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Psychological aspects of recurrent abdominal pain of childhood

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PSYCHOLOGICAL ASPECTS OF RECURRENT ABDOMINAL PAIN
OF CHILDHOOD.

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Summary

This study investigated the psychological factors associated with Recurrent Abdominal Pain of Childhood (R.A.P.). Eighty-three children, 48 with R.A.P. and 35 with appendicitis were tested.

Four hypotheses 'clusters', current in the psychosomatic literature, were examined: (a) Social maturity, adjustment, and individuation, which were measured by the Vineland Social Maturity Scale, the Bristol Social Adjustment Guide, and the Self-Identification Form of the Role Repertory Technique; (b) 'Cognitive Factors', namely General Mental Ability, Field-Dependence, and Alexithymia. These were measured using the Raven's Standard Progressive Matrices, The Children's Embedded Figures Test, The Rod and Frame Test, the Self-Identification Form of the Role Repertory Technique and the Family Relations Test; (c) The presence of personality 'dimensions' related to 'preferential conditioning', in line with the Eysenckian explanation for psychosomatic disorders, was tested using The Junior Eysenck Personality Questionnaire; and (d) Family Dynamics, particularly the functioning of Minuchin et al.'s (1978) 'psychosomatic family'. This was examined using the Family Relations Test, and also a combination of present test results which it is suggested measure 'enmeshment'. It was expected: (i) that children with R.A.P. would be less socially mature, adjusted and 'individuated' than controls; (ii) children with R.A.P. would be more 'field-dependent' and 'alexithymic' than controls; (iii) there would be no difference between the two groups on Junior Eysenck Personality Questionnaire performance; and, (iv) children with R.A.P., would belong to 'psychosomatic' families.

Using discriminant function analysis, only the combined measures of 'enmeshment' were found to discriminate significantly between the groups, children with R.A.P. being more 'enmeshed'.

Results are discussed in terms of Minuchin et al.'s model, and suggestions made for further research and intervention.

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Chapter One. Introduction.

1.1.0.0 One boy's story.

1.2.0.0 What is R.A.P.?

1.2.1.0 Prevalence.

1.2.2.0 Prognosis.

1.3.0.0 Previous Investigations into R.A.P.

1.3.1.0 Clinical descriptions of R.A.P.

1.3.2.0 Knasel's Psychometric Study.

1.3.3.0 A many-sided inquiry by Alvarez.

1.3.4.0 Implications for the present study.

The aim of this thesis is to examine certain psychological theories, current in the literature, as they pertain to psychosomatic Recurrent Abdominal Pain of childhood (R.A.P.). An attempt will be made to integrate the different psychological variables measured, and to propose a more sophisticated framework within which R.A.P. may be understood, than has hitherto been available.

1.1.0.0 One boy's story.

General medical practitioners are familiar with the scenario...

A concerned parent has again sought consultation regarding her 9 year old son's 'stomach pains'. This boy has been presenting now for about 18 months, and the G.P. has carried out not only a physical examination, but also routine blood and urine tests. All the test-results and the clinical examination are entirely normal. The child has the bouts of pain, lasting a couple of hours, sometimes going pale, having a headache and occasionally diarrhoea. However, in between the bouts of pain he has been perfectly well. The G.P. had already given the parent a diagnosis of irritable bowel 'syndrome', had felt uncomfortable in doing so, but was relieved in that this had seemed to be what the parent wanted.

On this occasion, however, the child had been discovered in the bathroom, on his own, in the middle of the night with severe abdominal pain. This is enough for most G.P.'s to refer a child to the paediatric department of the local hospital. If the pain is being experienced at

the time of consultation with the G.P., for example on a home visit, then the child may well be admitted to hospital. At the 'A and E' Department, the junior doctors have to decide whether to admit to the wards or ask for a surgical opinion. About 25% of all appendectomies which are performed on children disclose no abnormality in the excised appendix; but, when the symptoms are severe, the risk of not operating is one that many surgeons are not prepared to take.

In our case, as it happens, the child is admitted to the children's ward and the symptoms subside over the next 24 hours. The consultant paediatrician does a ward-round, orders the same investigations that the G.P. has done previously, and waits for the results. The results after two days are normal, the child is well, and the consultant discharges the child with a diagnosis of 'Recurrent Abdominal Pain of Childhood' (R.A.P). The more pragmatic researchers in the area would suggest that a successful 'parentectomy' had been performed; that is, the removal of the parents from the child's immediate environment, leading to a reduction in physical symptoms. Unfortunately the success of such a 'procedure' is temporary.

It should be added that a diagnosis of 'R.A.P.' would have been given at the time only by a paediatrician who had been keeping up-to-date with the literature. (See Chapter Four for other medical labels.) R.A.P. has been described in the medical literature for some time, with an increase in interest in the 1950's (e.g. MacKeith and O'Neil, 1951) and 1960's (e.g. Apley, 1967). Apley (1975) carried out a comprehensive review of R.A.P. of childhood, and his now-classic work is cited in many articles and texts concerning the condition. Apley suggests that

children with R.A.P. are "talking with their bodies", and Cheshire et al. (1987, p.191) have compared this to what Freud (1914, Ch. 2) termed "organ speech".

The general approach that medical practitioners have taken towards children suffering from R.A.P., has been to investigate the child fully and then to discharge her or him, after the parent has been 'counselled' regarding the non-serious nature of the disorder and the good prognosis (Lask and Fosson 1989).

1.2.0.0 What is R.A.P?

Galler et al. (1980, p.31) state that about 10% of all children are

"...subject to recurrent attacks of abdominal pain, the origin of which is unknown. Apley has termed the syndrome "recurrent abdominal pain of childhood" (R.A.P). It is identified by the presence during 3 months or more of at least 3 discrete episodes of pain, debilitating in nature and occurring during the year preceding clinical examination."

They go on to emphasise (p.32) the important point

"...that R.A.P. is a severe illness, demanding medical attention over a period of time. It is a particularly resistant condition because the aetiology remains obscure."

This may be contrasted with Lask and Fosson's (1989) opinion above, regarding the 'non-serious' nature of the disorder, and provides clear evidence of the variety of perceptions and assessments concerning R.A.P..

1.2.1.0 Prevalence.

Our knowledge of the prevalence of the condition is, unfortunately, inexact. This may be due to differences in sampling criteria and

labelling. Apley and Naish (1958) surveyed 1000 randomly selected children and found a prevalence of 12% for girls and 10% for boys. Pringle *et al.* (1966) found a prevalence of 15.7% for girls and 14.0% for boys, in the National Child Development Study looking at a sample of 11,000 children up to 7 years old. Oster (1972) observed children over an eight-year period and found prevalence rates of 16.7% for girls and 12.1% for boys. The prevalence rates can be seen to be 'roughly' of the same order, for the different studies. In the light of these and their own findings, Lask and Fosson (1989) suggest that the figure is between 10% and 20% of all school-age children. This wide compromise figure underlines the uncertainty which is characteristic in the field.

For the children who suffer from R.A.P., and their families, the 'medical model' of illness cannot adequately account for their condition. Families visit the G.P. or paediatrician wanting to know what it is, and what the treatment is. There are two levels of difficulty here: one is explaining the condition sympathetically to the family, and the other is communicating to some members of the medical profession that extensive investigations, aimed at finding an organic cause for R.A.P., may be counterproductive in as much as they delay adequate explanation.

1.2.2.0 Prognosis.

Anecdotally, the prognosis for children suffering from R.A.P. is thought to be good, although this is not supported by the studies which have examined the evidence objectively. Apley (1959) looked at 30 individuals who had been hospitalized 8-20 years earlier with a diagnosis of R.A.P. There had been either no or inadequate intervention

regarding the R.A.P. at the time. He found that in nine cases the abdominal pain had ceased, but that the individual was exhibiting other symptoms, especially headache; in 12 cases the abdominal pain had persisted, accompanied by "nervous complaints"; only nine cases were free from symptoms. Apley and Hale (1973) followed up another 30 patients 10-14 years after hospitalization for R.A.P.. These children had been 'treated', with reassurance and explanation. The results regarding outcome were similar to those of the earlier studies with the exceptions that:

- 1) the children who responded to 'treatment' recovered more quickly than those children in the 1959 study, who had recovered;
- 2) Relapse did not occur in the 'treated' patients;
- 3) Fewer non-abdominal disorders developed than in the previous study.

Dahl and Haahr (1969), in a follow-up study of 116 children with R.A.P., reported that 48% had no symptoms at the time, but 36% were still suffering abdominal pains; in the remaining 16% of cases, the abdominal pains had ceased but other symptoms had appeared.

Christensen and Mortensen (1975) followed up 34 patients who had been admitted to a paediatric unit in 1942/3 with a diagnosis of R.A.P.. They included a random control group in their study, and from questionnaires found a higher incidence of gastrointestinal symptoms among individuals with a history of R.A.P. during childhood than among controls. In addition, they collected information regarding symptoms in the children of the individuals who had been followed up, and found no difference in frequency of abdominal pain between the children of the two groups. However, there was a higher incidence of abdominal pain in

the children of parents who were experiencing abdominal pain at the time.

It can be seen, therefore, that R.A.P. is not necessarily (or even in general) a condition which children 'grow out of'. Christensen and Mortensen found that, of the individuals who had continued to experience abdominal problems, over half had experienced a symptom-free period during adolescence, and this may go some way to explaining the 'attitude' that 'they'll grow out of it'.

1.3.0.0 Previous investigations into R.A.P.

The picture is of a distressing condition, with a prevalence of not less than 1 in 10 of school-age children, consistently negative medical investigations, and an acknowledgement (Fenton and Milla, 1988) that the assertion that R.A.P. may be due to some obscure organic abnormality lacks any convincing evidence. Prior to Fenton and Milla, the focus of attention had already begun to shift towards psychological aspects of R.A.P.. Christensen and Mortensen (1975) have described children with R.A.P. as "vulnerable to emotional tension". The term 'psychosomatic' has been used in relation to R.A.P., for example by Rutter and Hersov (1985); and although it seems that this term is open to different interpretations (Davison and Neale 1990), the differences are not necessarily material for the purposes of the present study. For example, the *Concise Oxford Dictionary* (1990, p.965) has the following entry relating to psychosomatic illness: "caused or aggravated by mental conflict, stress etc."

Lask and Fosson (1989) suggest that the term 'psychosomatic' should be

used only to refer to "the inseparability and interdependence of psychosocial and biological aspects of humankind". The term 'psychogenic' has been used in the literature, and Lask and Fosson suggest that this be taken as simply meaning 'having psychological origin'. Davison and Neale (1990) suggest that the term 'psychosomatic'

could more accurately be replaced, in relation to illness, by the term 'psychophysiological'. Of course, the *Concise Oxford Dictionary* is 'talking' to the educated lay person, whereas the texts mentioned above are addressing technical/specialist issues. For the purposes of the present study, a 'broad' definition suffices; the term 'psychosomatic' will be used because this is the predominant term in the literature, but will be regarded as interchangeable with 'psychophysiological'.

1.3.1.0 Clinical descriptions of R.A.P.

Even the primarily medical studies which have examined R.A.P. have almost universally attempted to describe also the psychological make-up of the sufferers, for example Apley (1975) states:

"As compared with controls, significantly more of the children with recurrent abdominal pain were highly strung, fussy, excitable, anxious, timid or apprehensive. Most gave an impression of overconscientiousness, as did many of their parents."

O'Donnell (1985) states that R.A.P. children are characterised by being "ambitious, perfectionist and overachieving", while Davidson (1986) mentions "difficultness", "irregularity" and "withdrawal". McGrath et al. (1983) reviewed the literature and summarized the personality characteristics found in this way (p.889):

"Does not know how to have fun; behaves like an adult; self conscious; shy; lacks self confidence; feelings easily hurt; chronic general fearfulness; inability to relax; and socially reserved."

McGrath et al. (ibid.) used a behaviour checklist (the *Quay-Peterson Behavior Checklist* (Quay and Peterson, 1979)), a Depression scale (the *Poznanski Depression Scale* (Poznanski et al., 1979)), a self-report measure of depression (the *Birleson Self Report Scale* (Birleson, 1978)) and a measure of marital adjustment of the parents (the *Locke-Wallace Marital Adjustment Scale* (Locke and Wallace, 1959)). They also examined stressful life events in the year prior to onset of the pain, in order to compare R.A.P. children (n=30) with a non-pain control group (n=30). In addition, they collected sociodemographic information on the two groups but found no significant differences between the groups on any of their measures. This is perhaps some evidence against any explanation of the condition in terms of 'life-events', such as that suggested by Alvarez (1983) (See 1.3.3.0).

Sibingha (1963) found two 'personality-types' in children with R.A.P.. In looking at a hospital sample of fifty children with R.A.P. it was found that 75% were 'tidy', and 'quiet' and the remaining 25% were 'hyperactive', 'impulsive' and 'uncontrolled'. The data for the study were obtained from clinical impressions based on interviews with children and parents. Singh et al. (1986) examined children with R.A.P. who were attending a Child Guidance clinic, and found that they exhibited aggression, irritability, stubbornness, shyness and sensitivity, anxiety and emotional immaturity. Thirty-eight per cent of the children were thought to be friendly and outgoing. The parents were reported to be 'overprotective', 'overaffectionate', 'overanxious', 'strict', 'rejecting' and 'fearful'. Only 27% were considered to have a healthy attitude. Garner and Wenar (1959) found the mothers of children with Ulcerative Colitis to be controlling, dominating, cold

and punitive, and that the children reacted with conforming behaviour such as neatness and conscientiousness.

