CHAPTER ONE

INTRODUCTION TO DEPENDENT VARIABLES

1.1.1. INTRODUCTION

Children are an integral part of society. However, the nature of their relationship with adults has been different across the ages. Hence they cannot be treated as invariant features of the social landscape. The uncovering of the historical strata upon which children now stand reveals that these young people who populate our culture were once the unacknowledged, abused and exploited homunculi of the Middle Ages.

The conceptualization of childhood itself has only evolved relatively recently. In many otherwise advanced civilizations such as classical China and ancient Greece, there was no word to designate a person in a special developmental period prior to puberty. The word "child" signified only a kinship relationship, while terms like "boy" signaled a developed male of any age (Aries, 1960, 1962). In Medieval Europe, children were largely regarded as inadequate, small, mentally slow adults. Only within this century has the concept of childhood as a special protected period of development come about. While psychological treatment, in general, is a fairly new phenomemon, such treatment of children is even more recent. Thus, it seems important to

begin consideration of the history of child treatment with a history of childhood itself. Until childhood was recognized as a special developmental period, the treatment of children could not be separated from the treatment of less than perfect adults.

1.1.2. EARLY HISTORY OF CHILDHOOD

Very early references to children reveal mixed positive and negative regard for them. A nurturant tone is seen quite early in a father's letter to his son, written around 1800 B.C.:

"Go to school, stand before your teacher, recite your assignment, open your school bag, write in your tablet, let the teacher's assistant write your new lesson for you... Do not stand about in the public square... Be humble and show fear before your superiors" (Sommerville, 1982, p.21). Perhaps, the father of today might have said "be polite" rather than "show fear". Otherwise, the message seems familiar to the parent of today. The torture and even execution of children was condoned by society both in biblical times and during Greek and Roman empires Physical abuse of children was also routinely accepted. Instruments of "discipline" such as feet shackles, handcuffs, gags, three months in the "block" and the bloody flagellation

that sometimes resulted in death were not uncommon (deMause, 1974). Infanticide was not against the law until the 12th century and there is good evidence that even then the law was often ignored. When infants grew older, they were often subjected to severe beating to break them of their "evil" willfulness. In the 13th century one law read "If one beats a child until it bleeds, then it will remember, but if one beats it to death, then the law applies" (deMause, 1974, p.42). In other words, severe physical punishment was accepted as a useful way to teach a child, but one must stop short of death.

In addition, serious childhood disorders were regarded in a primitive fashion. As late as 1622, Baddeley (cited in Wenar, 1982) described a boy with "many strange fits and much distemper". The diagnosis for the child's disturbed behavior? Demonic possession, the same explanation that had been used since A.D.500 were relied upon to purge the misbehaving child of Satan, and children were terrorized into better behaviour through stories of ghosts and witches eating bad children and through viewing corpses ostensibly to show them "what happens to bad children when they grow up" (deMause, 1980, p.17). In a culture just beginning to place blame for deviant behaviour on the parents, yet still relying on mystic explanations as well, there

was no place for a seriously disordered child. Emotional disorders, especially conduct disorders, could be punished by death. Until the late 1700s, there were more than 200 crimes that were regarded as hanging offenses for children as young as 7 years of age.

Psychopathologic youth fared poorly in such a demanding society. Fortunately, however, increased education had brought out some precedents for humane and effective intervention. As early as 1765 there are records of hospital based treatments of depression and other affective disorders in children. By the mid-1800s Maudsley had written one of his first chapters on child psychiatry. This was initially very poorly received, however, and although he included another chapter in the second edition of his book, he began it with an explanation noting its conjectural nature. However, the door was now open and the next three decades heralded entire textbooks on the study of child psychiatry (Kanner, 1973). Ireland's (1898) The Mental Affections of Children was one of the first followed by Freud's (1909/1950) publication of The Case of Little Hans and Cameron's (1918) The Nervous Child.

1.1.3. EARLY CHILD TREATMENT

In addition to promoting extensive change in adult treatment facilities, the mental hygiene movement served as a vehicle for establishing the first psychology clinic at the University of Pennsylvania in 1896. Lightner Witmer, who founded this institution was the first to use the term "Clinical Psychologist" to describe the therapeutic agent employing his method of child treatment (Achenbach, 1982). Witmer relied primarily on educational principles founded in the tradition of Wundt and Kraeplin and supportive emotional care to address his child patients' difficulties.

A few years later a second and a very different child treatment center was founded through the work of the Hull House Reform Group. A physician, William Healy, directed the first Juvenile Psychopathic Institute in Chicago. The institute specifically served children with socially unacceptable behaviour and those involved in breaking the law. Healy's approach was more psychiatric and was also oriented toward high-risk group prevention. He advocated a team approach in which psychiatrist, psychologist and social worker each was involved in the diagnosis and treatment of the child.

Two schools of thought emerged from the child guidance movements. In one, individuality of the child was stressed and the therapeutic goal was to help each unique child adjust behaviourally and emotionally to his or her environment. This is a traditional clinical psychology perspective. The other view, which suggested that the child was a product of the educational and community environment, advocated social reform as the best method of treating children's problems. This sentiment is represented by modern day community psychology.

Adolph Meyer, a member of the National Committee on Mental Hygiene, advocated an approach that served both goals. He argued that the disturbed child should always be treated in the natural context and that each school system should have a psychiatrist available to work with teachers and parents, both to remediate and prevent child problems.

A history of childhood, and childhood disorders given so far has been very general in nature. It did not deal with any specific disorder. The following notes, give a detailed description of the two behaviour disorders which are of particular interest in the present study, namely, Aggression and Hyperactivity.

1.2.0. *A G G R E S S I O N*

1.2.1. INTRODUCTION

Human aggression is one of man's most presistent and difficult problems. From the beginning of history, he has, from time to time, hurt or killed his fellow human beings. Prehistoric cracked skulls and crude weapons testify to the ancient roots of his aggression. Together with religious-philosophical writings, accounts of war constitute a major part of the literary evidence concerning the development of "civilization". Today, aggression is more serious and dangerous than ever and, inspite of centuries of concern, little has actually been done to develop effective controls. Down through the ages, philosophers, poets, theologians, novelists and others have grappled repeatedly with the puzzle of human violence. What is its nature? Why does it occur? What factors influence its form and direction? These and many related questions have been the subject of continued and careful attention. Unfortunately, attempts by such scholars to unravel the nature of aggressive behaviour were based largely upon informal observation and rational speculation. As a result, they often made intriguing reading but failed to provide anything

remotely approaching definitive answers to the important questions discussed.

In the twentieth century, all this radically changed. At the present time - and for the past several decades - aggression has been the subject of careful scientific inquiry. Largely as a result of this shift in methods, "hard" empirical data have come to replace opinion, and systematic knowledge has gradually emerged in place of considerable confusion. How does one go about gaining scientific knowledge regarding such a dangerous form of behaviour as aggression? The answer, unfortuntely is far from obvious. There are various techniques employed by active investigators in the systematic study of human aggression.

The first method employed by psychologists and others in their attempts to examine the origins and nature of aggression centered on the use of "systematic observation". That is, actual instances of aggression were observed - either directly or indirectly - and on the basis of such information, attempts were made to explain the occurence, the direction, and the form of such actions.

However, psychologists have generally concluded that the most effective means of studying aggressive behaviour is that of

direct experimentation. Thus they have sought to obtain more definitive information concerning such behavior through investigations in which factors believed to influence aggression are varied in a direct and systematic manner.

1.2.2. WHAT CONSTITUTES AGGRESSION ?

The term aggression, though it seems at first sight to have a very clear meaning, is really open to a number of different interpretations. It can perhaps be agreed that at a very basic level of definition, "aggression" is in some way related to attack or injury, usually where more than one participant is involved. Aggression has been a global term,much like "anxiety" or "frustration" and, as such, has meant many different things to many different people. It might, therefore, be useful to consider some instances of what has sometimes been called "aggression":

1. a spider eating a fly.
2. a lion slaying his prey.
3. two wolves fighting for leadership of a pack.
4. one man attacking another in a barroom.
5. a man viciously kicking a cat.
6. a boy kicking a wastepaper bin.
7. a woman, while cleaning a window, knocking down a flowerpot

which, in falling, injures a pedestrian.

8. an angry driver kicking his flat tyre.
9. Mr. Y, known for his cutting tongue verbally tearing his subordinate to shreds.
10. a man mentally rehearsing a murder he is about to commit.

However, there are certain behaviours that are ordinarily not labelled aggressive, though they do involve delivery of a noxious stimulus. These are behaviours whose reinforcer is a socially acceptable goal. For example, a dentist may hurt his patient while treating a tooth, a doctor may cause pain while giving an injection, a parent may hurt a child while punishing him. To the extent that the child's pain or discomfort is a source of satisfaction to the parent, the parent's punishing response is aggressive.

