpoint
described by the authors were (1) there is not
necessarily an invariant personality structures in-
volved in the "aggressive personality" (2) account
has to be taken of the situational cues which can allow or can elicit aggressive responses and/or inhibitions and (3) to validate any scale predictions regarding the behaviour of individuals it will have to be specific.

Further studies on this instrument include that of Prabhu (1968) in which 21 patients with paranoid ideations had significantly higher scores than the normals. The 30 neurotic patients did not differ significantly from the normals. It was reported by the author that the inventory lacked in one significant aspect and that was the assessment of the direction of aggression. In another study by the same author (1973) the Green and Stacey questionnaire failed to differentiate idiopathic epileptics from normals. However, it was sensitive to differences between the idiopathic epileptics and temporal lobe epileptics with the latter scoring higher.

Another multifaceted scale that deals with different forms of aggression is that of Olweus (1975). According to the author though the inventory was devised on a sample of boys it could be applicable to adults. And for this reason it has been included in the present review. The central aim in the construction of the inventory was to get estimation of the subjects'
characteristic of habitual aggressive and aggression inhibitory tendencies. Theoretical conceptions on these aspects have been elaborated in the paper presented at the Nebraska Symposium on Motivation (Olweus, 1973).

The inventory consisted of 62 items, 6 of which were fillers. The items were rated on multi-point scales (5 to 7) to indicate the intensity or frequency of the response. The inventory was administered to 2 samples of 98 and 86 boys. Two factor analyses using image factor analysis (Guttman, 1953; Kaiser, 1963) with squared multiple correlations of each variable with the remaining ones, as (lower bound) estimates of communality, were carried out. The factors were orthogonally rotated according to varimax criterion. Out of 14 factors only 6 were interpreted and these accounted for 30 per cent of the variance in the first sample. The second sample also yielded 14 factors with 6, corresponding to the former. The factors extracted were, verbal aggression, physical aggression, aggressive impulses, aggression inhibitory responses (interpreted as intropunitive feelings), positive and self reports. Items related to physical sports were also significantly loaded. The reliability expressed as coefficient alpha values was above 0.63 for the scales in sample A and above 0.50 in sample B.
The relationship of the scales with other data was examined. The correlation of peer ratings classified as 'start fights', 'verbal protest' and the sum of these, with the 6 scales revealed significant discriminant validity. The correlations of the adjective check list variables such as actual aggressive feelings, habitual aggressive feelings, actual anxious feelings, habitual anxious feelings formed a meaningful pattern in general agreement with expectation. As regards the ratings of the teachers the samples were divided into adjusted and maladjusted groups. The point biserial correlations of these ratings with the first four scales were significant.

A comment made by the authors on this inventory was that the inventory though constructed for research purposes can be used otherwise. However, it was advised that additional items be considered for inclusion, when planning a study.

Other multifaceted scales in the area of aggression deal with isolated areas of aggression. The scale developed by Shore, Clifton, Zelin and Myerson (1971) dealt with masochism. Scores on the 100 items dealing with four areas of masochism were intercorrelated for 146 unselected psychiatric patients. A principal factor analysis with orthogonal varimax rotation yielded 10
factors accounting for 81 per cent of the variance. However, only five factors namely suspicion, balancing factor (dealing with the award of gratifications in proportion to one's suffering) compulsive negative fun, and X (dealing with stoicism, duty and forgiveness) differentiated the two masochistic groups. There were Victims who enjoyed mistreatment of a physical and emotional kind by individuals with whom they had intense relationships; and there were Doers who were proud of doing, controlling themselves, getting along with very little, self-sacrificing and self-effacing. While the former possessed oral hysterical characteristics the latter had obsessive compulsive traits. The scale contributed to a psychodynamic understanding of the groups.

Zelin, Adler and Myerson (1972) constructed a questionnaire namely the Anger-Self Report (ASR) which dealt mainly with the awareness of anger as being different from the expression of aggression. It consists of 64 items representing (1) awareness of anger and (2) expression of anger (subscales included general, physical, and verbal expression), (3) guilt (4) condemnation of anger, and (5) mistrust. Separate scores are computed for the subscales. The reliabilities of the eight subscales and their intercorrelations indicated sufficient independent,
reliable variance so that an Anger Profile based on eight ASR scores can be validly employed for prediction.

Further, multimethod, multitrait analysis of the correlations of the subscales with those of the Problem Appraisal Scales (Endicott and Spitzer, 1972) yielded substantial convergent and discriminant validities for the ASR scale. The correlations of the ASR scales with six ratings made by 3 college students on a sample of 67 college students living in dormitories again yielded impressive convergent and discriminant validities. Another study on child abusers, aggressive offenders and nonabusers (Kenel, 1976) revealed that the first two groups had significantly higher scores than non abusers on the mistrust and guilt scales. The child abusers were also significantly more willing to express anger than non abusers. The scale according to Zelin et al., (1971) is relevant to psychodynamic formulations that usually give an important role to the modes of expressing anger and aggression.

Another factor-analytically derived anger-reaction inventory (Evans and Strangeland, 1972) is a 76 item inventory. The internal consistency of this inventory was reported as 0.95. The coefficient of concurrent
validity with the Buss-Durkee Inventory for one sub-sample of 138 Ss was 0.57.

A number of inventories connected with assertiveness have been developed over the last five years. One of the earliest was that devised by Wolpe and Lazarus (1966). This was followed by another by Rathus (1973). It was a 30 item schedule with test-retest reliability of 0.78; p<0.01 and split half reliability of 0.77; p<0.01. Validity in terms of the impressions respondents make on other people (0.33 ≤ r's ≤ 0.62; p's 0.01) and in terms of their indications of how they would behave in specific situations in which assertive, outgoing behaviour can be used with profit (r = 0.70; p < 0.01) is satisfactory. Item analysis shows that 27 of the 30 items correlated significantly with external criteria.