The medical studies have produced largely descriptive evidence, from poorly controlled designs, of the psychological make-up of the child with R.A.P.. However, some of the descriptions fit in broadly with some of the psychological theories which are popular in the area of psychosomatic disorders: for example, with the notion that neurotic introverts have a more 'conditionable' autonomic nervous system, or with the idea that psychosomatic symptoms are associated with emotionally 'repressed' or 'inhibited' personalities. Also, an explanation of psychosomatic disorders according to which the individual produces symptoms as a result of external events (for example, stressful life events) has been developed along the lines of Kelly's Personal Construct Theory (Kelly, 1955), which sees the individual's interpretation of events as central. This general approach has been summarized by Herbert Weiner (1981, p.362):

"For many years it was believed that stressful life events acted upon the minds of persons and incited an emotional response which in some mysterious manner was translated into bodily changes that culminated in disease. In recent years, it has however, become apparent that the psychological response to experiences is a complex and individual matter. Different persons perceive and appraise an experience in personal ways. The meaning of the event to each person differs: for one it may be trivial, while for another it may be portentous. The meaning of the event may also be processed differently by each person and may arouse qualitatively and quantitatively different emotional responses."

Weiner's remarks can be seen to apply equally to psychodynamic accounts in the field, which view individual differences in 'apperception' as central (e.g. Alexander, 1950).

The aim of the present study is to examine certain hypotheses which attempt to account for 'psychosomatic' disorders, with particular reference to R.A.P.. General texts (e.g. Davison and Neale, 1990) divide the psychological theories regarding psychosomatic disorders into 'psychodynamic' and 'conditioning' theories. However, two other areas seem to be important regarding R.A.P.: the so-called 'systems' approach, as exemplified by Minuchin et al. (1978); and the appeal to cognitive maturational factors, for example as described in some of the clinical impressions from paediatricians, which can be seen to be of relevance with regard to 'stress-vulnerability' theories of psychosomatics. One central tenet which links virtually all approaches to the study of psychosomatic disorders is, of course, the assumption that the bodily symptoms are mediated via the autonomic nervous system (Lachmann, 1972).

Two studies, Knasel (1982) and Alvarez (1983), have attempted to examine the psychological variables relating to R.A.P. of childhood in a more controlled way than previous studies.

1.3.2.0 Knasel's psychometric study.

Knasel (1982) looked at psychological factors in relation to R.A.P. and attempted to:

"...apply psychological testing procedures of a number of different kinds to the question of why particular children should exhibit the symptoms of Recurrent Abdominal Pain, paying attention to the children's family environment and their individual characteristics at both a behavioural and phenomenological level" (p.166).

He considered 20 children who had been diagnosed as having R.A.P., and also 20 children who had appendicitis, as a control group. The children

with R.A.P. had to have had at least three episodes of pain, severe enough to affect his/her activities over a period of at least six months, and also the clinical diagnosis of R.A.P. from a Consultant paediatrician. Knasel tested the children using the *Junior Eysenck Personality Inventory* (J.E.P.I.; S.B.G. Eysenck, 1965), the mothers completing the adult *Eysenck Personality Inventory* (E.P.I.; Eysenck and Eysenck, 1964). The *Family Relations Test* (F.R.T.; Bene and Anthony, 1978) was also administered to the children, and the mothers of the children with R.A.P. completed the *Vineland Social Maturity Scale* (V.S.M.S.; Doll, 1965). In addition, both groups of children were invited to complete the 'Self-Identification Form' of G.A. Kelly's *Role Construct Repertory Technique* (S.I.R.T.; Norris and Makhoul-Norris, 1976).

Knasel found that the results for the three scales of the J.E.P.I., namely Extraversion (E), Neuroticism (N) and Lie (L), were not significantly different between the two groups. The scores for both groups fell within the range of the normative data provided for the test. The E.P.I. data for the mothers of the children with R.A.P. "agreed well with the normative data for a group of housewives reported by Eysenck and Eysenck (1964)" (Knasel 1982, p.199). The V.S.M.S. completed by 16 of the mothers of the children with R.A.P., provided an average Social Quotient of 108 (S.D.=10) which is, of course, slightly above the expected norm.

The F.R.T., which was administered to all 40 of the children involved in Knasel's study, consists essentially in the child 'posting' cards with messages printed on them to various figures representing the

family-members and one other figure, Mr. Nobody. Knasel compared the Total Involvement (T.I.) scores across the two groups, T.I. being the total number of cards posted to a figure regardless of the nature of the message. The children with R.A.P. were found to assign significantly fewer cards to the 'Self' figure, than did the children in the control group.

Kelly (1955) in his text *The Psychology of Personal Constructs*, regards the individual as "man-the-scientist", and he goes on to suggest that personal construct theory:

"... itself starts with the basic assumption, or postulate, that a person's processes are psychologically channelized by the ways in which he anticipates events. This is to say that human behaviour may be viewed as basically anticipatory rather than reactive, and that new avenues of behaviour open themselves to a person when he reconstrues the course of events surrounding him." (p.8).

"The patterns of man's construction are called *constructs*; and, since each person sets up his own network of pathways leading into the future, the concern of the psychologist is the study of personal constructs. Each personal construct is based upon the simultaneous perception of likeness and difference among the objects of its context. There is no such thing as a difference without a likeness being implied, and vice versa. Each construct is, therefore, dichotomous or bipolar in nature;..." (p.135).

Kelly attempted to elicit and analyse personal constructs, devising the *Role Construct Repertory Technique*. The technique is discussed in detail elsewhere (see: Bannister and Mair, 1968; and Fransella and Bannister, 1977). A number of variants of the *Role Construct Repertory Technique* exist, the best known being the 'Rep. Test'. Knasel (1982) administered the S.I.R.T., to a group of children with R.A.P. and a group of children with appendicitis. This involved both eliciting from,

and supplying to, the children, constructs which they had to decide either applied to themselves or not, when presented with a triad, one of which was themselves. The findings from Knasel's (1982) S.I.R.T. supplied constructs, showed that significantly more children with R.A.P. described themselves as 'Messy' rather than 'Tidy', 'Confident' rather than 'Nervous', and as 'Failures' rather than 'Successes'. Knasel also looked at the number of times each child assigned him/herself to the 'Implied' pole of constructs elicited from the triads: that is to say, the number of times a child said, in effect, 'those two people are X, but I am Y'. He found that the children with R.A.P. assigned themselves significantly more often to the 'Implied' pole than did the children in the Control group.

Discussing the results of his study, Knasel suggested it was reasonable, given Apley's (1975) observation that children with R.A.P. tend to be 'highly-strung', 'anxious', 'overconscientious' and 'indrawn' (rather than 'outgoing'), to expect the children with R.A.P. to score more highly on the Neuroticism (N) and/or lower on the Extraversion (E) dimensions of the J.E.P.I. than the children in the control group. (The Eysenckian dimensions of personality, are discussed in more detail later; See Chapter Two, 2.2.3.0). Knasel pointed out that the same hypothesis may be derived directly from Eysenck's theory of personality, which proposed that introverts are unusually responsive to operant conditioning, whilst neurotics are correspondingly responsive to classical conditioning. Knasel had proposed that children suffering from R.A.P. were likely to be responsive to operant conditioning of autonomic functions (and therefore to score low on E); but the results did not support his proposal, and the data from the

J.E.P.I. for all the children he tested fell within the range of normative data reported by Eysenck (1965).

Knasel discussed the J.E.P.I. results of the children with R.A.P. by contrasting them with the clinical impressions of paediatricians presented by Apley (1975). Rather than explaining this in terms of the unreliability of the clinical observations, Knasel suggested that the operational definitions of 'Neuroticism' and 'Extraversion' employed by Eysenck and his colleagues for the purpose of their test, are significantly removed from those employed in everyday clinical language. As such, the data do not suggest that the paediatricians' observations are of no value, but rather that a psychometric measure such as the J.E.P.I. is not a suitable instrument for directly checking them. Related to this is the level of generality at which the J.E.P.I. operates, namely that of describing individual differences in terms of only two dimensions. This may mean that more specific distinctions, such as are implied in the aforementioned clinical observations, are lost within the all-inclusive dimensions. The development by Eysenck (1972) of the E.P.Q., with its inclusion of a psychoticism (P) scale and restructuring of the E scale, can be seen to go some way to answering this criticism.

Knasel concludes (p.225) that his J.E.P.I. results "...cast some doubts upon the overall validity of Eysenck's theory of personality". He suggests that the idea that the J.E.P.I. is not a sensitive enough instrument to test the 'autonomic conditioning theory' does (p.226) "...pose serious problems for Eysenck's theoretical position." Knasel's argument is strengthened given that Eysenck has consistently argued

(e.g. 1947) that psychodynamic approaches toward studying and understanding the individual are deficient because they are (p.226) "... not open to empirical verification or refutation". It may be fair to conclude from Knasel's results using the J.E.P.I., that children with R.A.P. were not susceptible, in the expected way according to Eysenck's 'theory of psychosomatics'.

The results from the V.S.M.S. in Knasel's study should be accorded only 'suggestive' value, because of the lack of control data and small numbers. Given this, Knasel states (p.227) "...there is no evidence that this group of children was noticeably deficient in what Doll has called 'social maturity'".

The Family Relation Test (F.R.T.) results from Knasel's study, demonstrated, with a very few exceptions, an overall similarity of performance between the children with R.A.P. and the children with appendicitis. Knasel questioned retrospectively the efficacy of the F.R.T. in 'tapping' some of the properties of family-functioning which may play a part in the development or maintenance of R.A.P.. Knasel suggested that the attitudes of members of the child's family towards symptoms and complaints of pain may be more relevant than the quality of the relationships between the child and different family members. The F.R.T. did however produce one statistically significant result, and when this was considered with the significant result from the S.I.R.T., a consistent difference between the two groups in self-other perception was recognised.

The F.R.T. results showed that the children in the Control group were

almost twice as likely to assign 'test-messages' to 'self' (to say, in effect, 'this statement applies to me') than were the children with R.A.P.. Knasel suggested (p.230) that this result was evidence that children with R.A.P. are;

"...either less able or less willing to make statements about themselves when asked to construe themselves amongst a range of other people with whom they are familiar".

A similar dynamic was revealed by the S.I.R.T. in that the children with R.A.P. were significantly more likely to assign themselves to the 'implied' pole of a construct than were the children in the appendicitis Control group. The S.I.R.T. confronted the child with a situation where he or she had to make (p.226) "...an explicit comparison between him or herself and other people", and the results showed that children with R.A.P. were significantly less likely to stress similarity between themselves and others than were the children in the Control group. Knasel (p.230) summarizes the two findings as:

"...illustrative of a relative inability or unwillingness on the part of the children suffering from recurrent abdominal pain to compare themselves with other people and to point to similarities between themselves and others".

Knasel summed up the situation regarding self-other perception for children with R.A.P. as a difficulty in construing themselves as a person amongst other people. Previous to Knasel's work there was little evidence as to why certain children might be particularly sensitive to 'conditioning' of the autonomic nervous system, and he felt that the self-other perception 'deficit' may well give important pointers as to the direction of future research.

Knasel discussed his findings about this aspect of 'individuation' more fully in terms of Piaget's sociodevelopmental concept of cognitive 'egocentrism'. However, Knasel's observations correspond also to the type of clinical finding that would be predicted from another widely-regarded model of childhood psychosomatic disorders, namely Salvador Minuchin's 'Psychosomatic family' (See Chapter Two, 2.3.1.0). Elsewhere in his summary, Knasel touched on the notion of the 'psychosomatic phenomenon'; this is central to a theory which claims that people suffering from psychosomatic disorders lack verbal or cognitive constructs for dealing with feelings and emotional experience, and therefore display the characteristic trait of 'alexithymia' (See Chapter Two, 2.1.2.0). An informal post hoc consideration of his small-sample data did not show any strong evidence of this being the case in respect of the children with R.A.P. in his study.

1.3.3.0 A many-sided inquiry by Alvarez.

Another researcher whose study covers some of the same ground as Knasel's, though with very different methods, is Alvarez (1983). She compared two groups of children suffering from R.A.P., a School Pain group (n=17) and a Hospital Pain group (n=40), with two matched control groups. The first control group comprised children who were attending as day-cases at a Dental Hospital (n=40); the second control group comprised children attending school and experiencing no medical problems (n=40). The four groups were compared on the following five variables:

- a. Life Events experienced by the child;
- b. Mother's and child's illness behaviour;
- c. The child's personality;
- d. The Mother-child relationship;
- e. Family relationships.