It is important to understand the basis for excluding such behaviour from the class of aggressive responses: it is generally recognized (by society) that the administration of noxious stimuli is carried out temporarlly in the hope of greater good resulting in the long run. The individual who administers the painful stimulus does so in a clearly recognized social role. So long as the noxious stimuli are delivered within the context of

a recognized social role and with socially desirable long term consequences, the behaviour is not considered aggressive. On the other hand, when noxious stimuli are delivered in the context of an interpersonal situation and/or with no long-range social good as a likely consequence, the response is aggressive.

1.2.3. DETERMINANTS OF AGGRESSION

What makes an individual aggress ? What factors lead to aggression and violence? A simple answer and one that has been quite popular for many years focussed on the characteristics of the persons involved. This idea gains support from research findings which indicate that certain persons are indeed more prone to engage in acts of aggression than others. Yet closer examination of such occurrences suggests that this is only part of the answer. Close examination of many aggressive interchanges suggest that violence does not take place in a social vacuum. Rather, such behaviour often seems to stem from aspects of the social environment that instigate its occurrence, and influence both its form and direction. In many cases, such factors center around the words or deeds of the victim who may provoke, frustrate, anger, or annoy the attacker in some fashion. In others, they may involve the actions or statements of additional

persons, who either order or urge destructive acts. Regardless of the specific factors involved, however, it is clear that a thorough understanding of the origins of human violence must involve careful attention to the social conditions that stimulate its occurrence, as well as to the characteristics of the persons involved in its performance.

While this important fact is generally overlooked in mass media accounts of aggressive episodes, it has been well known to psychologists for several decades. As a result, a great deal of research has been conducted to examine the antecedents of aggression. Not surprisingly, given the complexity of social behaviour, many different factors have been implicated in this relationship.

Environmental and Situational Determinants

It is a truism in social psychology that behavior is a joint function of the person and the environment. In other words, an individual's actions in any given context are assumed to stem from both, various aspects of the situation and from the numerous states, dispositions, or characteristics that he or she brings to it. Thus, it is not at all surprising to learn that it has been widely accepted in the study of aggression. Indeed, most

theorizing concerned with such behaviour has assumed that it stems from both external variables involving the situation or environment and internal factors centering on individual aggressors (Bandura, 1973). With respect to aggression by "normal" persons (that is, those free from obvious psychopathology), several personality traits or dispositions have been found to affect the occurrence of aggression. Among these are fear of social disapproval, guilt concerning assault on others, belief in one's own ability to influence one's fate, and a hard-driving, competitive approach to life.

Biological Determinants

These can be divided into two main groups, heredity and sex differences.

Heredity - Normally, the cells of the human body possess 46 chromosomes, two of which - the X and Y chromosome - play a crucial role in the determination of sex. More specifically, men possess one X and one Y, and are designated XY while women possess two Xs, and are designated as being XX. On relatively rare occasions, however, men are encountered who possess one extra Y chromosome (XYY). Although the existence of this unusual pattern had been recognized for many years, it was viewed as

merely an interesting but unimportant departure from the normal, until the mid-1960s. At that time, a team of researchers (Jacobs, Brunton, and Melville, 1965) reported that this unusual chromosomal pattern was much more common among individuals imprisoned for various crimes.

On the basis of such evidence, some researchers concluded that possession of an extra Y chromosome predisposes individuals towards aggression. Indeed a few went even further, suggesting that the high level of aggression often demonstrated by such persons implicates the single Y chromosome possessed by normal males in the occurrence of such behaviour (Jarvik, Klodin, and Matsuyama, 1973).

However, findings reported by Witkin et al (1976) give a picture of XXY individuals far different from the one commonly reported. In place of raving killers lusting after violence, they were found, instead, to be relatively dull and mild-mannered persons who are no more likely than others to engage in criminal behaviour, but who are more likely, when they do, to be apprehended. Admittedly, this pattern is far less exciting or intriguing than the earlier image of aggressive "super males" genetically programmed for violence. Existing evidence though

suggests that it is probably closer to the truth.

Sex Differences - Are there any differences between the two sexes with respect to aggressive behaviour?

Early investigations concerned with the influence of gender upon aggression generally reported findings consistent with expectations based upon informal observation : males usually did seem to be more aggressive than females (Buss, 1963). More investigations, however, have generally failed to confirm such findings. For example, in several experiments conducted (Baron and Ball, 1974; Baron and Bell, 1976), male college students have not been found to direct stronger or longer lasting shocks to a victim than females. Further, aggressive actions by both sexes have been found in these studies, to be influenced in a highly similar fashion by variables as diverse in nature as direct insult, exposure to non-hostile humour and the presence of unpleasant heat. Taking the results of all these investigations into account, it seems reasonable to conclude that the strong and obvious sex differences reported in many early studies have all but vanished.

1.2.4. PERSONALITY THEORIES OF AGGRESSION

There are almost as many theories of aggression as there are individuals doing research on it.

Most theories emphasize the critical period of early childhood in the development of enduring aggressive trends. The theories deal with aggressiveness and hostility as global variables.

BEHAVIOURAL APPROACH

Aggressiveness is a personality variable, a class of response that is both enduring and pervasive. Like any other response, aggression owes its strength to the consequences that follow it. Frequent, strong reinforcement of attacking responses leads to a strong attacking habit; infrequent, weak reinforcement leads to a weak attacking habit. The reinforcement may be internal, as in a sharp drop in anger level, or it may be external, as in the elimination of a noxious stimulus or the attainment of a reward. If rewards follow often and early in the individual's development, the habit may be extremely reistant to extinction. The tendency to attack may become so strong that it pervades virtually all areas of adjustment making it impossible for the individual to distingaish between situations calling for

aggression and those calling for more peaceful responses.

Fortunately, aggression is not always reinforced. Often the attack does not succeed in getting the reinforcer; often the drop in anger level is not sufficient to be a strong reinforcer of the preceeding aggression. Inappropriate aggression is not reinforced and when the reward does not follow such aggression, there may well be generalization to all aggression, leading to weak aggressive habit strength.

FRUSTRATION-AGGRESSION HYPOTHESIS

Another important theory has been the frustration-aggression hypothesis, put forward by Dollard et al, in 1939. It has been suggested (Dollard et al., 1939), that the intensity and/or frequency of aggression co-varies with the strength of frustration. Strength of frustration is ostensibly determined by the strength of the response tendency being blocked, the degree of interference, and the number of frustration sequences. Strength of the blocked response tendency has been investigated in two questionnaire studies separated by 20 years. Dobbs and Sears (1939) had college men rate the strength of various instigations and then report on their typical response when these instigations were blocked. It was found that the frequency of ag-

gression co-varied with the rated strength of the frustrated instigations. Since the same subjects rated the instigations and also supplied the reactions to frustration, there may have been a built-in relationship. To correct for this possible artifact, presented college students were presented with frustrated instigations that had already been rated by judges as being weakly motivated or strongly motivated. The subjects indicated the probability that they would become angry (which is related to the probability that they would aggress) and it was found that the frustration of strongly motivated behaviours led to a higher probability of being angry than frustration of weakly motivated behaviours. Taken together, the two questionnaire studies offer support for the relationship between the strength of frustration and tendency toward aggression.

Dollard et al (1939) tended to neglect the instrumental value of aggression as response to frustration; rather, they emphasized the pain-inducing aspects of aggression as an emotional reaction to frustration.

In summary, the frustration-aggression hypothesis has been confirmed in questionnaire studies but not in the laboratory. It maybe speculated that the paucity of laboratory studies in this

area is due to the problem of eliciting aggression in a laboratory setting.

1.2.5. VARIETIES OF AGGRESSION

Because of the relevant use of the various definitions available, any approach to aggression must distinguish between the subclasses of aggression, because many individuals have characteristic modes of attacking and do not utitize all the different responses that fall under the heading of aggression. Aggression maybe divided into three dichotomies: physical-verbal, active-passive, and direct-indirect. Most people engage in all types of aggression at one time or another, shifting as the stimulus situation demands but there are extreme individuals who rigidly adhere to one or other parts of these dichotomies; their style of aggression is sufficiently enduring and characteristic to fall under the heading of a personality variable.

PHYSICAL AGGRESSION. may be defined as an assault against an organism by means of body parts (limbs, teeth) or weapons (knife, club, gun). Assault may have two types of consequences. The first includes overcoming or removing a barrier and eliminat-

ing the source of the noxious stimulation. The definition of aggression specifies that the victim must be an organism, which means that the barrier or source of noxious stimulation must be (directly or indirectly) another organism. If the barrier is inanimate, removing it by force is not that aggressive.

The second kind of consequence of physical aggression is pain or injury to another organism. `Pain' is the more inclusive term; physical aggression, when successful, inevitably leads to pain but not necessarily to injury. On the other hand, injury that results from assault is virtually always accompanied by pain.