The Rathus Assertiveness Scale (RAS) was also administered to 191 psychiatric patients including, neurotics, schizophrenics and personality disorders (Rothus and Nevid, 1977). The RAS scores correlated at 0.80 with therapists' ratings of patients for assertiveness. This established the concurrent validity of the scales.

Another scale, namely the College Self Expression Scale (CSES) was developed by Galassi, Delo, Galassi and Bastien (1974). It consisted of 50 items which
tap positive assertiveness, negative assertiveness and self denial, in a variety of interpersonal contexts. Test-retest reliability with a two-week interval, from data collected on 91 students in an introductory psychology course and 47 upper division and beginning graduate students, yielded product-moment correlations of 0.89 and 0.90 respectively. High construct validity resulted from the correlations of the scale with assertive characteristics of checklist scales. Concurrent validity of the scale was demonstrated in significant correlations between the ratings of untrained judges and self-ratings.

The factor structure of the CSES was investigated on two samples (Galassi and Galassi, In . . . ). The first consisted of 585 males and 547 females. The second consisted of 531 males and 488 females. A principal axis solution with squared multiple correlations in the diagonals and a varimax rotation revealed that the factors were stable within the same populations. Sex differences influenced the factor structure less than population differences. The factors include (1) self assertion and self affirmation (2) the evaluative component (3) positive assertion and (4) volunteering one's own opinions including disagreement.

Melvin Gay (1975) constructed the Adult Self
Expression Scale. It consisted of 48-items and was administered to 464 subjects. The scale was found to have high test-retest reliability and moderate to high construct validity established, through correlations with the Adjective check list scales and discriminant analysis. Factor analysis revealed 14 factors of which four were related to interpersonal situations and the rest to assertive behaviour.

Whether assertiveness and aggression are related, was studied by Galassi and Galassi (1975) by correlating the CSES with the Buss Durkee Hostility Inventory (BDHI). The only significant correlation was between assertiveness and verbal aggression. The other scales were unrelated or inversely related. An inventory devised by Bakker, Bakker-Rabdau and Breit (1978) consisting of 36 items differentiated through its two scales "assertive" responding from 'aggressive' behaviour. The latter involved acquiring territory, prerogatives and status.

One of the scales that is factor analytically derived but which does not directly fall within the domain of aggression is that of impulsiveness (Eysenck and Eysenck, 1977). This scale represents four factors namely narrow impulsiveness (ImpN) risk-taking, non-planning and liveliness. On the face of
it the factors seem to bear some relationship with aggressive impulses.

The latest in the area of multifaceted aggression scales that concentrate on isolated aspects is the irritability. Depression and Anxiety or IDA-Scale (Snaith, Constantopoulou, Jardine, and McGuffin, 1978). It consists of 17 items which deal with depression, anxiety, and outwardly directed irritability as well as inwardly directed irritability. The scale was administered to 37 psychiatric patients 11 male and 26 female with mean age being 36 years. Scores on psychiatric rating scales constructed on the broad pattern of the Hamilton Scale for assessing inward and outward directed hostility and depression and anxiety were correlated with the self-report scores. All correlations were highly significant, thus contributing to the validity of the scales. Estimation of the reliability of the scale has met with several problems. Being a 'state' measure and not a trait measure, the test-retest reliability cannot be accurate. Reliability in terms of internal consistency or split-half was not possible as the number of items in the scales were few. However, attempts at split-half reliability yielded fairly high correlations.

Factor-Analytic studies with Aggression Scales leading to Dimensions and Aggression:

A factor analysis of 17 hostility and personality
scales was carried out (Blackburn, 1972). Scores in each of these scales for 45 Psychopathic deviates plus 120 mentally ill were intercorrelated and factor analysed. Four orthogonally rotated factors accounting for 71 per cent of the total variance were extracted. The first was identified as a broad dimension of aggression that is, the tendency to be aroused and to engage in behaviour injurious to others. The second was a hostility factor, the third was the introversion-extraversion factor and the last was age. As it is apparent, no factor on the direction of hostility emerged as all three factors loaded the five subscales of Caine et al., (1967).

In a study reported by Schlain (1976) the following scales including Domiant Vs. Submissive, Hostile Vs. Tolerant and Self-Disciplined Vs. Impulsive from the Taylor-Johnson Temperament Analysis; Achievement, Dominance and Aggression from the EPP\textsuperscript{1} and Pugnacity-Sadism from the Motivation Analysis Test; Restraint Ascendence and Friendliness from the Guilford-Zimmerman Temperament survey; and Pd and Hy scales of the MMPI scales were administered to 86 adult subjects. The 13 standardized scale scores were factor analysed by the principal component method with orthogonal rotation. Three major factors Assertiveness, Hostility and Self
control (Vs. Impulsivity) plus two minor factors constructive Ambition and Hostile Need for under-achievement were extracted. According to the authors the study sheds light on the fact that the three constructs are independent.

The point seems relevant and has been reiterated quite frequently. Rothenberg (1971) attempted to sort out the differences in his exposition on 'Anger'. Tedechi (1974) in his critical appraisal of the concept of aggression felt that the use of the phrase, 'exercise of coercive power' by using threats and punishments to gain compliance or to appropriate something from another was more comprehensive. His approach like that of several contemporaries was domi-
nated by the behaviouristic orientation. But as there are several aspects to the multifaceted phenomena of aggression an attempt to do justice to these facets, is necessary. The preceding empirical and theoretical issues related to the concept of aggression and the questionnaire assessment of it, provide the key to a further attempt at unravelling the enmeshed dimensions and components of aggression.