(a) The measure of 'life events' used was the *Life Events Inventory* (Monaghan et al., 1979), which consists of thirty-six undesirable events. Parents are questioned as to whether the child has experienced any of these events, and, if so, are asked to date them to the nearest six months. Since the items are 'weighted', the answers can be scored in terms of 'life-change units'; and in this study the number of life change units for each child at different ages was calculated and then related to onset of pain. The nature of the events was further categorized into 'objective/subjective', 'entrances/exits' and 'interpersonal conflicts'. Alvarez found that the Hospital Pain group had a significantly higher score on 'life-change units' for the year preceding the onset of the pain, than did the other three groups. However, when only objective measures were considered, the difference was significant only between the Hospital R.A.P. group and the School Control group.

(b) Illness-behaviour/hypochondriasis was investigated by interview, and also by administering the hypochondriasis scale from the *Minnesota Multiphasic Personality Inventory* (M.M.P.I.). Alvarez proposes that this would be relevant because of "...the influence of parental concern with somatic symptoms" (p.80). She found that children from both Pain groups were reported to want significantly more attention when ill than the

children in either of the Control groups; and that, in both Pain groups, the mothers had significantly higher hypochondriasis scores than did their opposite numbers in either of the Control groups.

(c) Alvarez employed two measures of children's 'personality': the *Children's Personality Questionnaire* (C.P.Q.; Porter and Cattell, 1960), and a 'Parental report' based on a structured interview. Results from the C.P.Q. showed that the Hospital Pain children saw themselves as significantly more 'easy-going' and 'tender-minded' than the Hospital Controls children. The parental report showed that children from both pain groups were significantly more homesick when they first went away from home, and significantly more attention-seeking, than both Control groups. Some results reached significance between some but not all groups, although the non-significant results followed the same trend.

The children in both Pain groups were reported to be less able to make friends, and to be more frequently bullied, than the children in the Control groups. Children from both Pain groups were reported to be significantly more homesick if they went away from home, and more lacking in self-confidence, by comparison with the Hospital Control group, although neither Pain group was significantly different when compared with the children from the School Control group. Also the children from the Hospital pain group were reported to communicate less with their parents than the children in the hospital control group. A further finding from analysis of the parental report was that the children with pain enjoyed school less than the children in the control groups, although this was only significant between the two school groups. Alvarez found no difference between the groups regarding 'remorsefulness', 'upset at school' and 'ability at school'. In the

present study this area of investigation was followed-up, by completion of the *Bristol Social Adjustment Guide* (Stott and Marston, 1980), by teachers familiar with the children (See Chapter Five, 5.3.0.0).

(d) Alvarez examined the Mother-Child relationship by looking at the mother's experience during and just after pregnancy, and at the relationship in the present. Mothers of the children in both Pain groups reported significantly more depression post-natally when compared to the mothers from both Control groups. The mothers of the Hospital Pain group children reported they were significantly more ill during pregnancy, than mothers of the children in both Control groups. They also reported that their baby was more fretful as an infant, and that they were significantly more unhappy during pregnancy than the Hospital Control group's mothers said they had been. Analysis of the interview regarding mother-child relationship showed that mothers from both Pain groups reported they were significantly more worried when their child first went away, and when s/he went away now, compared with school controls. No difference was found between the groups in terms of mother's or child's affection, frequency of child going away from home, mother's enjoyment of the child, number and frequency of rewards or number and frequency of punishments.

Another factor central to Alvarez's investigation was the role of 'stress'. She reviewed Mechanic's (1964) study which investigated the influences of child-rearing practices, family stress, role relationships, and family definitions of health resources, upon children's patterns of illness-behaviour. Mechanic found that mothers experiencing stress or disharmony in the family, reported more personal

illness and recognised more illness in their children. Mothers who had a strong inclination to use medical facilities for themselves were also likely to have a high inclination to take their children to the doctor. Results from this study suggested that maternal influences affect children's attitudes towards health and illness to a lesser extent than Mechanic had predicted.

A major criticism of the study, however, was that the attitudes and responses elicited were based upon hypothetical questions rather than actual behaviour. Nevertheless, in a 16-year follow-up, Mechanic (1979) found that parental attentiveness and overconcern had a long-lasting effect, focusing the child's attention on internal states; and he therefore suggested that this had had the effect of teaching the child a pattern of internal monitoring. Alvarez's own investigation of hypochondriasis, as we have just seen (p.18), used the standardized M.M.P.I. and found the mothers of the children with pain (over both the Pain Groups studied) to be temperamentally more 'hypochondriacal' than Control mothers; consequently, her suggestion that this could be learned by the child fits in with Mechanic's (1979) work on the effect of parental overconcern and attentiveness upon the child's symptom-reporting. Related to this, Alvarez found that children with R.A.P. were more likely to want attention when ill than were the children in the Control groups. Conceptually it is difficult to disentangle this finding from the parental 'overconcern' for the sick child, as the measure relied on parental report. Alvarez states (p.165):

"Overall the present findings suggest that the children with R.A.P. have learned to adopt the 'sick role' because of their parents' reinforcement of illness behaviour, and also because of a similar model provided by the parent."

Alvarez agrees, in the light of her observations, that the role of the family in psychosomatic disorders is important, particularly the mother-child relationship, and goes on to suggest that her findings are in accordance with research which has suggested that the reporting of abdominal pain is related to stressful relationships and interpersonal conflicts. She suggested that these findings are in line with those of Minuchin et al. (1978) which explored the role of the child with a psychosomatic disorder in the reduction of family conflict (see Chapter Two, 2.3.1.0).

The subjective 'life events' which significantly differentiated between the Pain and Control groups in Alvarez's study, where it was the mothers who responded to the Monaghan Inventory on behalf of their child (p.18 above), consisted mainly of events concerning interpersonal relationships. An example of this would be an increase in the number of family arguments. Therefore it can be seen that this particular measure may have been 'tapping' the perceptions, or apperceptions, of the parents rather than the actual events. This would be affected in Alvarez's study by the parents of the children with R.A.P. having already known the psychosomatic diagnosis, and therefore perhaps having been likely to 'recollect' certain sorts of events because they had in mind a psychological cause for their child's abdominal pains.

In her search for 'personality' variables in the children she studied, Alvarez administered Porter and Cattell's C.P.Q. to her two Hospital groups, Pain (n=15) and Control (n=15), and found only two significant differences between the groups. The Hospital Pain group saw themselves (1) as more 'easy-going' and also (2) as more 'tender-minded'.

According to Cattell (1959), the attribute 'easy-going'(1) contributes to his 'Factor A', and a child who scores highly on this factor is reported to be attentive to people, sociable, casual, adaptable and careless. This clearly conflicts with Alvarez's findings from parental report regarding the children with R.A.P., since both groups emerged as less sociable, confident and independent than their Controls (p.19 above). In the case of the 'tender-minded' finding on the C.P.Q. (2), it is noted that this falls within what Cattell calls 'Factor B' and that a child who scores highly on this factor is predicted to be 'dependent', 'hypochondriacal', 'sensitive to criticism' and 'anxious'. Cattell suggests that this factor reflects 'overprotection' in upbringing.

Alvarez's parental reports regarding the child's personality, showed that the Hospital and School Pain-groups were more homesick when they went away from home for the first time than the children in the Control groups. Alvarez interpreted this, and the trends of the non-significant results, as suggesting either that the children with R.A.P. were more anxious than the children in the Control groups or that their parents perceive them to be so. Alvarez also found from parental reports that there was no difference between the Pain and Control groups in enjoyment of school. This conflicts with the anecdotal explanation that R.A.P. is an attempt to avoid school, and Alvarez explicitly states (p.173): "...there is no relationship between abdominal pain and school phobia". Regarding peer relationships, Alvarez suggests that children with R.A.P. do have more difficulties in relationships with peers than do the children in the Control groups. She goes on to suggest that children with R.A.P. would like to make friends but find it difficult,

and she also speculates that perhaps an 'over-dependent' relationship between the child and the mother may in some way hinder the child's normal social development outside the family. Alvarez (p.176) summarizes the findings from parental report as showing children with R.A.P. to be:

"...sensitive, attention seeking, dependent children who are eager to be liked but who have difficulties in making relationships with peers".

Looking at the 'interpersonal relationships' within the family, Alvarez states that there was little to discriminate between the two groups. However, when the children were asked to 'map' the emotional or interpersonal 'distances' between different members of the family, the scores did produce significant differences. Also, parents in the Pain groups reported significantly greater distance between the father and the child than did parents in the Control group. In addition, they perceived a greater distance between themselves and their spouse than did the parents of the children in the Control group. Alvarez (p.177) interprets this as evidence of "...a greater level of conflict between members of the pain families than there is of controls (sic), particularly between the mother and father". An alternative explanation may be that the 'distance' measures were providing a snapshot of a 'coalition' or 'triangulation' within the family system which served to reduce conflict within the family and thereby resulted in a lack of 'conflict resolution' (see Chapter Two, 2.3.2.0). In this analysis, the distance scores would merely reflect the 'stances' or 'positions' taken by the family members in order to avoid conflict.

In overall conclusion to her study Alvarez suggests that there are four

major variables involved in the development of R.A.P. of childhood:-

(a) Physiological activity. Extreme physiological activity involving the gastro-intestinal system, due to a period of prolonged stress, is required at some point in the child's life. She suggests that this makes the child more attentive to such symptoms in the future and more aware of bodily signs, resulting in self-consciousness and low self-esteem.

(b) Reinforcement. Reinforcement for symptom-reporting is an important factor in the development and maintenance of the perception of R.A.P.. This would serve the purpose of being an 'excuse for failure', obtaining a parent's attention, or reducing conflict within the family.

(c) Family conflict. Alvarez (p.181) states:

"Family conflict will increase the awareness and reporting of symptoms for the following reasons:-

- a) Parental conflict will produce stress in the child which may bring about physiological changes in the child
- b) Parental conflict will undermine the child's self-confidence. Feelings of low self-esteem will lead the child to developing a pattern of self-awareness and therefore, increase in symptom reporting.
- c) Parental conflict will increase the child's social insecurities. To compensate for this the child seeks approval and love of parents and peers."

(d) Social insecurity. Socially insecure children have greater difficulty in developing relationships with others: they will be more likely to fail, increasing the feelings of insecurity, and those who mix with peers and attend school will be under 'physiological stress'. This will increase symptom-reporting.

1.3.4.0 Implications for the present study

Elements from both Knasel's (1982) study and Alvarez's (1984) work have been incorporated into the design and interpretation of the present investigation. For example, the writer has repeated some of the measures of Knasel's (1982) study, and attempted to operationalise and investigate some implications of Minuchin et al.'s (1978) work concerning the 'psychosomatic family', which Alvarez has suggested applying to R.A.P.. The writer has also interpreted some of these hypotheses in terms of 'cognitive style', and specifically in terms of Witkin's concept of 'field-dependence' (see Chapter 2, 2.1.3.0), and directed some systematic empirical inquiries at them. The theoretical framework on which these interpretations and constructs draw are outlined in Chapter Two.

Recurrent Abdominal Pain of childhood is widely accepted as not being associated with any organic pathology. Given the consistently negative findings from medical investigations of children with R.A.P., the existence of the pain and its related symptoms, it would seem reasonable to suggest that R.A.P. is psychosomatic in nature. Many authors have made this assumption e.g. Lask and Fosson (1989). The following Chapter reviews certain theories of psychosomatic disorders which relate to R.A.P. of childhood.

Chapter Two Theories of Psychosomatic Disorders

2.0.0.0 Theories of psychosomatic disorders.

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2.1.1.0 Psychodynamic formulation.

2.1.2.0 Alexithymia.

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2.2.0.0 Conditioning Theories of Psychosomatic Disorders.

2.2.1.0 Learning and Emotional Responsiveness.

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2.4.0.0 Synthesis and Investigations.

2.4.1.0 A modern synthesis.

2.4.2.0 Lines of investigation: This Thesis.

2.0.0.0 Theories of psychosomatic disorders

The specifics of the present study derive from the following theories:-

2.1.0.0 Mental Mechanisms

2.1.1.0 Psychodynamic Formulations

In the twentieth century, the emphasis within psychosomatic medicine shifted from concentrating on the bodily manifestations of disorders to the psychological events which may have led to their development. Dunbar (1943) suggested that the characteristic personality traits found in individuals with psychosomatic disorders were crucial to etiology, prognosis and therapeutic approach to the conditions. Alexander (1950) suggested that psychological patterns of conflict and defence, along with the nature of organ vulnerability, and the circumstances of the individual at the time of the development of the condition, were crucial factors. Alexander's ideas can be seen to be similar to Adler's (1928) concept of 'organ inferiority', that is, that a person's inferiority feelings tend to centre upon a particular

physical organ/area, as the result of some quasi-realistic problem with that area.

There was an attempt by Alexander and others, to define for each psychosomatic condition, "the nature of the stress involved." They tried to specify the psychodynamic factors present in various conditions by trying to match specific diseases to particular kinds of unconscious conflict, e.g. peptic ulcer with a conflict involving oral dependency (Claridge and Chappa 1973). This search for a theory of specificity was unsuccessful, and was rejected by most of the psychoanalysts. However, the work did produce much in the way of clinical observation, and from it 'denial' became known as the significant defence in patients with psychosomatic disorders. The approach of Alexander and Dunbar had represented a shift from the earlier postulations of Freud in the manner in which the psychic conflict was translated into bodily symptoms. The latter's work had suggested, according to Taylor (1986, p.5):

"...that conflicts produce anxiety that becomes unconscious and takes a physiological toll on the body via the autonomic nervous system."