An aggressive response may miss its mark and not lead to pain or injury. The pain or injury that normally occurs, does not. When the aggressor attempts to deliver noxious stimuli the attempt may fail, either because of his own ineptitude, or because of the skill of his victim; the respose is aggressive whether or not pain or injury ensues. The definition of aggression is predicted on the `attempt' to deliver noxious stimuli, not whether the attempt has been successful at every instance.

VERBAL AGGRESSION. Seriousness of injury can be used as a basis for grading the intensity of physical aggression, but probability

of serious injury cannot be used as a basis for grading or defining verbal aggression.

Rather, verbal aggression is defined as a vocal response that delivers noxious stimuli to another organism. The noxious stimuli delivered in physical aggression are pain and injury; the noxious stimuli delivered in verbal aggression are rejection and threat.

A rejecting response labels the victim as bad, aversive and unwanted. Rejection maybe nonverbal, but it is most often verbal. There are three types of verbal rejections : "you must leave", "go away", or "get out". The second type is a hostile remark: "I do not like you", "your presence annoys me", or "I hate you". In the second type, the aggressor indicates by his negative affective reaction that the victim is aversive; the target organism is attacked by the feeling response of the responder.

The third type of rejection includes three sub-categories; in order of increasing intensity, they are criticism, derogation and cursing. Criticism is the mildest form of the three because it is the most substantive. The essence of rejection is an attack on the individual himself, rather than on his behaviour or his products. Criticism attacks the individual indirectly by nega-

tively evaluating his work, clothes, home, etc.. When criticism is substantive and the individual himself not attacked, the response is not aggressive. For example, a teacher. Criticism is aggressive only when the critique goes beyond the work and extends to the victim himself.

As criticism becomes more personal, it shades into the second category, derogation. Derogation extends beyond criticism of the victim's work, the negative comments being applied to the victim himself. " This work is no good" is critical; "This work shows how stupid you are" is derogatory. Derogation being directed at the individual is, therefore, more aggressive than criticism which is directed at the individual's products or possessions.

The third subcategory, cursing, represents the most intense verbal aggression. Through cursing, the victim is attacked directly with strong, tabooed words that are typically delivered with considerable vocal force. Cursing represents an extreme form of derogation that is set off from it by the social unacceptability (and, therefore, the greater intensity of the verbal label employed).

DIRECT V/S INDIRECT AGGRESSION. Most of the examples mentioned

thus far have been of direct aggression. From the aggressors' vantage point, the best mode of aggression is one that avoids counterattack. Indirect aggression solves the problem by rendering it difficult to identify the aggressor. Indirect aggression may be verbal (spreading nasty gossip) or physical (a man setting fire to his neighbors' home). These examples illustrate ways in which aggression can be indirect. Gossip is indirect in that the victim is not present and the noxious stimuli are delivered via the negative reactions of others; the victim gets into trouble at the end of a chain of mediating events and people. Damaging a person's possessions is indirect in that the victim is not hurt or injured but objects associated with and valued by him are destroyed.

Because damage to one's possessions or harm to one's loved ones is, in part, a substitute for damage to oneself, the definition of aggression as the delivery of noxious stimuli to another organism must be expanded to include `organism-surrogate'. Thus, it is possible to attack the victim via the objects that are closely associated with him. Such indirect aggression requires mediating responses that serve to relate an attack on a substitute or symbol of the victim to attack against

the victim himself.

ACTIVE V/S PASSIVE AGGRESSION. Most aggressive responses are active; the aggressor makes an instrumental response that delivers noxious stimuli to the victim. However, noxious stimuli may also be delivered in the absence of an active response by the aggressor; he may aggress by preventing the victim from achieving a goal. Blocking of another's path is aggression, in that noxious stimuli are presented to the victim, despite the aggressor's lack of activity.

Most passive aggression is direct, the aggressor blocking the on-going behaviour of the victim. Passive, indirect aggression is rare, but it does occur. For example, hunger-strikes. Such acts are aggressive only via a chain of events, the aggressor delivering noxious stimuli merely by his presence or by self- denial. In passive, indirect aggression the on-going behaviour of the victim is not directly blocked, but the refusal of the passive aggressor to act for himself constitutes an aversive stimulus. This kind of aggression differs considerably from the active, direct aggression of assault or cursing, and perhaps, it constitutes the borderline of aggression.

Passive aggression is the subordinate's best weapon aganist

the superior. Active attack invites retaliation. When the attack is passive, however, it is usually difficult for the victim to establish blame or to determine whether aggression has occurred.

Although these various modes of aggression maybe characteristic of an individual, it would be a mistake to suppose that these styles characterize only aggressive behaviour. The person who is physically aggressive, but not verbally, is undoubtedly predominantly physical in all areas of behaviour; the person who engages only in passive aggression is undoubtedly passive in virtually all of his interactions with others. The person who rigidly adheres to only one mode of aggression also rigidly adheres to this style in other areas of behaviours.

1.2.6. AGGRESSION IN CHILDREN

There have been several attempts to classify children on the basis of symptom picture, background and treatment method. Aggressive behaviours in children include destructiveness, physical attack and verbal assault. Interpretations of aggressive behaviour vary. Following are types of aggression in children as viewed by certain psychologists. Rambert (1949) used a psychoanalytic approach, dividing aggression into primary and

secondary aggression. Primary aggression, such as seen in delinquents who have no conscience and are not susceptible to psychoanalysis, develops during the pregenital period. Secondary aggression, which is more frequent and more amenable to psychoanalysis, develops after the Oedipal stage. There are 4 types of post- Oedipal aggression. The first stems from the Oedipal situation directly, the aggression being caused by revived fears of abandonment. The second is the result of a badly liquidated Oedipus, the child continuing to love the rivalled, same-sex parent. The third concerns aggression that is linked to guilt and fear of castration over loving the opposite-sex parent. The fourth is sibling rivalry which antedates the Oedipal situation but which is fixated by it.

Slavsen is more eclectic in outlining 9 types of aggression seen in problem children and methods for dealing with each type.

1. Aggression from prolonged infancy - The child has been overprotected and has not been required to control his anger. He is demanding, provocative, immature, and in non-home situations he is insecure.

2. Aggression as attention-getting - The child feels inferior, and though he expects an unfavourable response from the objects of

his aggression, negative attention is better than no attention.

3. Aggression as a release of organic tension - The child is overactive and is so free-wheeling that he is bound to intrude on others in his social interactions. Since energy level is not subject to change, the child's activity must be directed into free play and into constructive and non-aggressive channels, for example building with toys rather than charging around knocking them down.

4. Aggression as the acting out of a neurosis - The child's hatred is distorted and shows up in bizarre ways, for example, sadism and masochism. What is needed is release therapy.

5. Aggression for maturity fantasies - The child attempts to assume a role that is too mature for his peers reflecting his exaggerated need to grow up fast. He dominates his peers, assuming an adult's role as the conscience for the group; this role thinly disguises his self righteous tyranny over his peers, and he is typically hostile and aggressive in condemning the "childish" and "wrong" practices of his peers. The solution to this problem is to get the child to identify with peers rather than with adults.

6. Aggression from effimancy - There are too many women in the family, and the boy learns a feminine role. Under a submissive facade he tends to be extremely hostile and there maybe sadism toward the weaker, younger children. The goal in therapy is to switch to a masculine identification by means of boy games, for example, wrestling, manual games; a male therapist is essential.

7. Deflective aggression - The child fears an attack; in order to forestall it, he attacks a weaker child, inducing several children to gang up. The goal in therapy is to build up security and self-reliance, obviating the need to forestall all possible attacks.

8. Oral aggression - The child engages in continuous verbal attacks on others, with screaming and cursing prominent. The child is a seemingly good natured girl, usually plump and a voracious eater; there is no known therapy for this kind of problem.

9. Aggression from hostility - Disturbed children act out their sadistic impulses, and they cannot be treated in outpatient settings. They constitute a separate group for which there must be separate treatment methods.

DYNAMICS OF AGGRESSION

An extensive exposition about children whose aggression is so intense and distorted is that of Redl and Wineman (1957). They present in detail the everyday behaviours of aggressive disturbed children and the methods used to modify and ameliorate uncontrolled aggression. Their account leans heavily on the concept of ego strength, as follows. Because of weak egos the children are incapable of mastering and controlling their intense hatred. The hostility is expressed in aggression that goes far beyond reaction to frustration or the acquisition of wanted objects; it is aggression for its own sake. Anxiety, insecurity, and guilt all lead to distorted, disorganized outbursts. There is such little tolerance for tension that even mild frustrations trigger destructive responses, which go beyond the stimulus for aggression.

Despite the ego being essentially weak, it can be strong defensively in 4 different ways. First, the ego successfully defends itself against the super-ego, leaving the ego free to express uncontrolled aggression. Second, the ego may rationalize the destructiveness to itself and others by admitting the bad temper, but also admitting that nothing can be done about it.

Third, the ego stoutly maintains that it cannot be changed and any attempts to change it are met with more violence. Finally, the ego is used to goad others, especially adults, knowing how long it is safe to continue to be annoying. Thus the ego can use all its intelligence in defending aggression; for example, being very sharp concerning rules of evidence, "you can't prove I broke it, because no one was around."

Anna Freud (1970) has noted the lack of one-to-one correspondence between symptoms, causes and treatment. Aggressive outbursts maybe the mark of insufficient frustration or lack of control over drives in an impusive character, or of a violent defensive reaction against the underlying passive-feminine leanings in boys striving overtly for masculinity. She stresses the need for a classification which takes account of both symptomatology and psychopathology. However, her solution rests largely on psychodynamic formulations whose clinical applications have never been tested for reliability, let alone validity.

Nevertheless, her point that aggressive behaviour can be a manifestation of different underlying disturbances makes much clinical sense. Such a failure in social adaptation can arise on the basis of constitutional impairments, for example, due to poor

impulse control in children with organic cerebral dysfunctioning, or due to ego defects and abnormal defenses in children with psychotic or borderline psychotic states. It can also be caused by adverse environmental circumstances such as neglect, unstable object relations, other traumata and undue parental pressure, all of which can lead to gross ego and super-ego defects. Failure of parental guidance and absence of adequate parental models for identification resulting in an impaired super-ego and ego ideal can lead to similar failures in social adaptation.

1.2.7. AGGRESSION AND OTHER ASSOCIATED DISORDERS

Following are some behaviour disorders associated with aggression found in normal and abnormal children.

Aggression and Delinquency- While principle component analyses of the behaviour of disturbed children have defined separate dimensions of aggresive and delinquent behaviour (Wolff, 1971; Conners, 1970), nevertheless, the two types of conduct disorders often occur together. In the Isle of Wight survey (Rutter et al, 1970), 56 boys and 14 girls displayed conduct (with or without neurotic) disorder. Of these children only 17 boys and 3 girls had non-delinquent conduct disorder. (It is not known how many delingrement children were nonaggressive). The Isle of Wight

children were 10 and 11 year olds, and it may well be that at this age aggressive behaviour and delinquency occur together more often than at earlier or later periods of life.

Aggression and School Failure - Gardner (1971) describes vividly the overwhelming threats found in the enrvironment of aggressive children and also the association of aggressive behaviour with educational failure. He sees all personal violence as a "death equivalent" which, in children, has many disastrous consequences. One effect is on the learning process in otherwise "normal" children exposed to acts of aggression either within, or more often, outside the home. Fear of aggressive acts from authority figures aimed at the child and fear of inability to control his own aggressive responses result, even in normal children, in learning failure.

A strong association between serious educational retardation and aggressive behaviour was found also in a small group of children studied because they had been excluded from school. Exclusion was invariably precipitated by seriously aggressive and disruptive behaviour at school. Boys outnumbered girls 5:1; only one half of the children whose mean age was 12 years were also delinquent; two-thirds were severely backward readers. One in 7

of the children was handicapped (mental subnormality, childhood psychosis, gross neurological disease). Socioeconomically the children were deprived, and in one-sixth of the families, a parent had been in prison (Rutter et al, 1970).

Aggression is a very common behaviour problem in children. An often associated symptom is hyperactivity or hyperkinesis, which is equally common. This was the second behaviour disorder investigated in the present study.

1.3.0. *H Y P E R A C T I V I T Y*

1.3.1. INTRODUCTION

It is not uncommon for a child to be characterized as `nervous', but the use of such a vague term, unless supplemented by a more accurate description, tells very little about the child. A search for the specific type of conduct which leads to such characterization usually discloses such symptoms as fidgeting, twitching, restlessness, drumming with the fingers or toes, scratching the head or other parts of the body, irritability, nail-biting, nose-picking, laughing or crying spells, sleeplessness, loss of appetite, vomitting and lack of concentration.

A child may have only one of these symtoms or may have a number in combination.

1.3.2. DEFINITIONS OF HYPERACTIVITY - A SURVEY

Hyperactivity and disruption tend to go together in formidable tandem. The first written record of the disruptive qualities of a hyperactive child is quite likely to be the one in a poem about "fidgety Phil who could not sit still", written in 1854 by a Germans physician named Hoffman (see Opie and Opie, 1973). And the first representation on film of this kind of child could well be one who drives Charlie Chaplin to distraction in one of his early silent movies.

However, hyperactive children had to wait until the early 1960s to be studied systematically. This scholarly concern was long overdue as hyperactive children are notorious for their knack of generating very special learning and management problems at home and in the classroom. It has very appropriately been said that when referring to hyperactive children we enter a `semantic jungle'. The hyperactive child is like the proverbial elephant: difficult to define, but by golly, we know one when we see one. The frenetic and wilful approach to life is unmistakeable.

George Still (1902) is typically credited with being the first to describe the symptoms that are now called hyperactivity or hyperkinesis, although Stewart (1970) reports that references to such children appeared in fictional writings in the mid-1800s.

Laufer, Denhoff and Solomons (1957) describe the symptoms of a syndrome they call "hyperkinetic impulse syndrome", the description of which parallels that in Still's paper. Laufer et al list the following symptoms : hyperactivity, short attention span, impulsivity, irritability, low frustration tolerance, poor school performance, and visual-motor difficulties.

Chess (1960) describes the hyperactive child as "one who carries out activities at a higher rate of speed than the average child or who is constantly in motion or both".

Werry and Sprague (1970) propose the following as a definition of hyperactivity : "[a child] whose daily activity lies at the upper end of the distribution of this behavioural trait in the population". Werry (1968) further defines it as: "a level of daily motor activity which is clearly greater (ideally by more than two standard deviations from the mean) than that occurring in children of similar sex, mental age, socioeconomic background, and cultural background."

As Routh (1980) defines it "hyperactivity refers to a child's frequent failure to comply in an age-appropriate fashion with situational demands for restrained activity, sustained attention, resistance to distracting influences and inhibitions of impulsive response."

At this point it is obvious that no single definition offered to date provides even a modicum of operationally defined diagnostic parameters that could aid a clinician or a scientist in trying to decide whether or not a child is hyperactive. Most have resorted to extensive lists of symptoms that are not clearly described, and are not stipulated as being primary or associated symptoms. The issues of symptom onset are neglected.

1.3.3. WHAT CONSTITUTES HYPERACTIVITY

Although no single definition has proved adequate, a review of the major points raised by each reveals a number of potentially useful conditions or criteria that most experimenters seem to emphasize, explicity or implicitly, in their writings on hyperactivity.

Hyperactivity is said to affect approximately 3-5% of the elementary school children (80-90% of them are boys), and these

children constitute the largest category of child psychological referrals to mental health and pediatric facilities (Ross and Ross, 1976). Although widely used and generally accepted as a label, the term "hyperactive", focussed as it is on activity level, does not provide an accurate description of the problems of these children.

The child displays, for his mental and chronological age, signs of developmentally inappropriate inattention, impulsivity, and hyperactivity. The signs must be reported by parents and teachers. Because the symptoms are typically variable, they may not be observed directly by the counsellor. When reports of parents and teachers conflict, primary consideration should be given to teacher reports because of greater familiarity with age-appropriate norms. Symptoms typically worsen in situations that require self-application, as in the classroom. The number of symptoms specified is for children between 8-10, the peak age range for referrals. In younger children, more severe forms of the symptoms and a greater number of symptoms are usually present. The opposite is true of older children. Following are the symptoms of hyperactive children.

A. Inattention: including

1. often fails to finish things he starts
2. often does not seem to listen
3. easily distracted
4. has difficulty in concentrating on schoolwork or other tasks requiring sustained attention
5. has difficulty sticking to a play activity.

B. Impulsivity: including

1. often acts before thinking
2. shifts excessively from one activity to another
3. has difficulty organizing work (not being due to cognitive impairment)
4. needs a lot of supervision
5. frequently calls out in class
6. has difficulty awaiting turn in games or group situations.

C. Hyperactivity: including

1. runs about or climbs on things excessively
2. has difficulty sitting still or fidgets excessively
3. has difficulty staying seated
4. moves about excessively during sleep
5. is always "on the go" or acts as if "driven by a motor".

D. Onset before age of 7 years.

E. Duration of atlest 6 months.

F. Not due to schizophrenia, affective disorder, or mental retardation.

(Henker and Whalen, 1989).

Hyperactive children are socially busy, continuously seeking and prolonging interpersonal contacts. Thus it is particularly puzzling that they are so often at the hub of disruption. Perhaps less puzzling is the fact that these high-impact youngsters serve as social catalysts, accelerating inappropriate interactions in siblings, peers, parents, and teachers. Nor is it surprising to find that ADHD children are soundly and roundly rejected by peers, receiving the most negative scores in one sociologic test after another, whether the peer group is composed of new acquaintances or year-long classmates.