Rycroft (1968) distinguishes between symptoms produced due to 'Conversion Hysteria', and those produced from psychosomatic disorders by suggesting that psychosomatic "...symptoms are accompanied by demonstrable physiological disturbances of function" (p.133).

The clinical observations from the psychoanalytical work in the 1950's produced one other consistent observation regarding psychological functioning of individuals with psychosomatic disorders: it was found

that patients were preoccupied with the small details of their environment, and had an absence of fantasies determined by feelings and drives (Marty and De M'uzan, 1963). In addition they were also found to be unable to describe their feelings regarding emotions, and this deficiency became known as 'alexithymia', from the Greek for 'Without words for feelings' (Sifneos, 1967). Unlike the specificity theory, the alexithymic clinical picture was found widely amongst sufferers from psychosomatic disorders. The problematic relationship between alexithymia and the 'psychosomatic process' is a current issue in the literature (Taylor et al., 1993). Sifneos et al. (1977) made the distinction between patients denying feelings which they did experience, and the alexithymic patients who don't experience the feelings at all.

2.1.2.0 Alexithymia

Jurgen Ruesch (1957) described the core problem of psychosomatic patients as being an "affective disorder in communication": they were characterized by a restricted family life, object-dependency, and the overadapted social behaviour of an 'infantile personality'. Marty and De M'Uzan (1963) developed some of these observations, and contributed to the clinical picture which forms the basis of the classification of an individual as alexithymic. They used the term '*pensée opératoire*' to describe the characteristically 'mechanical' thought-content of such individuals, and Nemiah and Sifneos (1970) described two characteristics which, at that time, were thought to describe the complete clinical picture of alexithymia. They were summarized by Nemiah et al. (1976, p.430) as:

"(1) Such patients are unable to describe their feelings, a finding first noted by Sifneos (1967); (2) their thought content is characterized by a preoccupation with the minutiae of their environment and by an absence of fantasies determined by feelings and drives, an observation made initially by Marty and De'Muzan (1963) and termed by them 'pensée opératoire'."

Nemiah et al. (1976) described their method of 'examining' potentially alexithymic patients: the first portion of their interviews were unstructured, allowing observation of the spontaneous presentation of the patient, with the latter part being spent encouraging the patient to try to describe his/her feelings. The alexithymic patient may well use words such as 'angry', 'happy' or 'frightened', but when they are asked to say what it is like to be 'angry' or 'frightened', they are unable to do so. Their interviews also addressed somatic aspects of the patient's affects and their associated thoughts. From these interviews Nemiah et al. (1976, pp.431-434) state the 'updated' characteristics of alexithymia in this way:

"(1) Although many individuals may initially speak of being 'nervous', 'sad' or 'angry', if they are pressed to describe their feelings further and to tell the examiner what being 'sad' or 'nervous' or 'angry' feels like, it rapidly becomes apparent that they are totally unable to do so. Frequently they recognise this fact themselves and after vainly trying to comply with the interviewer's request, at length will comment, 'I just can't say' or 'I can't put it into words'.

(2) Patients are often unable to localize affects in their bodies and appear unaware of any of the common automatic somatic reactions that accompany the experience of a variety of feelings. If there is a somatic component, it is identical with the symptoms of their bodily illness.

(3) Related to the difficulties in describing feelings or localizing emotions is the fact that many patients cannot distinguish among the different kinds of common affects.

(4) Although alexithymic patients are inarticulate about their affects and generally give no external evidence of experiencing them, they may on occasion manifest brief but violent outbursts of affective behaviour. Patients will, for instance, suddenly fill up with tears; when questioned, however, they are unaware of feeling sad and cannot explain why they are crying. Or, though they feel no anger in the face of aggravating circumstances, they may exhibit explosive flashes of destructive rage.

(5) Closely related to the inability to find words for feelings is the phenomenon of the '*pensée opératoire*'. As described by the psychoanalytical group in Paris and confirmed by our own observation of patients with psychosomatic disorders, the '*pensée opératoire*' consists of two basic elements: 1. a paucity or absence of fantasies referable to drives and feelings, and 2. a thought content characterized by a preoccupation with the minute details of external events.

(6) Finally, it should be noted that to observation, individuals with alexithymic characteristics are often stiff and wooden in their manner. They sit rigidly, move their bodies sparingly, use few gestures when they talk and maintain a near expressionless face. Their restricted behaviour in combination with the lack of emotional colour in their speech and their preoccupation with mundane external details often makes such individuals appear dull and boring to the examiner.

Nemiah et al. (1976) suggest that superficially there may be some similarities between the presentation of alexithymia and 'la belle indifférence' of hysterical patients, and some features of 'obsessional isolation' in other patients. They suggest that the alexithymic individual has a 'global' absence of feelings, whereas the 'hysterical' individual (p.434):

"..though emotionally indifferent to his hysterical symptoms, is alive with feeling in all other aspects. The obsessional individual, it is true, exhibits a general lack of affect, but in the course of a clinical interview it is readily apparent that he has a wealth of fantasies determined by the underlying unconscious drives and feelings."

They go on to draw attention to the uncertain relationship between alexithymia and psychosomatic disorders, stating they have encountered

alexithymic individuals who had no psychosomatic problems. Additionally there may well be some connection between alexithymia and problems of 'addiction', 'acting out' e.g. manipulative attempts at suicide. They suggest that the relationship between alexithymia and clinical disorders remains to be determined in future studies.

Patients with severe life threatening conditions or debilitating bodily conditions, can show alexithymic characteristics during the course of their illness. Freyberger (1976) has termed this presentation 'secondary alexithymia', and states that it is particularly prevalent in renal dialysis and intensive care units. This secondary alexithymia may disappear when the physical condition improves, or become chronic in incapacitating or worsening disease.

Since the 1950's a number of theoretical formulations of alexithymia have been put forward. Alexander (1950) looked at psychological features of psychosomatic disorders from the psychoanalytic viewpoint, that is to say, by construing their occurrence or exacerbation as a product of 'psychic conflict'. The aim of the work was to see which psychosomatic illnesses correlated with which 'specific psychodynamic constellations'. This objective was not achieved, but much information was gathered, which helped the psychodynamic model to be widely adopted as the explanation for the cause of psychosomatic illness, and attempts have been made to apply it specifically to alexithymia. Nemiah et al. (1976, p.435) state:

"In particular, the concept of denial became prevalent as the significant defence against drives and affects in patients suffering from these illnesses - denial in this context being used to refer to a defence against internal psychic elements as opposed to its more proper and restricted designation of a psychological mechanism aimed at denying unpleasant external reality."

The psychodynamic model has two aspects to which objections have been raised, regarding its explanation of psychosomatic disorders and specifically of alexithymia. Firstly, given the general theoretical problem of distinguishing between these defences, there is no objective way to distinguish whether it is 'denial' or 'repression' which is the defence employed, although there has been the suggestion that in alexithymic patients, the exclusion of affect is more complete than in those conditions in which repression is a feature. Secondly, the model should be able to make some useful connection between the somatic symptom expressed and the psychic conflict which underlies it.

Dissatisfaction with the psychodynamic model led to two other models being proposed, one utilizing psychological concepts and the other appealing to a psychophysiological explanation.

McDougall (1974) suggests that a disturbance in the early mother-child relationship results in the maturing individual failing to develop the ability to experience feelings or to satisfy instinctual drives using fantasy. The individual becomes preoccupied with the environment, and exhibits the typical alexithymic characteristics. Thus, when instinctual drives are aroused, they by-pass the 'psyche' and affect the soma directly.

From a more physiological point of view, Nemiah et al. (1976) suggest

(p.436):

"Either because of genetic factors or from developmental arrests in infancy, there is a lack of adequate neuronal connections between those areas of the brain subserving drives and affects (the limbic system) and those areas in the neocortex underlying the conscious representation of feeling and fantasies. As a result the neuronal activity related to drive arousal cannot be processed through the elaborate cortical pathways, but is short circuited to the hypothalamus, which results in excessively strong and lasting discharges in the autonomic nervous system."

They acknowledge that the knowledge of neuroanatomical structure and function is not such that any detailed proposals as to the processes underlying psychosomatic symptom-formation may be made. However they do postulate the involvement of the 'paleostriatal dopamine tract' in the production of the alexithymic picture, and this fits with Weiner's (1981) postulation that this area may be involved in the 'psychosomatic process'.

The two preceding models for the generation of alexithymia can be seen to have implications for any 'treatment' of the resulting disorders. The developmental approach of McDougall (1974), would suggest that insight psychotherapy, i.e. looking at the defences an individual employs, and the underlying drives and affects, may reduce underlying conflict and accordingly a reduction in symptoms. Nemiah *et al.* (1976) point out that some patients improve, but that this may just be as a result of the supportive relationship with the therapist, and that indeed some patients find their symptoms made worse by having to talk about their 'feelings and fantasies'. Nemiah *et al.* (*ibid.*) see this as unsurprising since they regard alexithymia as the result of a structural defect, and not as the product of psychological defences. It

remains unclear whether patients can be helped by therapists 'modelling', or teaching them to 'construe for' (in a Kelly-like manner) such vocabulary and affects as are incompatible with alexithymia.

The preceding account of alexithymia, can be seen to appeal to a distinctive manner of processing emotional information, which constitutes, as such, a particular 'cognitive style', as described by Witkin (1965). Witkin (1981) has suggested that cognitive style may be implicated in some psychosomatic disorders, and the next section therefore examines cognitive style in relation to psychosomatic disorders.

2.1.3.0 Cognitive Style

The idea that distinctive 'cognitive' styles can be identified and related to personality characteristics, and even to psychopathology has a long history within psychology. Adorno *et al.*'s (1950) work on the 'authoritarian personality' (followed up by Rokeach (1960) in terms of the 'open and closed mind'), and distinctions between 'analytic' and 'synthetic' styles, and between 'convergent' and 'divergent' thinkers, are well known. Witkin (1965, p.195) states that individuals have 'cognitive styles' which are:

"...characteristic, self consistent ways of functioning in (their) perceptual and intellectual functioning".

Harvey (1963) views cognitive style as the way in which the environment is filtered and processed by the individual, so that it takes on 'psychological meaning'. Goldstein and Blackman (1978), reviewed a number of approaches to the study of cognitive styles. They point out

(p.VII), that cognitive style as a branch of cognitive psychology differs from the latter in:

"...emphasising the structure rather than the content of the thought, refers to the ways in which individuals conceptually organize their environments".

Goldstein and Blackman reviewed five aspects of cognitive style: (1) Authoritarianism, Rigidity and Intolerance of ambiguity; (2) Dogmatism; (3) Personal Constructs and Cognitive complexity; (4) Integrative complexity; (5) Field Dependence.

They review each of the five in the order above and suggest that the sequence underlines a shift in emphasis from content- to structure-oriented approaches, with Field Dependence (F.D.) being able to be detected by perceptual tests.

Herman Witkin's work has been fundamental to the study of F.D.. He developed an interest from his work looking at factors which affected the perception of the upright (Witkin et al., 1974). Witkin noticed large individual differences in perception, and felt that the characteristics of the individual, as well as those of the situation, were important. Goldstein and Blackman (1978, p.174) noted that:

"...an individual's characteristic way of perceiving was consistent from one situation to another, that it was not easily altered, and that it was stable over a period of years".

Witkin (1965, p.196) describes what he called 'field dependence-independence' (F.D.-I):

"In a field dependent mode of perceiving, perception is strongly dominated by the overall organization of the field, and parts of the field are experienced as 'fused'. In a field-independent mode of perceiving, parts of the field are experienced as being discrete from organised background".

Witkin describes that his studies have led to the development of a variety of perceptual tests that can be used for looking at individual differences in field dependence-independence. The important factor in each of the tests is whether or not the individual is able to keep a focal object separate from an organized field in perception. Two such studies were noted for use in the present study, namely;

1. *The Rod and Frame Test* (R.F.T.; Witkin et al. 1962).
2. *The Children's Embedded Figures Test* (C.E.F.T.; Karp and Konstadt 1971).

Individuals tend to perform in a consistent way on these, and other tests. Witkin (1965, p.198) states that an individual who is field-dependent, as indicated by her/his performance on the perceptual tests, is also:

"...unable to keep item apart from context in a wide variety of other perceptual situations (including such ones as the constancies, illusions reversible perspective) and in situations involving other sense modalities, as touch (Axelrod and Cohen 1961). Such consistency is indicative of a stylistic tendency in perception".

Witkin suggests that individuals who are accurate on the tests (he calls them not only field-independent but also more 'articulated' and more 'differentiated' in cognitive style) are more likely to have an articulated body-concept. Witkin (1965, p.199) states:

"There is now considerable evidence that children and adults who show an articulated cognitive style in their performance in perceptual and intellectual tasks of the kind we have been considering are also likely to have an articulated body concept- that is to say they experience their bodies as having definite limits or boundaries and the parts within discrete yet interrelated and formed into a definite structure".

The type of cognitive style employed by an individual is also an important indicator of 'sense of self'. Witkin states (1965, pp.201-2) that individuals with an articulated cognitive style:

"...give evidence of a developed sense of separate identity - that is to say, have an awareness of needs, feelings and attributes which they recognise as their own and which they identify as distinct from those of others. ... The less developed sense of separate identity of persons with a global cognitive style manifests itself in reliance on external sources for definition of their attitudes, judgements and sentiments, and of their views of themselves".