Part and parcel of the social problems encountered by the hyperactive children are the responses they elicit from others. Peers resent the intrusions and lament the unpleasantness, often worrying that the ADHD child will get them into trouble as well. Several studies have found that strangers - whether children or

adults - need to observe video-tapes of hyperactive children interacting with normal peers for only a few minutes before they can distinguish the two groups. In such video-tape studies, the detectability of the hyperactive child is enhanced if his behaviour is aggressive or his language violates social norms. But the unfavorable perceptions are elicited even when the video-taped interactions contain no aggression or when the sound has been turned off.

1.3.4. DEVELOPMENTAL COURSE

For many years, the clinical lore has been that hyperactives outgrow their problems when they reach puberty, but a large body of research fails to support this expectation. Given the stormy conflict-laden childhood and the academic difficulties that are often associated with hyperactivity, it would be surprising if these youngsters' behaviours were to be entirely unremarkable once they reached their adolescent and adult years. Several studies have followed hyperactives into adolescence. They reveal that 50-70% of the hyperactives have failed atleast one grade in school, with half of them having failed two grades by the time they reach adolescence (Huessy and Cohen, 1976). 25- 60% of these individuals drop our of school before high school graduation

(Huessy et al, 1974), while two-thirds of adolescent hyperactives have serious discipline problems at home and at school with resulting higher rates of school suspensions and expulsions than nonhyperactive children (Mendelson et al, 1971). Approximately 25-60% have had contact with legal authorities (Weiss et al, 1971), and more hyperactive than comparison adolescents are prone to excessive use of alcohol (Blomin et al, 1978). The most widely cited finding is that a majority of adolescent hyperactives suffer from a chronically low level of self-esteem (Weiss et al, 1971).

While considerable research is available that attests to the fate of hyperactive children once they reach adolesecence, less is known about what happens when they become adults. Long term follow-up studies have not yet been conducted, and retrospective studies are handicapped by the fact that the term hyperactive was not in diagnostic usage more than 30 years ago. For example, it is not cleanr that children who were labeled as aggressive and who grew up to manifest sociopathic tendencies (Robins, 1979) are the same as those who would now be diagnosed hyperactive. Until children who are clearly diagnosed hyperactive are followed into adulthood, the issue of long-range prognosis remains unsolved. At a somewhat shorter range, data are becoming available that show

that as young adults, former hyperactive children have a variety of deficits in the area of social skills and social perception that cause them difficulties in their interpersonal relationships (Weiss et al, 1979). It is anyway clear that hyperactive children are at risk for a variety of problems in their later years, so that the development of effective treatment methods for this disorder represents an urgent need.

In the only prospective follow-up study of young adults, Hechtman et al (1981) reported on a 10-year follow-up of 75 subjects (in the Montreal sample). The 17-24 year olds were compared with 45 volunteer controls. They were matched for age, IQ, socioeconomic status, and sex. Again, controls neither had failing grades nor were reported as having behaviour problems.

There were many variables on which the previously hyperactive adults and their controls did not differ once outside the school system. For example, there were no significant differences in job status between previous hyperactives and controls, nor did the groups differ on the amount of discrepancy between their own job status and that of their fathers. In addition, a comparison of questionnaires filled out by teachers versus those filled out by employers is quite suggestive.

Although teacher ratings yielded significant differences between the hyperactive sample and the controls on every measure, such differences were not found on even a single employer rating, including work completion, punctuality, and getting along with others.

Thus, in the varied and more open-ended world of work, this sample of hyperactives did not seem to be at as much a disadvantage as they had been at school. Although more previously hyperactive students were still in school due to repeating grades, and more had dropped out of school, groups did not differ with respect to the number of subjects reported to be "doing nothing".

Turning to other behavioural indices, another sort of change is suggested, if not demonstrated. When the 5 years before follow-up were considered as a whole, the hyperactives had significantly more court referrals and significantly more drug usage than controls. However, this period began with subjects ranging in age from 12-19 years. It, therefore, covered much of the in-school adolescent period.

When only the year before follow-up was considered, hyperactives did not differ from their peers. If this represents

a stable trend, it suggests decreasing number of problems with age upwards of 17 years and the consequently widening range of environments.

It would, however, be a mistake to suggest that in young adulthood, all was well. Tests of cognitive style indicate that previous hyperactives are still significantly more prone to errors and impulsivity than their peers. Psychiatric assessments indicate that they evidence more personality disorders and also tend to be of certain types. Whereas previous hyperactives were most frequently diagnosed as having impulsive or immature-dependent disorders, controls were most prone to depressive or obsessive-compulsive disorders. On the Brief Psychiatric Rating Scale, hyperactives were rated worse on anxiety, tension, grandiosity, and hostility scales. When self-ratings were used, the clinical group appeared to have less sense of well-being and were less responsible, less likely to make a good impression and less likely to achieve or be intellectually efficient.

Whether many of these hyperactives will eventually be particularly prone to developing such disorders as alcoholism and antisocial behaviour is an open question. Certainly there is some evidence for higher instances of such traits in their parents.

A summary of their difficulties and reactions, as linked to specific ages, appears below.

AGE	DESCRIPTION OF INDIVIDUALS
Infancy	Difficult and unpredictable; apoplectic to calm, querrulous, irritable, rarely smiles, erratic sleep.
PreSchool	Sharp temper, strong-willed, excessively demanding, light sleeper, short attention span.
Middle Childhood	Extremely active, difficulty in sitting still, Unable to remain seated during meals, distractable, light sleeper, often sad or depressed, poor school performance.
Adolesence	Poor self-image, poor school performance, lack of social skills, rejection by parents and siblings, decrease in activity level, aggressiveness.
Adulthood	Personality disorders, explosive, alcoholism.

1.3.5. AETIOLOGICAL FACTORS

Following are some of the possible causes of hyperkinesis. No one cause can, however, be positively identified as being the cause of hyperactivity in any child. A combination of factors must be taken into account. The causes can be broadly divided

into two major subgroups 1) Psychosocial Factors 2) Biological Factors.

Psychosocial Factors

Bettlelheim (1973) proposed a diathesis-stress-theory, suggesting that hyperactivity develops when a predisposition to the disorder is coupled with unfortunate rearing by the parents. A child with a predisposition towards over activity and moodiness is stressed further by a mother who easily becomes impatient and resentful herself. The child is unable to cope with the mother's demands for obedience, the mother becomes more and more negative and disapproving and the mother-child relationship ends up a battleground. With a disruptive and disobedient pattern already established, the demands of school cannot be handled and the behaviour of the child is usually and often in conflict with the rules of the classroom.

The Fels Research Institute's longitudinal study of child development supplies some evidence that is consistent with Bettelheim's position (Battle and Lacy, 1972). Mothers of hyperactive children were found to be critical of them and relatively non-affectionate, even during the child's infancy. These mothers continued to be disapproving of their children and

dispensed severe penalties for disobedience. The parent-child relationship, however, is bidirectional, the behaviour of each being determined by the reactions of the other. The influence of the hyperactive children's behaviour on the actions of their mothers has been demonstrated (Barkley and Cunningham, 1979).

There are two ways in which learning might figure in hyperactivity that should be mentioned. First, hyperactivity could be reinforced by the attention it elicits, even negative attention. Second, Ross and Ross (1976) suggest hyperactivity maybe modeled on the behaviour of parents and siblings.

Biological Factors

1. Familial-Genetic - Two studies of biological parents of hyperkinetic children have revealed increased prevalence rates of alcoholism, sociopathy and hysteria compared with the relatives of normal children (Morrison and Stewart, 1971; Cantwell, 1972). One also reported a high prevalence rate in the biological second degree relatives (Cantwell, 1972). Moreover, a significant number of hyperkinetic children showed alcoholism, sociopathy, and hysteria when they reached adulthood. The findings suggest that the hyperkinetic syndrome maybe a familial disorder, linked with alcoholism, sociopathy, and hysteria, which is passed from

generation to generation.

Two recent studies revealed no increased prevalence rates for psychiatric illnesses or the hyperkinetic syndrome in the non-biological relatives of adopted hyperkinctic children (Morrison and Stewart, 1973; Cantwell, 1975); the findings strongly suggest a genetic component. Lopez (1965) found 100% concordance rates for the hyperkinetic syndrome in 4 monozygotic twin pairs, while only 1 of 6 dizygotic twin pairs was concordant for the syndrome. However, sex differences between the monozygotic and dizygotic twin pairs cloud the interpretation of the data (Omenn, 1973). A larger study of 93 sets of same sexed twins has been reported by Willerman (1973) who used a parent rating scale as a measure of hyperactivity. The heritability estimate was 0.82 for the males, 0.58 for the females, and 0.77 for both combined, suggesting a substantial genetic component. Willerman then arbitrarily defined children with scores on the parent rating in the top 20% as hyperactive. There were 8 monozygotic and 16 dizygotic pairs with activity scores in this range. The heritability estimate for this group was 0.71. These results are also consistent with the notion that genetic factors play an important role in the hyperkinetic syndrome.