A number of studies, e.g. Konstadt and Foreman (1965), Mesick and Damarin (1964), have shown that individuals with global cognitive styles are particularly attentive to faces, which it is suggested is the major source of cues as to what others are thinking and feeling. Witkin suggests that this type of functioning can be identified using the R.F.T.. Witkin (1965) states:

"The person for whom the frame around the rod strongly influences the manner in which the rod is experienced, is similarly strongly influenced by the immediate social context in his experience of himself".

Witkin et al. (1971) have reported that patients who reported ulcers or asthma as psychosomatic conditions tended to be markedly 'field dependent', and also that the former group of patients were very much inclined to deny emotional dependency. The latter observation would seem to fit in with an 'alexithymic' type of condition, in relation to

psychosomatic disorders.

From the work of Witkin and others, it may be suggested that the child with R.A.P. is more field dependent than other children, that is to say, that they would be more affected by, and responsive to, their socio-emotional environment, an important part of which is the immediate family. This would fit in with Alvarez's (1984) finding that children with R.A.P. had experienced more 'subjective' life-events, according to parental report, than control groups. But a fundamental criticism of the 'life events' approach is that it is surely what the child 'makes' of events that is important (that is, her/his 'apperception' of them), not just an inventory of the events. This would fit in with George Kelly's (1955) view that no-one had ever responded to a stimulus, but rather to what they perceive that stimulus to be, or to what that stimulus 'means' to them.

From the early work in this area, e.g. Witkin et al. (1954), females have been reported to be consistently more F.D. than males; however Goldstein and Blackman (1978) review a number of studies which do not support this finding. Naditch (1976) suggested, after reviewing a number of studies in the area, that the evidence regarding sex differences in the area of field dependence was inconclusive.

2.2.0.0 Conditioning Theories of Psychosomatic Disorders

2.2.1.0 Learning and Emotional Responsiveness.

The behavioural approach to psychosomatic disorders, contrasts to that of the psychoanalytical in that it construes the origins of the processes which are currently at work in terms of 'conditioning and learning', and is more concerned with methods of changing those processes. Ullman (1971) states:

"..this behaviour is the result of previous and current reinforcing stimuli, and is not symptomatic of some deeper underlying discontinuity with normal functioning that must be dealt with prior to the emitted behaviour."

In the case of anorexia nervosa, Brady and Reiger (1975) regarded the condition as an eating phobia - eating producing anxiety, and failure to eat representing avoidance. Eating small amounts of food or self-induced vomiting are reinforced by anxiety reduction. Minuchin et al. (1978) suggest that this analysis engenders two treatment procedures, for the condition: namely, deconditioning the anxiety associated with eating, and/or shaping up eating behaviour.

The most comprehensive account of this behavioural approach to psychosomatic disorders which appeals to anxiety conditioning has been produced by Lachmann (1972). One of the assumptions upon which the relevant neo-Pavlovian conditioning theory rests, as regards psychosomatic disorders, is the postulated individual differences in 'conditionability' of the autonomic nervous system. Two studies suggest the differential involvement of the autonomic nervous system in R.A.P..

(a) Rubin et al. (1967) used pupil-reactivity as an indicator of

autonomic activity, and subjected a group of children with R.A.P. and a control group to a stressful event (cold pressor test). They found that the pupil size of the children with R.A.P. took significantly longer to recover to normal size, compared to the control group. (b) Apley et al. (1971), also used a cold pressor test on three groups of children: 16 children with R.A.P.; 14 children with behaviour problems (emotional group); and 20 children in a 'healthy' control group. The children in the 'emotional' group had the smallest pupil size in both the 'stress' and 'resting' conditions, and the 'healthy' children had the largest pupil size in both conditions. The children in the 'emotional' and R.A.P. groups' pupils had greater recovery times after the stress induced by the cold pressor test, when compared to the 'healthy' children. However, for the children with R.A.P. the recovery of pupil size was unstable. During the time limit of ten minutes, the pupils of the children with R.A.P., exhibited a pattern of constriction and dilation, failing to return to normal resting size within the time limit.

These studies, however, give no information as to why a child with R.A.P. should have a 'different' autonomic nervous system response to a given situation, as opposed to a child who does not have R.A.P..

The most substantiated theory put forward along these lines is that of Eysenck, which suggests that the more introverted and neurotic an individual then the more susceptible to conditioning they will be (Eysenck 1967; Eysenck and Eysenck, 1985). Alvarez (1984, p.157) states:

"It is apparent that R.A.P. is frequently one of a number of symptoms, making it possible to suppose that it may be the result of a generalised disturbance of the autonomic nervous system."

This, as has been mentioned, certainly seems to fit the clinical picture for R.A.P., at least as described by paediatricians (Apley, 1975). Fortunately this hypothesis lends itself to testing using Eysenck's personality questionnaires. Accordingly, in Knasel's (1982) study (1.3.2.0 above), R.A.P. children were tested on the Junior Eysenck Personality Inventory (J.E.P.I.) and compared to organic controls, but no evidence of increased rates of introversion or neuroticism was found in the children with R.A.P.. One component of the present study was to elaborate on Knasel's investigation of the neo-Pavlovian story, and the findings are discussed in Chapter 7 below..

2.2.2.0 The Autonomic Conditioning Theory

One of the prevalent behavioural theories concerning psychosomatic disorders suggests that they are a special case of learned anxiety-reactions. The theory is known as the 'autonomic conditioning theory'. (A.C.T.); and this way of construing the aetiology of such disorders implies, and has indeed generated, therapeutic approaches based on techniques of 'de-conditioning' (e.g. Singh *et al.*, 1986; Finney *et al.*, 1989). The elements of A.C.T. have been summarized by Lachman (1972, p 180) as follows:

1. Emotion is a form of behaviour.
 - a) Emotional behaviour typically involves the viscera extensively;
 - b) The autonomic nervous system (A.N.S.) is the mechanism for mediating emotional behaviour.
2. Emotional reactions may be learnt.
3. Emotional behaviour is initially aroused by specific stimuli.

Through associative processes, other stimuli, overt symbols, and central representations of emotion-provoking stimulus-situations,

also evoke emotional reactions. Thus, certain physiological reactions are aroused by an increasing variety of circumstances.

4. If emotional reactions are sufficiently intense, sustained, or repeated, a durable physiological malfunctioning or an actual structural pathology may be engendered; this constitutes a 'psychosomatic' disorder.
5. There are individual differences in reactivity to various stimulus-situations, and there are individual differences in susceptibility or vulnerability to psychosomatic disorders.
6. Emotional reactions may also be eliminated or unlearned.

For Lachman (1972, p.22):

"...a psychosomatic disorder is a pathological condition elicited primarily by emotional behaviour."

and

"Emotional behaviour refers to extensive and intensive changes in physiological functioning that are psychological in origin."

Lachman suggests that emotional behaviour differs from non-emotional behaviour in that it is characterized by multiple and intensive changes in the physiological functioning of autonomic effectors.

Central to the A.C.T. is the hypothesis that individuals are differentially susceptible to psychosomatic disorders because of differences in susceptibility to autonomic conditioning. Lachman's suggestion of 'individual susceptibility', may be construed as being an example of the neo-Pavlovian school of explaining 'neurotic' phenomena ultimately in terms of the 'constitution' of the Nervous System (Gray, 1985). An

explanation of 'individual susceptibility' to conditioning, has been put forward by Eysenck (1967) and Eysenck and Eysenck (1985).

They suggested that individuals who are 'neurotic', are characterized by labile responding by the A.N.S., and that 'introverts' have a constitutional difference in their arousal system, mediated by the ascending reticular formation. This results in cortical arousal being more active in the 'introvert' than the 'extravert'. Eysenck and Levey (1972), have demonstrated experimentally that 'introverts' do indeed condition 'better' than 'non-introverts' when the conditions favour the development of inhibition. However, 'extraverts' show superior conditioning when the conditions do not favour the development of inhibition. Eysenck has attempted to account for this using the Pavlovian concept of 'paradoxical inhibition', whereby "stimulus conditions of high excitation can lead to inhibition of responding." (Levey and Martin 1981). Pavlov first observed 'paradoxical inhibition' in those of his dogs with 'weak' nervous systems, and this is seen (Levey and Martin) to be comparable to the introverted human.

Lachman splits the 'general' factors concerning the genesis and development of psychosomatic disorders into two groups, which may be represented as:

Predisposing Factors.

1. Genetic and 'constitutional' factors, such as quality of heart muscle, built-in reactivity of the A.N.S., the balance between inhibition-excitation potentials.
2. Environmental factors, such as physical modifications acquired as a result of physical assault, nutritional deficits, perinatal/neonatal illness etc.

Precipitating Factors.

1. The extent of the emotional-reaction pattern. There are wide individual differences in the number and variety of structures involved in an emotional reaction. There is variation from individual to individual, and from time to time in the same individual. Such variations may depend on the biological make-up of the individual - but they may also depend on earlier learning.
2. The frequency of the emotional reaction pattern. There are wide individual differences in the frequency of occurrence of emotional reactions. The more frequently a given structure is involved in emotional reactions, the greater the likelihood of its being involved in a psychosomatic disorder, other things being equal.
3. The intensity of the emotional reaction pattern. There are wide individual differences in the "severity" of the changes in the functioning of a structure during an emotional reaction. The susceptibility to this 'facilitation' is also a matter of individual differences. The greater the deviation or variation in functioning in a structure from its "normal" resting or homeostatic level, the greater the likelihood of its being involved in a psychosomatic disorder, other things being equal. The intensity of reaction in a particular structure may depend on biological factors, such as heredity and earlier disease processes, and also on learning.
4. The duration of the emotional reaction pattern. There are wide individual differences in the duration of the emotional reaction pattern, although such reactions are typically of relatively short duration. Again, biological factors and learning have a role in determining duration, as does the pattern of emotion provoking stimuli.

It can be seen from the work of Pavlov, Eysenck and Lachman, that individual 'constitutional' differences may well be critical in the development of a 'psychosomatic' disorder.

Commenting on the neo-Pavlovian/Eysenckian theory of susceptibility to autonomic conditioning in the context of his own study (see 1.2.3.0) of R.A.P. Knasel (1982, p.169) states:

"Eysenck relates his dimensions to the underlying 'conditionability' of the individual's nervous system. Introverts are supposed to be particularly responsive to operant conditioning, whilst Neurotics are specially sensitive to classical conditioning. Given an approach which sees R.A.P. as a learned behaviour one might hypothesise that 'bellyachers' are particularly responsive to operant conditioning of autonomic functions, and hence expect them to score high on Introversion (i.e. to score low on the E scale). The same argument would of course hold for classical conditioning of autonomic reactions, and one might also expect high N scores."

In the present study this hypothesis was examined again, on larger numbers, by administering The Junior Eysenck Personality Questionnaire (J.E.P.Q.; H.J. Eysenck and S.B. Eysenck 1975). The reason for using the newer instrument, was the development of the "P" scale in the J.E.P.Q. which, apart from creating a new Scale, affected the composition of the Extraversion scale as compared with the J.E.P.I.

2.2.3.0 The Eysenckian Dimensions of Personality.

The underlying belief which guided the work of Hans Eysenck in proposing a dimensional basis for personality, was that psychiatric abnormalities are essentially continuous with normality and are not to be distinguished from normality in any absolute, qualitative manner. He felt that dimensions may well be 'nearer reality' in describing personality, than the medical practice of using categories, such as 'Psychotic-Non psychotic' (Eysenck, 1970). In her study on dimensions and hierarchy in psychological disorder, Hargreaves (1985, p.61) puts it like this:

"The main empirical difference between categories and dimensions focuses on the question of continuity. For example, are psychotic patients different in a qualitative manner from 'normals' so that they possess something not possessed by the latter, or are these psychotic characteristics infinitely graded?"

Working with large numbers of clinical and non-clinical subjects, and using experimental observations of behaviour, Eysenck attempted to develop a 'scientific' and 'testable' approach to the study of personality (Eysenck 1947); the emergent hypotheses have understandably been subjected to much modification over the years (for example, in respect of 'extraverts' and high levels of sensory stimulation, as we have just seen). However that may be, Eaves *et al.* (1989, p.8) say of Eysenck's personality paradigm in its current revision:

"In its modern form, and based on correlational and factor-analytic methods employed upon the results of self-descriptive questionnaires, ratings by friends and acquaintances, miniature situation studies, experimental investigations, physiological measures, and hormonal and other biochemical assays, this model has transcended the purely descriptive phase of investigation, and has begun to assume a dynamic and causal aspect, relating behaviour to fundamental biological factors, whether physiological or hormonal."

From observations of 'specific response levels' (responses to an experimental test or an experience of everyday life), Eysenck used factor analysis, and a development of this known as 'criterion analysis' (Eysenck 1960, pp.9-11) to determine the distribution of factors within a population. A continuous distribution of scores on all factors was found, thus not showing the 'clustering' of factors which would be expected given a categorical/disease entity model. Eysenck therefore supports a 'dimensional' representation of mental illness as desirable for research, theory and practice (Eysenck 1970).