2. Physical illness - It usually has the effect of a general vulnerability for psychological problems, not a specific disposition to hyperactivity. Some physical illnesses are probably associated with overactivity more than with other patterns of problems, notably temporal lobe epilepsy, but also thyrotoxicosis and Sydenham's Chorea. They are, however, rare causes.

3. Lead Exposure - Lead intoxication can cause a severe, even a fatal, encephalopathy. Survivors often show psychiatric disorder, including restlessness and inattention. Several studies have indicated that even at conventionally safe lead levels, minor elevations in the blood and the teeth are associated with impairment of psychological test performance and problem behaviours (Needleman et al, 1979; Yule et al, 1981; Winneke, 1983).

The association is rather weak accounting for about 4 IQ points on average and a modest increase in the prevalence of inattention, emotional lability, and antisocial behaviour. Nevertheless, it is consistent across different studies and well replicated.

4. Food Additives and Diet - Idiosyncratic responses to food

colouring and preservatives are known to cause physical symptoms like astham and malaise in some children. A more contentious, but no less important, connection exists in the link between hyperactivity and certain food additives (that is, chemicals added during processing). The `Feingold Diet', for which extravagant claims have been made, eliminates some additives entirely in the hope of curing hyperactivity which they are supposed to cause (Feingold, 1975). The diet must be vigorously maintained, and forbids many of the delicacies of childhood. Soft drinks, sweets, ice creams, sausage, hamburger, breakfast cereal and fish fingers are all proscribed. The result can be a wholesome diet; however, it is not easy to maintain, it tends to isolate children from their peers, and it can sometimes appear to a child to be a prolonged punishment. These disadvantages would matter little if the effect was clear, but it is not (National Institute of Medicine, 1982).

5. Vitamin Deficiences and Food Allergies - It has been proposed that vitamin deficiences or imbalances can lead to hyperactive behaviour. The most vocal proponent of this programme is Lendon Smith, a pediatrician in private practice in America. His ideas have received wide publicity through various media and have prompted a number of parents to pursue the use of vitamins, among

other things, as treatment for their hyperactive or behaviour-disordered children. Unlike Feingold, Smith has not put forth a well articulated or unitary aetiology of hyperactivity. Instead, he merely proposed that an equally varied number of vitamins and foods can be used to treat children with behaviour problems. Smith has rarely been called upon to document evidence for his proposals, when in fact, many of his ideas have virtually no scientific evidence to support their efficacy (Barkley, 1982). For example, Smith has proposed that temper tantrums in young children may be as a result of zinc or protein deficiency in the diets of these children. His recommendations for temper tantrums, a behaviour problem in children, may range from suggesting that they have zinc or vitamins added to their diets, to recommending that parents give their misbehaving children peanut butter upon the occurrence of these misbehaviours in order to increase the amount of protein in their diet and hence to control their temper tantrums. Probably as a result of Smith's claims and vague and often contradictory hypotheses, medical and psychological scientists have given little, if any, research attention to this treatment approach.

6. Sugar - Besides food additives and vitamins, research has begun to explore the effects of refined sugar on the behaviour of

hyperactive and normal children. Some clinicians have suggested that hyperactive children consume large amounts of sugar, which lead to hypoglycemia, irritable moods, and restless behaviour. Currently, there is little evidence to show either that hyperactive children are likely to be hypoglycemic or that they ingest large amounts of sugar.

7. Fluorescent Lighting - In 1974, John Ott, a cinematographer, proposed that the emission of soft X-ray and radio frequencies from flourescent lighting and television created hyperactive behaviour in children who were exposed to such lighting procedures. Ott and his colleagues then went on to repeat the results of an experiment in which children exposed to fluorescent lights that purportedly emitted mild amounts of X-radiation showed more disruptive and off-task behaviour in the classroom than did groups of children exposed to flourescent lighting shielded for the purported source of radiation. However, this study suffered from a number of methodological flaws (Barkley, 1982).

1.3.6. METHODS OF TREATMENT

DRUG TREATMENT

It is more than half a century since the introduction of amphetamines to treat disturbed children helped to found modern psychopharmacology (Bradley, 1937). A large scientific and clinical literature now bears witness to the difficulty at arriving at rational policies of therapy. Continued public controversy testifies to the passion aroused by physical treatments of children's psychological disorders.

An indication for therapy is then, the presence of a target syndrome, for which the cost in side-effects is less than the expected benefit and for which the drug treatment is either the most effective available therapy or a desirable adjunct to other treatments.

1. Stimulant Drugs are now the most common treatment for hyperactive children (Barkley, 1982). No other form of therapy for hyperactivity has received as much research as the stimulant drugs, especially methylphenidate. Yet drug treatment remains controversial, for it is not without its problems and precautions.

The stimulant drugs are so named because of their ability to increase the arousal or alertness of the central nervous system.

The most commonly sought actions of stimulant drugs are those on hyperactive and stimulant behaviour. The research evidence on these effects is clear and overwhelming, at any rate for the short term. Scores of trials attest to the ability of drugs to reduce the frequency and severity of certain kinds of behaviour problems. There are several reviews of the field, all agreeing on the power of the treatment (Barkley, 1977.) A few clinical accounts (Forrest, 1976) have described the actions as small or disappointing, but these are generally based upon the experience with the mentally retarded or the brain damaged.

2. Antipsychotics. Several classes of drugs, most notably the phenothiazines (chlorpromazine), the butyrophenones (haloperidol) and the thioxanthenes (flupenthixol), are securely established in adult psychopharmacology for the treatment of schizophrenia and mania. They are also called `major tranquilizers' and `neuroleptics'.

Probably the commonest action that is sought is the reduction of aggressive, troublesome or hyperactive behaviour. The evidence on the short term action of drugs on such behaviours in

normally intelligent children is reasonably clear. Chloropromozine has been shown by Werry et al (1966) to be more effective than a placebo in reducing severely and pervasively hyperactive behaviour. Gittelman-Klein et al (1976) have shown that a combination of a phenothiazine with a stimulant leads to more improvement on parent ratings of hyperactivity than does a stimulant on its own.

3. Anti Depressants. Tricyclic antidepressants have an effect upon hyperactive children which is rather similar to that of the stimulants reviewed above. In relatively low dosage (imipramine at 1.0-2.0 mg/kg), they can lessen restless overactivity and enhance performance on laboratory tests of cognitive ability (Werry et al, 1980). They are not drugs of first choice because of their higher rates of subjective side effects (so that they are often discontinued) and of objective effects such as tachycardia and elevation of blood pressure. Nonetheless, the long duration of action and the helpful effect on some emotional disorders makes them useful alternatives to stimulants.

4. Other Stimulants. The possibility that both deanol (Deaner) and caffeine maybe useful with hyperactive children has been suggested. Deanol is an organic salt (2-dimethyl amino ethanol)

that is believed to operate primarily on cholinergic rather than catecholaminergic pathways in the central nervous system. The little research that exists does not support its efficacy with hyperactive children (Barkley, 1982).

Caffeine is a xanthine derivative whose use with hyperactive children was the subject of some public attention and support 15 years ago. Alteast five or six studies were done to compare its efficacy with that of other stimulants. Some studies found no effects, while those which did noted the improvements to be far inferior to those brought about by the more commonly used stimulants. At present, caffeine is not seriously considered to have much utility with hyperactive children. (Barkley, 1982).

LONG TERM VALUE OF DRUG TREATMENT - The outcome studies reviewed have emphasized the need to think of hyperactivity as a long term influence of personality development. The value of drugs has to be seen in this context, since the goal of therapy is to promote social adjustment.

Although the stimulants are often prescribed for long periods, little is known about their effect on psychological development. The frequent tolerance of amphetamines in adults raises the suspicion that this might also characterize the course of treated

children. In fact, it is infrequent. Even after years of treatment, gradually stopping medication can lead to a recurrence of initial symptoms.

In summary, drugs are a highly effective therapy for the management of hyperactive and disruptive behaviour. These drugs appear to have their primary effects on attention span and impulse control, perhaps because of their ability to energize inhibitory brain mechanisms. Changes in other behaviours seem to be the result of these improvements in attention and impulsivity. Children who receive stimulants show improvements in their play, social conduct and compliance to commands and rules; these result in a lessening of supervision, reprimands, censure and punishment from those adults who must frequently interact with them. Despite these behavioural changes, medication causes little improvement in academic achievement or performance of hyperactive children, nor is their long term outcome altered appreciably by drug use in childhood. While these drugs are highly effective in improving the day to day management of hyperactive children, other treatments are required if the goals of therapy include the improvement of academic achievement as well as that of long term social adjustment.

BEHAVIOURAL INTERVENTION STRATEGIES

Since the 1970s, a number of studies have been conducted to evaluate the efficacy of behaviour modification or behaviour therapy with hyperactive children. As a group, the studies have shown that behavioural interventions effect short term amelioration of hyperactive symptomatology, and that these active effects are comparable in some domains to those obtained with low doses of stimulant medication. Behavioural interventions with hyperactive children generally fit into one of three categories (Pelham and Murphy, 1980): Clinical behaviour therapy, direct contingency management and cognitive-behavioural interventions.