From this earlier work, Eysenck proposed two major dimensions of

personality, 'N' (Neuroticism-Stability), and 'E' (Introversion-Extraversion). More recently Eysenck has added, based upon criterion analysis of data regarding the independence of neurosis and psychosis in a clinical population, a 'P' (Psychoticism) scale. Eysenck suggests that these 'super factors' (1972) provide the best means to describe human personality. The 'phenotypic' characteristics of these factors are described below, after Eysenck and Eysenck (1975), and the traits correlating together to define the three dimensions are represented in Figs. 2.0 to 2.2.

Neuroticism

Eysenck and Eysenck (p.9) describe the typical high 'N' scorer as being:

"..an anxious, worrying individual, moody and frequently depressed. He is likely to sleep badly, and to suffer from various psychosomatic disorders. He is overly emotional, reacting too strongly to all sorts of stimuli, and finds it difficult to get back on an even keel after each emotionally arousing experience. His strongly emotional reactions interfere with his proper adjustment, making him react in irrational, sometimes rigid ways. If the high N individual has to be described in one word, one might say that he was a worrier; his main characteristic is a constant preoccupation with things that might go wrong and a strong emotional reaction of anxiety to these thoughts."

Some of the adjectives above can be seen to correspond closely to those which have been applied in the medical literature to children with R.A.P. (O'Donnell 1985, p.92). Eysenck and Eysenck contrast the high 'N' scorer with the 'stable individual' (p.10), who:

"...tends to respond emotionally only slowly and generally weakly, and to return to baseline quickly after emotional arousal; he is usually calm, even -tempered, controlled and unworried."

Fig. 2.0 shows the traits which correlate together to define Neuroticism (Eysenck and Eysenck, 1985).

Extraversion

Eysenck and Eysenck (p.9), describe an individual who represents an "idealized extreme" on the 'E' scale as:

"..sociable, likes parties and has many friends, needs to have people to talk to, and does not like reading or studying by himself. He craves excitement, takes chances, often sticks his neck out, acts on the spur of the moment, and is generally an impulsive individual. He is fond of practical jokes, always has a ready answer, and generally likes change; he is carefree and easygoing, optimistic and likes to "laugh and be merry". He prefers to keep moving and doing things, tends to be aggressive and lose his temper quickly; although his feelings are not kept under tight control, and he is not always a reliable person."

They go on to describe the "typical introvert" (p.9) as:

".. a quiet, retiring sort of person, introspective, fond of books rather than people; he is reserved and distant except to intimate friends. He tends to plan ahead, "looks before he leaps" and distrusts the impulse of the moment. He does not like excitement, takes matters of everyday life with proper seriousness, and likes a well ordered mode of life. He keeps his feelings under close control, seldom behaves in an aggressive manner, and does not lose his temper easily. He is reliable, somewhat pessimistic, and places great value on ethical standards."

Figure 2.1 shows the traits which correlate together to define Extraversion.

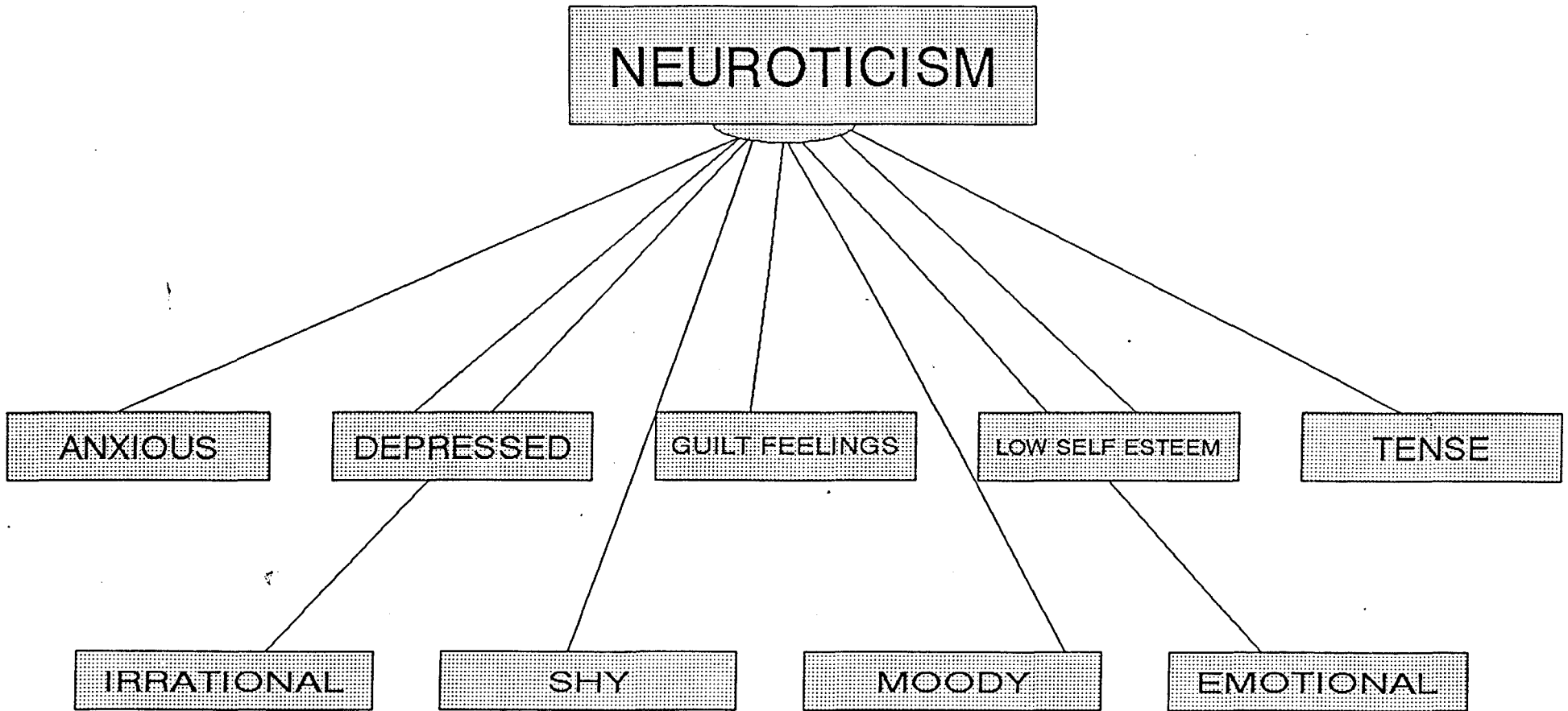


FIG. 2.0: Traits correlating together to define the Neuroticism Dimension (Eysenck and Eysenck, 1985)

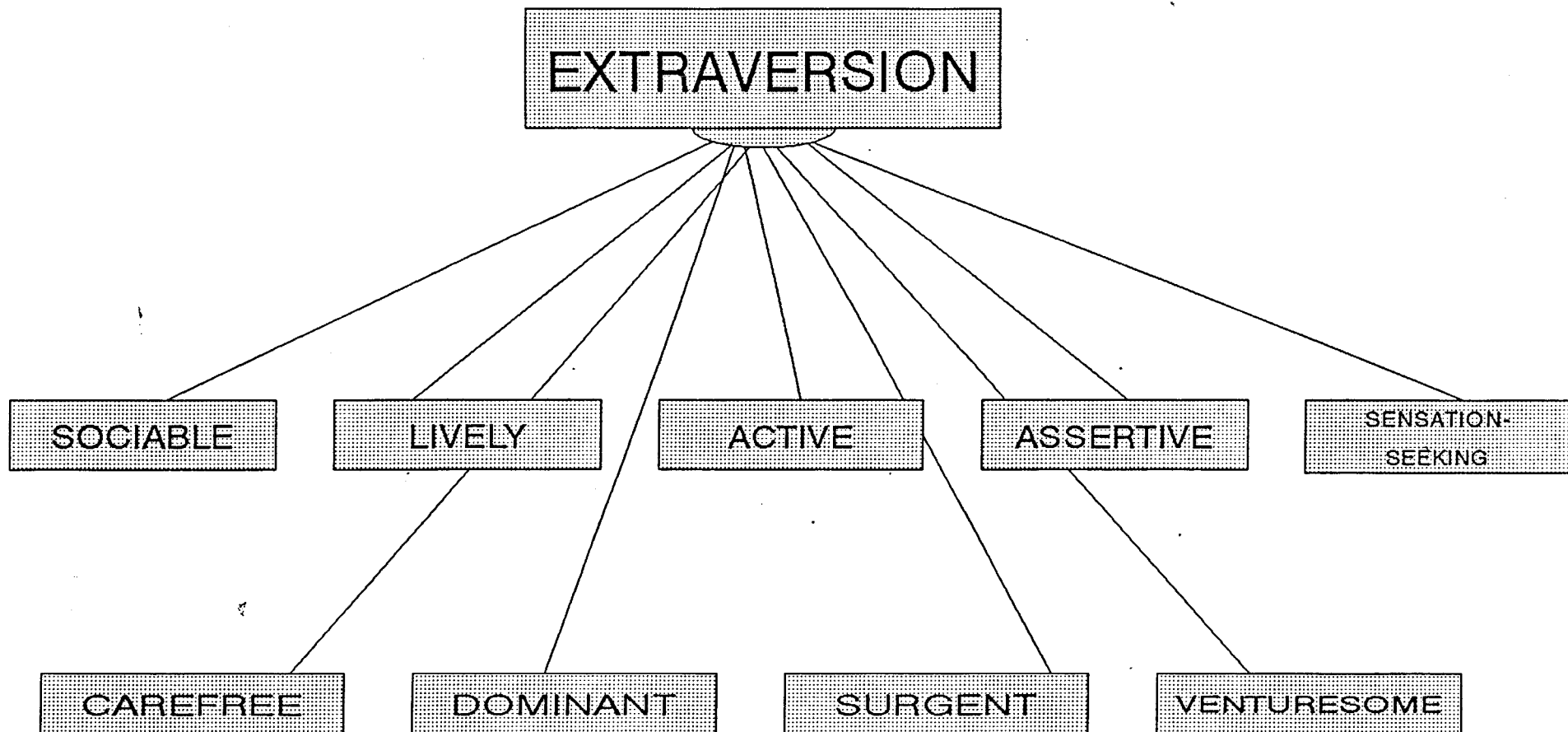


FIG. 2.1: Traits correlating together to define the Extraversion Dimension (Eysenck and Eysenck, 1985)

Psychoticism

Eysenck and Eysenck (p.11) describe, provisionally, an adult high 'P' scorer as:

"..being solitary, not caring for people; he is often troublesome, not fitting in anywhere. He may be cruel and inhumane, lacking in feeling and empathy, and altogether insensitive. He is hostile to others even his own kith and kin, and aggressive, even to loved ones. He has a liking for odd and unusual things and a disregard for danger; he likes to make fools of other people, and to upset them."

The high 'P' scoring child is described as:

".. an odd, isolated, troublesome child; glacial and lacking in human feelings for his fellow beings and for animals, aggressive and hostile, even to near and dear ones. Such children try to make up for lack of feeling by indulging in sensation seeking "arousal jags" without thinking of the dangers involved. Socialization is a concept which is relatively alien to both adults and children; empathy, feelings of guilt, sensitivity to other people are notions which are strange and unfamiliar to them."

Fig. 2.2 shows the traits which correlate together to define Psychoticism.

There have been disputes as to the validity of the Eysenckian factors, notably between Eysenck and Eysenck and Cattell and Guildford (Eysenck and Eysenck 1969a). This is not the place to describe the detailed analyses, and the claims and counter-claims that have been made, save to say that the results of studies carried out by the two groups of researchers were interpreted by Eysenck, partly, as supporting the Eysenckian theory, although there have been some criticisms regarding methodological issues. The interested reader will find a discussion of the results in Kline (1979, pp.150-152). Eysenck's three-dimensional model of personality may be represented as in Figure 2.3.

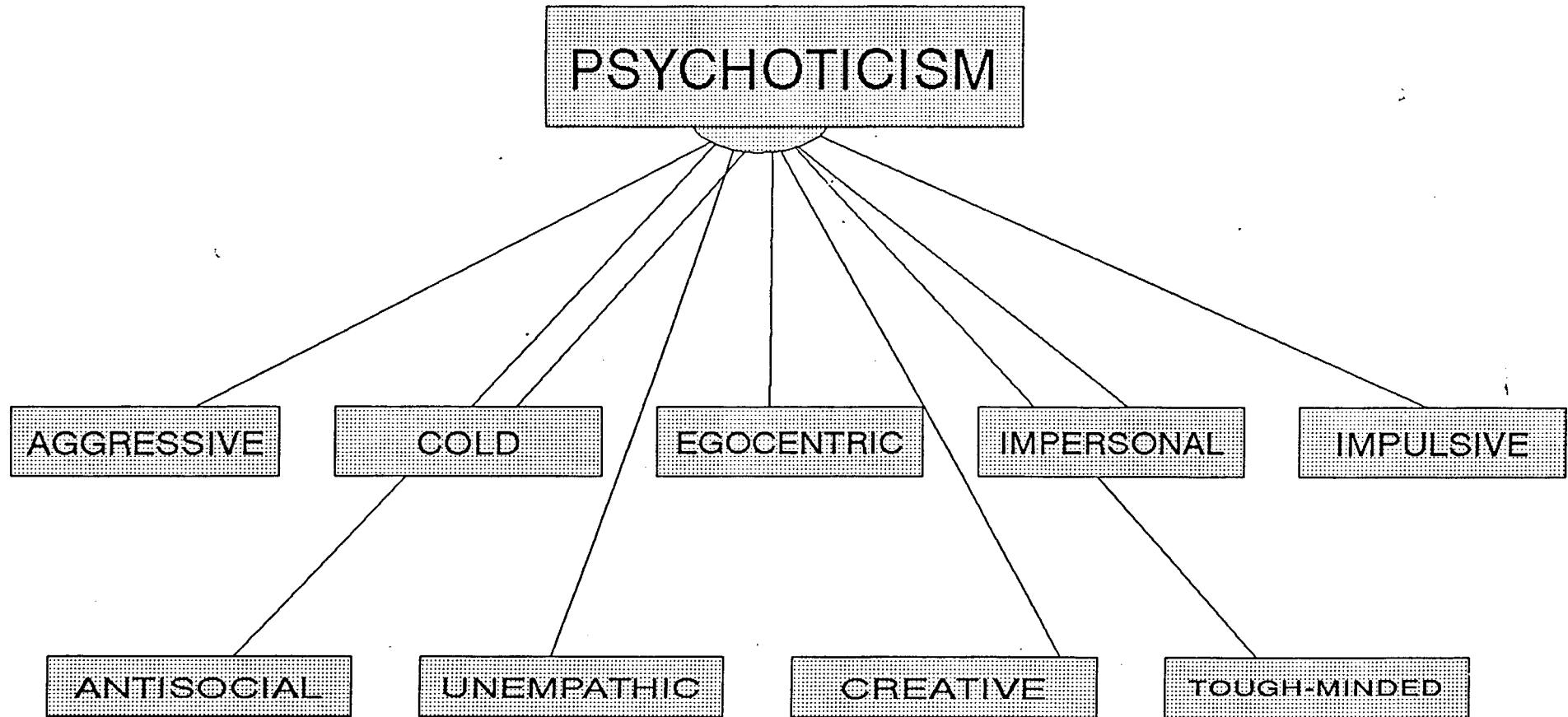


FIG. 2.2: Traits correlating together to define the Psychoticism Dimension (Eysenck and Eysenck, 1985)

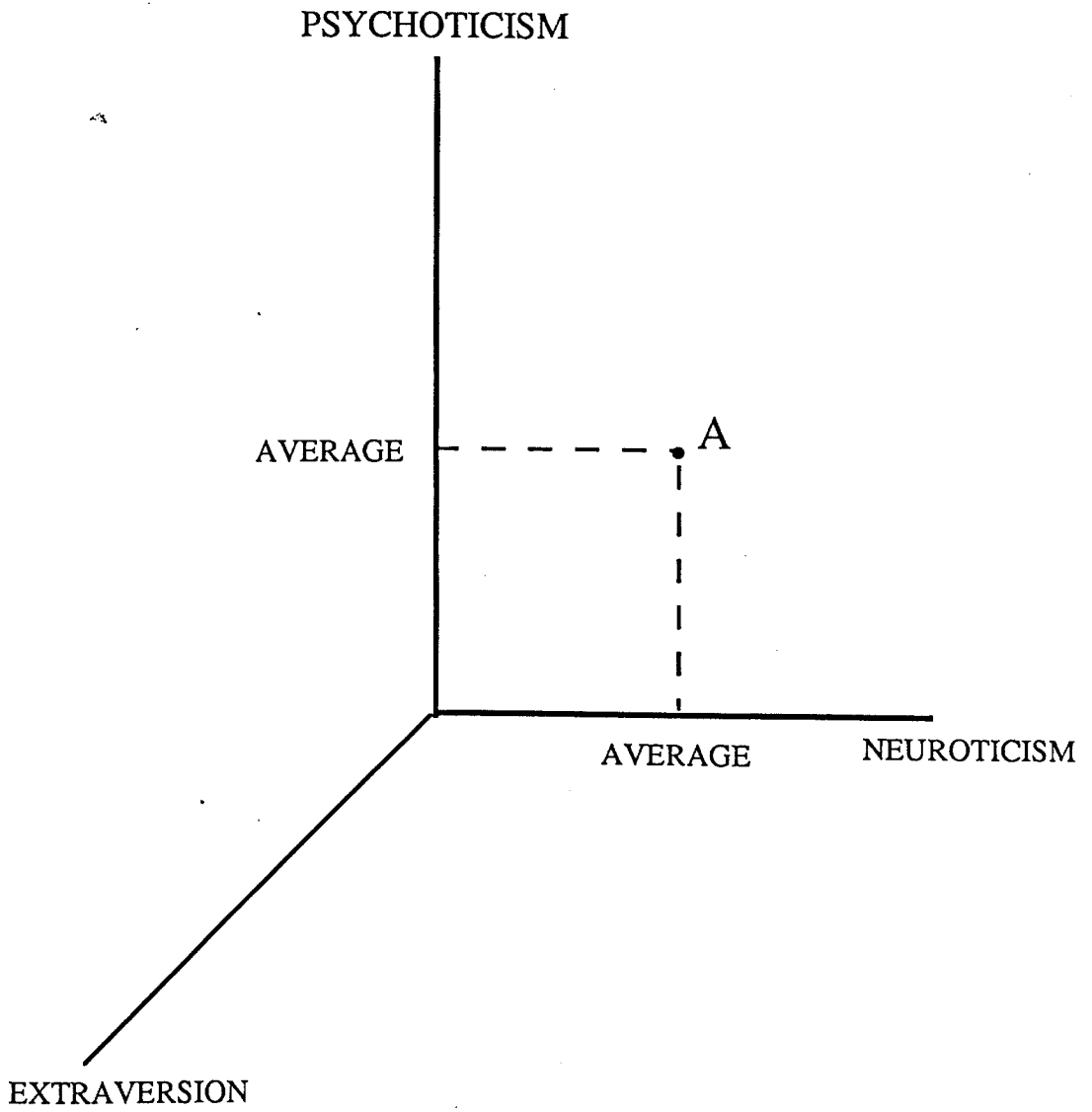


FIG 2.3 A Three Dimensional Representation of Personality (Eysenck and Eysenck 1975)

Wakefield et al. (1974), compared the three dimensional model with the Minnesota Multiphasic Personality Inventory (M.M.P.I.; Hathaway and McKinley, 1943) scales. Neuroticism is thought to resemble the M.M.P.I. scales of Hypochondriasis (Hs), Depression (D) and Hysteria (H); Eysenck's 'P' resembles the M.M.P.I. scales for Paranoia (Pa), Psychasthenia (Pt) and Schizophrenia (Sc), while his 'E' is related to Sexual Identity (Si). This was tested by factor analysis of the M.M.P.I. scores of 205 married couples, and 'plotting them in statistical space'. The 3 'N'-related scales (Hs, D, and H) were relatively close to each other, and relatively distant from the 'P' related scales (Pa, Pt and Sc). Wakefield et al. (ibid.) interpret these results as support for the Eysenckian dimensions of personality.

In the present study, the J.E.P.Q. was administered and its use was intended as a development on Knasel's (1982) work, since it allowed his findings in respect of 'extraversion' to be checked against the revised 'E'-scale of the newer test.

2.2.4.0 Stress Models.

One of the earliest contributions to stress research was Cannon's (1932) description of the 'fight or flight' response. Cannon proposed that if a threat is perceived by an organism, then the sympathetic nervous system and the endocrine system are activated so as to arouse and motivate the body. Cannon concluded that this adaptive response could become maladaptive given circumstances in which the organism was unable to engage in 'fight or flight.' Wolf and Wolff (1947) observed, by means of a gastric fistula fitted to a patient with a gastric ulcer, that, when the individual was sad, the gastric mucosa was pale and

there was decreased acid secretion, whereas, when he was angry, the blood supply to the mucosa and the rate of acid secretion both increased. Wolf and Wolff proposed that individuals have characteristic physiological responses to stress, but that those responses may well be produced by a large number of stressors. With the overuse of the physiological reaction-pattern, a disorder of that system may result.

An important development in the study of stress was the work of Selye (1956, 1976). While investigating the effect of sex hormones on physiological functioning, he became interested in the stress that was produced as a result of the procedures. He found that if he exposed rats to different types of stressors, essentially the same pattern of physiological responding was produced, namely, that affecting the adrenal cortex, thymus, lymph glands, stomach and duodenum. Damage to these structures led Selye (1956) to propose the 'General Adaptation Syndrome'.

This suggests that when an organism experiences stressful events, it makes the changes necessary for the 'fight or flight' response. Importantly, Selye suggests that the specific cause or type of stress involved is not important, since the individual will respond with the same physiological patterns. The syndrome consists of 3 phases: Alarm, Resistance and Exhaustion. In the Alarm phase the body is aroused to react to the stressor; in the Resistance phase, the organism attempts to deal with the threat; and in the third stage, Exhaustion occurs if the organism is unsuccessful and the physiological 'cost' has to be paid.

This model formed the basis for much further stress research, but was criticised for its inability to take account of psychological variables. Lazarus and Folkman (1984), in particular, noted that appraisal in stressful situations was important, and put forward a two-phase theory of appraisal: primary, where events are assessed as positive, neutral or negative; and secondary, where the individual's coping abilities are assessed in relation to the stressor. This can be seen to bring the 'stress' model somewhat forward from Selye's original position; but questions remain regarding the underlying factors and determinants of the ability to 'cope' with stressors, and, more fundamentally, about why some events are perceived as stressful by some individuals but not others.

Fisher (1986) has suggested that high levels of Neuroticism in individuals may predispose them to develop illness as a result of stress, because of their tendency to make 'error-prone responses' in stressful situations where the existing state of tension and arousal increase the likelihood of action rather than passivity. Fisher has also suggested that the 'cognitive style' (see 2.1.3.0) used by an individual, may well influence the development of illness from stressful situations.

A development of the 'stress' approach, is that of the 'Stress-vulnerability' model of psychological disorders in general (Onyett, 1992). This model is summarized in Fig. 2.4. The key, and interacting, components of the model are:

- 1) Stress: which can result from traumatic life events (e.g. bereavement), and also from longer-term experiences (e.g. poor housing).
- 2) Vulnerability: this is a predisposition, determined by genetic or biological factors, toward enduring physical problems which may result in difficulties in focusing attention or processing information.
- 3) Coping: "This refers to the way individuals respond to those aspects of their environment that challenge their well-being" (Onyett 1992, p xii).

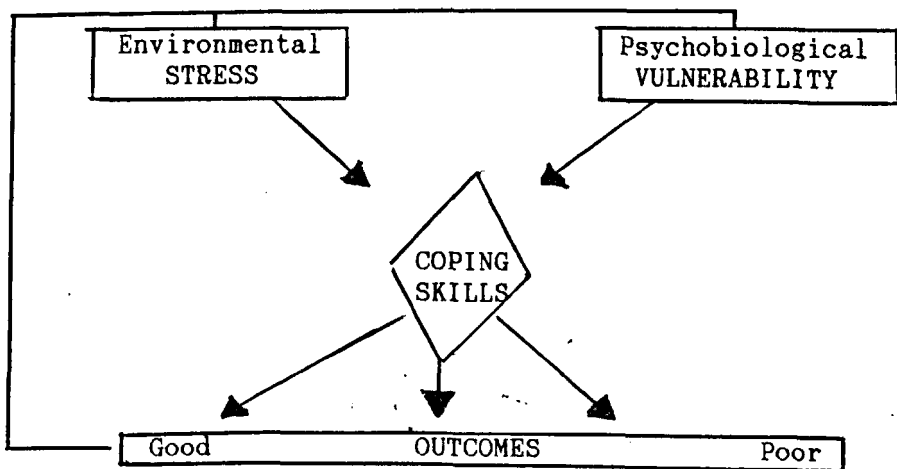


Figure 2.4 The stress-vulnerability model of mental health problems.
(Onyett, 1992, p xi)

In the medical and 'Health Psychology' literature, the technical term 'diathesis' regarding predisposition toward disease has become popular. Davison and Neale (1990, p55) suggest:

"Diathesis refers most precisely to a constitutional predisposition towards illness, but the term may be extended to any characteristic of a person that increases his or her chance of developing a disorder."

The 'diathesis-stress' model can be considered as equivalent to the 'stress-vulnerability' model.

2.3.0.0 A Systems Model.

Salvador Minuchin *et al.* (1978, p.21), summarized the systems model of psychosomatic disorders as in Fig.2.5.