Clinical Behaviour Therapy - Applications of clinical behaviour therapy have typically involved training parents to implement contingency management programmes with their children and consulting with their children's teachers with the same goal (Gittelman et al, 1980; O'Leary and Pelham, 1978; Pelham et al. 1988).

In a typical outcome of this form of clinical behaviour therapy with ADHD children, the treated children show considerable improvement in both classroom and home settings. For example, children in one study (O'Leary and Pelham, 1978) showed

improvement in classroom on-task behaviour that was comparable to pre-intervention response to stimulant medication. All the studies revealed significant improvement in parent and teacher rating for treated children. At the same time, however, the ADHD children rarely reached a normal level of functioning on critical dependent measures, and there were considerable individual differences in response to the behavioural interventions in the studies that reported individual data.

A number of studies have shown that standard clinical behaviour therapy of the type that is likely to be implemented by the therapists in community mental health, primary care and private practise settings (eg., 8-20 week course) result in significant improvement on multiple measures in home and school settings for the majority of treated ADHD children. At the same the data show clearly that this clinical approach is typically not a sufficient treatment. The lack of normalization of treatment effects may result from the fact that the treatment is indirect, that is, the professional trains the parents and teachers, who then implement the treatment with the child. As noted below, parents and teachers may not faithfully administer the desired procedures, thus resulting in only a partial effectiveness of the programme. Attempts to deal with this

problem have often involved a move to contingency management procedures directly implemented by the therapist.

Contingency Management - In contrast to clinical behaviour therapy, contingency management approaches (as defined here) are characterized by relatively more intense interventions, implemented directly in the setting of interest and typically by a professional (see Henker and Whalen, 1989). The majority of studies have been conducted in specialized treatment facilities or in demonstrational classroom settings. As a result, the studies typically have had greater control over the independent variables than have the therapy outcome studies above. The techniques employed in the studies have ranged from relatively more potent components such as point or token economy reward systems, time-out and response-cost programmes (Robinson, Newby, and Ganzell, 1981) to manipulations of teacher attention and removal of privileges. As noted above regarding clinical behaviour therapy, many of the techniques that have been applied to ADHD children have been investigated with populations of undiagnosed 'behaviour problem children' in the past (O'Leary and O'Leary, 1971). The purpose of these studies has been to determine whether the same kinds of techniques work with ADHD children.

Cognitive Behavioural Interventions - There are many different types of behavioural cognitive intervention strategies for children; these include verbal self-instructions, problem-solving strategies, cognitive modeling, self-evaluation, self-reinforcement and anger management training, to name a few. The underlying theme of all such procedures is the promotion of self-controlled behaviour via enhancement of mediational and problem-solving strategies.

The chief conclusion from controlled-outcome studies is that cognitive treatments have not lived upto their promise of providing generalized and clinically robust changes in the behaviour and academic performance of hyperactive youngsters. Indeed, despite the notion that cognitive self-instructional training would provide an excellent match for the impulsive and inattentive features of the behaviour of children with ADHD, there is little evidence that cognitive programmes focussing primarily on self-instructional methods produce significant gain in academic achievement or reductions in problematic social behaviour, or that they yield durable or generalized gains. The findings of a major, controlled investigation conducted by Abikoff and Gittelman (1985) are particularly bleak but are representative. For ADHD children who were receiving stimulant

medication, essentially no positive effect of 16 weeks of intensive cognitive training were found in comparison with attention control and no- training groups, across multiple academic, cognitive and behavioural measures. Also, although a large number of studies have examined the efficacy of training in interpersonal social skills and social problem-solving skills with ADHD children, these approaches which have a broad scope, have usually not provided benefit for the specific social situations that pose difficulty for ADHD children.

There is, however, preliminary evidence that some cognitive-behavioural procedures maybe worth pursuing. Focussing specifically on anger control in provocative social situations Hinshaw, Henker, and Whalen (1984) developed a small group cognitive-behavioural treatment programme based on stress inoculation procedures. After receiving several weeks of general cognitive problem-solving training, hyperactive boys were taught specific skills to cope with verbal taunting and teasing. During provocation assessment that involved strident teasing from the child's training group, this strategy-based intervention was found to be superior to a control intervention emphasizing cue recognition and cognitive problem-solving alone.

Hinshaw, Henker, and Whalen (1984) showed that when ADHD boys who received specific training in self-evaluation also received token reinforcement and stimulant medication, they showed more appropriate behaviour interacting with peers compared to boys who did not receive medication or token reinforcement. It should be noted that in all three of these reports, benefit occurred only when cognitive self-control procedures were paired with behavioural reversal or behavioural reinforcement, suggesting the need for integrative cognitive-behavioural treatments.

Given the early promise but eventual failure of most other cognitive procedures, more extensive intervention applied over longer periods is required before self-evaluation or anger-management training can claim clnically meaningful benefit for hyperactive children. Furthermore, even the ultimate benefits of self-control strategies may result from their application during and after extended behavioural treatment; in order to promote the generalization and maintenance that are often lacking with behavioural interventions such an application has not yet been put to empirical test.

INSUFFICIENCES OF BEHAVIOURAL INTERVENTIONS - The shortcomings

of behavioural interventions with ADHD children are similar to those of psychostimulant medication. First, although the studies reviewed showed that standard clinical behaviour therapy and direct contingency management are effective in improving parent and teacher ratings on standardized rating scales of ADHD, post - treatment ratings are usually one standard deviation above normative means, and direct observations of classroom, behaviour and classmate sociometric rating usually reveal that children often continue to function well outside the normal range even after treatment. Also, as with psychostimulant medication, the short term effects of behavioural interventions are limited to the period when the programmes are actually in effect; that is, no studies have yet shown maintenance of treatment gains after therapy is terminated.

Furthermore, a substantial minority of children in these studies (comparable to the proportion cited for stimulant medication) fail to show improvement. In many cases, such failure maybe attributable to the unwillingness or inability of parents and teachers to implement the behavioural programmes as directed. A major problem is that a large number of teachers, who are not obligated to co-operate with outside consultants, will not implement a behavioural intervention. In addition, many parents

discontinue parent training against therapeutic advice. Even when parents and teachers apparently comply with treatment therapeutic contact in standard, clinical behaviour therapy is typically limited to once a week, and manipulation checks of whether parents and teachers actually follow through with treatment are almost never conducted.

Indeed, parents and teachers of children who fail to show maximum improvement in intervention studies may not have implemented the treatment programmes appropriately, if at all. Just as some of the limitations of medication can be removed by increasing the dosage, the effects of behaviour therapy can be maximized by increasing the power and comprehensiveness of the intervention. The standard clinical behaviour therapy approach involving weekly contact with parents and teachers is less potent than are highly structured, closely monitored, contingency management programmes (Pfiffner and O'Leary, 1992). Because it is time-consuming and difficult to conduct such programmes unassisted, regular classroom teachers were much less willing to implement complex contingency management programmes, particularly those that involved negative consequences.

A final possible limitation of behaviour therapy with ADHD

children is the lack of evidence for long term effects, adequate studies of which have not been conducted. A number of studies with behaviour problem children (in all likelihood a mixture of ADHD, conduct disorder, and ODD categories) have shown that a substantial number of treated children fail to maintain treatment gains for periods of time as short as one year following intervention (Alexander and Malone, 1983). Demonstration of generalization over time is one of the major concerns of those employing behavioural intervention with children. Unfortunately, at our current stage of knowledge, the best guess regarding the long term effects of behaviour therapy with ADHD and conduct disorder children is that short term effects will often fail to be maintained. As with psychostimulant medication then, the absence of evidence for long term effects is, perhaps, the major limitation of behaviour therapy with ADHD children.

In summary, the efficacy of behaviour therapy depends on the motivation and capabilities of the significant adults in the child's life and on the skills of the interveners in overcoming such obstacles. If key adults are unable or unwilling to implement the interventions and if the objections or obstacles to intervention cannot be overcome, then behaviour therapy would not be effective.

COMBINED PHARMACOLOGIC AND BEHAVIOURAL INTERVENTIONS - During the past few years, it has become clear that the most effective short term treatment for the majority of ADHD children is an intervention that combines pharmacologic and behavioural treatment (Pelham and Murphy, 1986). This combined treatment approach is rapidly becoming the treatment of choice for ADHD. Both behavioural and pharmacologic interventions have limitations but as noted above, these can often be reduced by combining the two modalities. Theoretically, the effect of a combined intervention can differ from the effects of the component treatments in several different ways. The two treatments can interact to potentiate one another, yielding an effect greater than the effect of the two component effects or they can interact to inhibit one another, yielding an effect that is less than the effect of either component. Alternatively, the combined effect can simply be additive, equaling the total of components; or reciprocation can occur when the combined outcome is the same as that from one or the other component. Finally, the two interventions can have complementary effects; that is, each treatment can affect different symptoms such that the combined intervention effects a greater range of symptomatology than does either treatment alone. Combining behavioural and pharmacological

approaches would ideally result in additivity, complementary effects and potentiation, thus minimizing the short comings of each treatment alone.

One of the major advantages of a combined treatment for ADHD is that the behavioural component of treatment can usually be reduced in scope and complexity if combined with low dosages of medication.

In addition to potential interactive or additive effects, behavioural therapy and psychostimulant medication each have areas of deficit and effectiveness that the other intervention can complement, as reported. For example, parent training is a standard component of behavioural intervention for ADHD, thus ensuring that a treatment is available for the times of day that are typically not addressed by medication. Similarly, psychostimulant medication can reduce problematic behaviours that are very difficult to treat with practical behavioural programmes, such as low rate, peer-directed aggression that occurs in the absence of authority (for example, on the school playground. An untested but intriguing possibility is that medication might facilitate behavioural treatment of other low-rate behaviours, such as stealing, that have been relatively

unresponsive to behavioural interventions alone. As noted earlier, medication effects of prosocial and antisocial behaviour appear to be facilitated when behavioural contingencies supporting social behaviour are in effect. In several ways, then, a combined intervention is more comprehensive in coverage than either treatment alone.

Finally, there are several reasons to speculate that long term maintenance of treatment effects might be improved with a combined intervention. First, it is clear that ADHD children suffer from a lack of cognitive and behavioural skills that are necessary for academic and social adjustment (Douglas, 1983). To the extent that skills must be acquired for successful long term outcome which do not teach a child alternative behaviours for coping with problematic situations, would not be expected to be sufficient treatment. The addition of a behavioural intervention that focussed in part on teaching such skills might improve the long term outcome than would be achieved with medication alone. Similarly, to facilitate the maintenance of behavioural treatment effects, the intervention should be able to be continued by the child's parents or teachers for a protracted time and/or be maintained by naturally occurring contingencies following therapy termination. Because the addition of a low dosage of psychosti-

mulant medication enables relatively greater effects to be achieved with less restrictive and more natural behavioural programmes, a combined intervention might be more likely to be maintained following the termination of therapeutic contact.

MULTIPLE TREATMENTS - The limited evidence on the effects of treatments argue that different therapies affect different problems. Drugs are powerful for the reduction of activity level, irrelevant, off-task behaviour and erratic performance on cognitive tasks. Behaviour therapy can be effective for the control of defiance and aggressiveness of some children. Cognitive behaviour therapy is designed primarily for the problem of impulsiveness, family therapy for interactions between family members, social skills training for deficient interaction with peers, individual psychotherapy for anxiety-based problems and remedial teaching for delays in learning. A treatment service will, therefore, be able to call on a wide range of therapies. Satterfield et al (1981) have reported on such a multi-modality treatment programme and have described a rather good outcome for children who have been through it, by comparison with those who have dropped out of it.

Though it has become part of the conventional wisdom to call

for multiple treatment approaches for children with multiple problems, reality falls far short of this. It is clear from American surveys that the great majority of a large number of children diagnosed there as hyperactive receive drugs and only drugs as therapy (Sprague, 1978; Bosco and Robin, 1980). It is also clear that British practice very seldom uses drug treatment, though the lack of programme evaluation makes it unclear whether other therapy is given.

1.3.7. HYPERACTIVITY AND OTHER ASSOCIATED PROBLEMS

The typical child with the hyperkinetic syndrome is generally brought to professional attention early in his elementary school years. However, careful questionning usually reveals symptoms present from early childhood. The clinical picture varies from the little boy who is silly, immature, and not performing academically upto expected standards to the markedly active, aggressive, and antisocial child who is unable to be managed in a regular classroom setting. Following are some of the other behaviour problems which are most often found to be associated with hypperactivity.

Antisocial behaviour.

It was originally thought that aggressive, antisocial

behaviour was a necessary component of the hyperkinetic syndrome. (Strauss and Lehtinen, 1947; Bradley, 1955; Laufer and Denhoff, 1957; Stewart et al, 1966), and it has been suggested that the hyperkinetic syndrome is not distinct from other conduct disorders (Quay, 1972; Werry, 1972).

Careful clinical studies reveal that only a small, but significant majority of hyperkinetic children present antisocial behaviour when intially seen (Weiss et al, 1971; Stewart et al, 1966; Satterfield and Cantwell, 1975). Since antisocial behaviour is more frequent in older hyperkinetic children, it may develop as a primary reaction. Children who are unable to succeed in an academic setting, who are unable to develop satisfactory peer relationships, who find rejection at home and at school, are likely to become aggressive and rebel against the values of society.

However, `antisocial hyperkinetic' children may form an aetiologically distinct subgroup of the hyperkinetic syndrome. Thus, family studies suggest a familial, and probably genetic, relationship between antisocial personality in adults and the hyperkinetic syndrome (Cantwell, 1972, 1975; Morrison and Stewart, 1972, 1973). Also, recent research work on waking

autonomic functions and EEG patterns in hyperkinetic children and in antisocial adults suggests that the majority of both groups show lower levels of basal resting physiological activation than age matched normals (de la Pena, 1973). Some authors have found aggressive, antisocial, hyperkinetic children to be very resistant to the psychopharmacological agents so successful with non-antisocial children (Katz et al, 1975).

Cognitive and Learning Disabilities.

Learning disabilities are of major importance in the hyperkinetic syndrome (Chess, 1960; Cruickshank et al, 1961; Knobel, 1962; Menkes et al, 1967; Stewart et al, 1966; Werry, 1968). However, the nature and prevalence of these difficulties remain unclear.

Overall academic achievement is usually low for hyperkinetic syndrome (Keogh, 1971), but some writers attribute this solely to low intellectual potential. Palkes and Stewart (1972) found that the mean WISC IQs were significantly lower for hyperkinetic children than for a matched group of normal children. When the group means on scholastic achievement were adjusted for full scale IQ (FSIQ) on the WISC, the difference between the groups was no longer significant and it was concluded that hyperkinetic

children learned at a rate in keeping with their IQ. The opposite conclusion was reached by Minde et al (1971) who showed that hyperkinetic children showed a low attainment in almost all academic subjects, which was worse than expected on the basis of their IQ.

Three hypothetical mechanisms, each with some empirical support, have been proposed to explain these learning problems (Koegh, 1971; Douglas, 1972): (a) neurological impairment causes both the behavioural syndrome and cognitive disabilities; (b) overactivity interferes with attention and acquisition of information; and (c) hyperkinetic children make decisions too quickly.

Other Emotional Symptoms.

Apart from antisocial behaviour, the most significant symptoms are depression and low self-esteem which occur in the majority of hyperkinetic children (Weiss et al, 1971). This has been viewed as a reaction to continuing failures (Weiss et al, 1971; Werkman, 1970) and also a "depressive equivalent" (Malmqiust, 1971). It can be argued that since some hyperkinetic children respond to antidepressants (Huessy, 1967), this is evidence for a `depressive core' to the syndrome. However,

antidepressants have not been shown to be specific for depression in children (Rutter, 1972) and the absence of a significant increase in affective disorders among close relatives of hyperkinetic children (Morrison and Stewart, 1973; Cantwell, 1975) argues against the `depressive equivalent' hypothesis. If it could be shown that hyperkinetic children who respond to antidepressants also have an increased prevalence rate for affective disorders in their close relatives and go on to develop affective disorder in later life, then one could make a strong arguement that in this group the hyperkinetic syndrome maybe a manifestation of a primary affective disorder.

1.3.8. IN SUMMARY

Although much remains to be studied about the nature and aetiology of hyperactivity, some general conclusions can be made at this time. It seems that "hyperactivity" is used to refer to the behaviour of a relatively heterogenous group of children who do not necessarily share a common set of characteristics. However, most of these children appear to have primary deficiencies in attention span, impulse control and rule-governed behaviour. The disorder seems to have a variety of physical, academic, cognitive and social difficulties related to it; it has

an early onset in the child's development and lasts well into the adolescent or young adulthood years. It is associated with multiple aetiologies, including familial hereditary factors, obstretical-pregnancy complications, toxic agents, brain damage and biologic variation. Environmental aetiologies, most often related to poor parental child-rearing practices, have not been well articulated or supported in the literature. Certainly, however, such factors can serve to modulate or exacerbate the child's hyperactive symptoms as well as the eventual prognosis. Family socioeconomic status and the child's own level of intelligence, aggression, peer acceptance, and hyperactivity, all to some extent predict adolescent or adult adjustment. Obviously then, treatment programmes have to be complex and long term in nature, addressing the wide range of problems these children are likely to experience throughout their development. Simplistic, narrow and short term interventions which have been typical so far with this group have not altered the prognosis of these children to any appreciable degree.