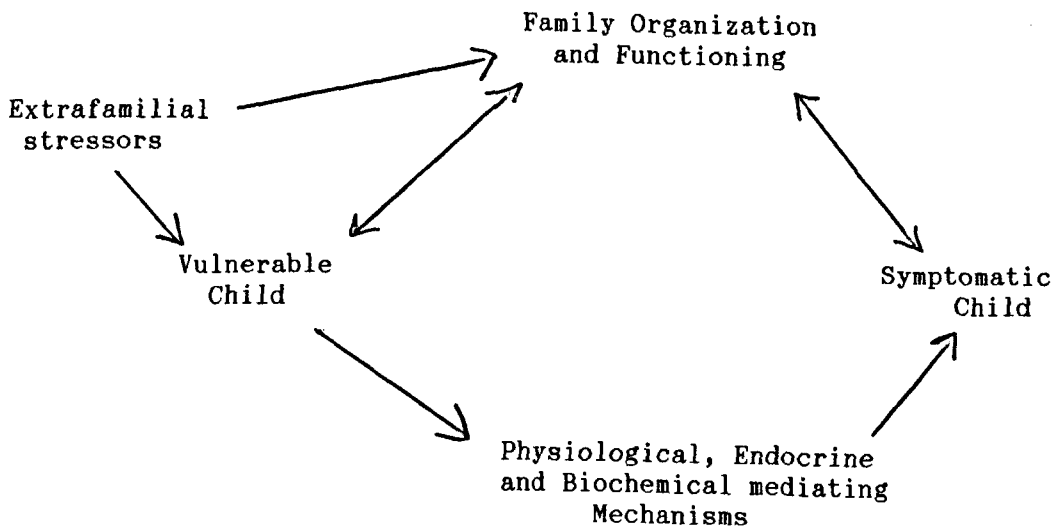


Figure 2.5 A Systems Model of psychosomatic Disorder

The system, as represented in Fig.2.5, may be activated at a number of different points; activation and regulation of the system can occur as a result of actions by system members or as a result of the influence

of outside forces. Minuchin et al. (1978, pp.20-21) state:

" The systems model postulates that certain types of family organization are closely related to the development and maintenance of psychosomatic symptoms in children, and that the child's psychosomatic symptoms in turn play an important role in maintaining the family homeostasis."

Working with families of diabetics, they experimentally produced symptoms related to ketoacidosis in the child, by manipulating family interactions. They state (p.21):

"... our findings clearly indicate that when significant family interactional patterns are changed, significant changes in the symptom of psychosomatic illness also occur."

The authors go on to suggest that this approach means that the focus should be less on the psychosomatic symptom, and more on the way the family functions. Alvarez (1983), in agreement with the systems approach, has suggested that the reporting of R.A.P. symptoms may well act so as to reduce conflict within the family, by focusing attention on the sick child and ensuing contact with medical services.

One criticism of this approach is that, especially in the 1990's, it may seem to be less relevant with the rise in one-parent families. The family interactions which Minuchin et al. (1978) suggest promote psychosomatic disorders in the child, such as the stable coalition between the child and one parent, may not be overtly maintained (though other significant stresses may be thought to take their place). A systems approach to the study of the 'psychosomatic family' is discussed further in Chapter 8.

2.3.1.0 The Psychosomatic Family

It follows from this that psychosomatic symptoms in children may well be the result of some type of systematically maladaptive family functioning. Proponents of the 'family process' approach to the study of psychosomatic disorders, in the tradition of Minuchin et al. (1978), suggest that in recent years evidence has been gathered which suggests the involvement of 'dynamic factors' within families in the genesis of such problems. Meissner (1977, p.101) states:

"The study of such psychodynamics within family structures has left the impression that dynamic patterns of family interaction have a marked impact not only on the psychological adjustments of its members, but also on the patterns of physical health and illness. There has been a shift and a refocussing of attention from the level of intrapsychic dynamics as such to the level of the organization of the family and its functioning, specifically as a unit within itself and as embedded within a larger context of the social community and its cultures."

The approach of regarding the family as a unit of interaction and a suitable subject for 'analysis', aims to "deepen our understanding of the psychosomatic process by understanding the involvement of the patient as a member of the family system." There have been attempts to make connections between external factors and specific psychosomatic symptoms, e.g. duodenal ulcer. Mirsky (1960) suggested that the tendency of duodenal ulcer patients toward hypersecretion could be linked significantly with the psychodynamic observation that they show a marked 'oral dependency' which is exhibited as reactive striving for self-sufficiency. However, the attempts to connect specific psychosomatic disorders to psychological 'types', has been largely unsuccessful. Regarding the study of the family unit in relation to psychosomatic disorders, Haggerty (1983) states:

"Fortunately, sufficient evidence is now available not only to demonstrate equivocal links between family interaction and somatic health, but also to specify fairly precisely the attributes of certain kinds of psychosomatic families."

According to Haggerty, there have been four main areas in which

research has suggested that the role of the family can act as the mediator of somatic illness.

(1) The observations by medical practitioners that clusters of illness can occur in previously healthy families. Kellner (1963) looked at 356 patients of G.P. family practices, and suggested that for 17% of the families "non-organic transmission of illness" had occurred. He looked at transmission patterns within the family, and found that the most frequently observed transmission was from child to mother. The patterns were stronger where there was evidence of neurotic illness, along with increase in health-seeking behaviour.

(2) Comparative studies, which have attempted to match characteristics of family interactions with the psychosomatic disorder expressed, by comparing people who have psychosomatic disorders with non-ill controls and physically well psychiatric patients (e.g. Loof 1970). A consistent finding has been that in the families that exhibit a psychosomatic disorder there was "less overt disruption and greater restriction on expression of affect, than in controls." (p.616). Minuchin et al. (1978) using diabetics, found that those in whom the medical stability of the disease was affected by family interactions (i.e. those with a psychosomatic component), belonged to families with less parental conflict, overcloseness between individual members of the family (known as 'enmeshment') and rigidity.

(3) Observational studies, looking at evidence suggesting an effect of certain interactions between family members and the development of symptoms in individual family members. An example of this is a study by Bowen (1960) which looked at families of schizophrenics. The observations made suggested that an increase in psychosomatic symptoms expressed by one family member, may occur after an improvement in the other member's psychosis, i.e. a kind of inverse

relationship. Bursten (1965) provided further observational evidence in support of this type of relationship, and Haggerty (1983) states that anecdotal evidence suggests that the emergence of overt conflict in parents may lead to improvement in 'psychosomatically ill' children.

(4) Direct measurement of physiological changes. Strong evidence suggesting a link between family interactions and psychosomatic responses in individuals, has been produced (as indicated above) by Minuchin *et al.* (1978). Working with diabetic children and their families, they obtained regular blood levels of free fatty acids (F.F.A.) from the diabetic children and parents, during various types of family interaction. Increased F.F.A. levels in the blood are thought to be related to 'diabetic acidosis', and thus instability in the medical management of the condition. The investigators compared children with 'psychosomatic diabetes', that is children whose diabetes was poorly controlled in the absence of other behavioural problems, with children whose diabetes was well controlled, but their behaviour was abnormal.

The study comprised two phases, the first, in which the parents were interviewed in a manner calculated to induce conflict, was observed by their child through a one-way screen. In the second phase, the child was brought into the interview situation. In the 'psychosomatic families' this caused a shift from expression of open conflict to concern for the well-being of the child. The measures of F.F.A. levels showed that in the 'psychosomatic families' the levels in phase 1 rose both in the parents and the child. However, in phase 2 the levels in the parents dropped whilst those in the children continued to rise. This pattern was not found in the children with controlled diabetes or

with those with controlled diabetes who 'acted out'. Haggerty (1983, p.616) states that, at least in juvenile diabetes:

"..the exacerbation of psychosomatic illness could be linked with certain specific patterns of dealing with conflict, and that the symptoms seemed to serve the purpose of reducing tension elsewhere in the system."

2.3.2.0 Patterns of Interaction within the 'Psychosomatic Family'.

Minuchin et al. (1978) suggest that, from their work in family therapy, that in many ways the functioning of the family of the 'psychosomatic diabetic' was similar to that of the family of an anorexic or 'psychosomatic asthmatic'. They described the functioning of the 'psychosomatic families' as differing markedly from that of the families of normal diabetics who come into therapy for other problems. They identified four types of current interactions within the family which are characteristic of a 'psychosomatic family'.

(a) Enmeshment. This is an extreme form of proximity and intensity in family interactions, with the effect that small changes reverberate throughout the family system. Subsystem boundaries are confused, parental control of the child is ineffective, and the child may act in an inappropriately parental manner towards the parent or other siblings. The child may be enlisted by one parent against the other in decision making. "The boundaries that define individual autonomy are so weak that functioning in individually differentiated ways is radically handicapped." This results in the family members having poorly differentiated perceptions of each other and, usually, of themselves. They intrude on each other's thoughts and feelings, and effectively become 'lost' in the system.

This kind of description is similar to Witkin's suggestion of the 'field-dependent' individual being less 'differentiated', and being less sure of the physical boundaries of his/her body (see 2.1.3.0). Knasel (1982), comparing R.A.P. children with Organic Controls on the F.R.T., found that the R.A.P. children sent significantly fewer messages about personal interaction to themselves than did the R.A.P. children. Discussing this finding, Cheshire et al. (1987) see it as the Organic Control Group treating themselves more as "differentiated, participating individuals..", than do the R.A.P. children.

(b) Overprotectiveness. This describes a high degree of concern of family members for each other's welfare. This is not limited to the patient or the area of the illness. Parental overprotectiveness retards the children's development of autonomy, competence and interests or activity outside the safety of the family. The ill child may feel a responsibility for protecting the family. Some of the results of this type of family functioning, will be investigated in Chapter 5, namely social maturity (V.S.M.S.), social adjustment (B.S.A.G.) and individuation (S.I.R.T.).

(c) Rigidity. The family is heavily committed to maintaining the status-quo. They experience difficulty when change and growth are necessary, and will resist change, in the form of denial. Such families are highly vulnerable to external events which may produce illness.

(d) Lack of conflict-resolution. This describes the inability of certain families to allow disagreement to develop and be worked through. Rigidity, overprotectiveness and enmeshment make such families' threshold for conflict very low. Often religious or ethical codes may be used to avoid conflict. This results in unresolved problems which come round again and again, producing the need for avoidance.

Minuchin et al. (1978) suggest that 'psychosomatic families' tend to use three characteristic patterns of conflict-related behaviour.

(i) Triangulation: this is where the child is placed in a situation where it has to take sides, it cannot express itself without siding with one or the other parent.

(ii) Parent-child coalition: this is where the child tends to move into a stable coalition with one parent against the other.

(iii) Detouring: the spouse dyad here is ostensibly united. The parents submerge conflict in a posture of protecting or blaming the sick child. In many cases parental concerns absorb the couple so that all signs of marital strife are suppressed or ignored. In one sense the child may fulfil the role of conflict defuser. Minuchin et al. (1978 , p.50)) state that the patterns of family interactions described, do not actually cause psychosomatic reactions, but rather that:

"What we were observing and evaluating, were cyclical or sequential patterns, which both maintained and were maintained by the psychosomatic behaviour of a child."

Bloch (1987) suggested a 'Coevolutionary' model, which relates two classes of events: "illness events and family-systems events" (p.277). Regarding 'the abdominal pain syndrome in children' Bloch (p.280) states:

"The story can be told this way: It begins with a random disequilibrating event. There is some gas in the child's gut and a moment of colic like abdominal pain ensues. At the same time there is a relationship configuration in the child's family for which this random event has meaning: as an oversimplified example, the parents are covertly at war and the mother, in the context of this undeclared war, moves closer to a potential ally, the child, around the issue of the moment of abdominal pain."

Bloch goes on to describe how medical practitioners, through frustration, may become part of the 'relational geometry.' In the decade separating Minuchin's and Bloch's work, little has changed in

the formulation regarding intrafamily functioning and R.A.P.

2.3.3.0 Assessment of Family Functioning.

Given that the family is thought to be an important influence in the production of psychosomatic symptoms, it was decided to include a measure of 'family functioning' in the test battery. Knasel (1982) used the Family Relations Test (F.R.T.; Bene and Anthony 1978) to compare children with R.A.P. with organic controls (see 1.3.2.0). Use of the F.R.T. in the present study, would allow Knasel's work to be replicated and the theory put forward by Minuchin, of how the 'psychosomatic family' functions, to be examined.

2.4.0.0 Synthesis and Investigations

2.4.1.0 A Modern Synthesis.

From the brief review of four popular approaches to the study of psychosomatic disorders, one may wonder what is the current state of play. Each can be seen to have contributions, but equally all are incomplete as a satisfactory account. Lipowski (1976) suggests that the contemporary study of psychosomatics has three interrelated components:

1. A science of the relations between biological, psychological and social variables as they pertain to human health and disease.
2. An approach to the practice of medicine that advocates the inclusion of psychosocial factors in the study, prevention, diagnosis and management of all diseases.
3. Clinical activities at the interface of medicine and the behavioural sciences, subsumed under the term 'Consultation Liaison Psychiatry.'

Christie (1981, p.8) describes this as reflecting:

"The move away from the psychodynamic formulations and towards a consideration of events and situations and their effects on psychophysiological functioning."

Knasel's (1982) work with R.A.P. children, comparing them with a group of organic control children, has suggested that these children may well have a less individuated sense of self. If this is the case, then it can be seen that the important factor may well be how the child 'is' (within events and situations) that determines the effect on psychophysiological functioning. The suggestion by Fisher (1986) that cognitive style may be important in how an individual deals with stress, when considered in the light of Knasel's finding, raises the possibility that Witkin's (1964) work on field dependence and psychosomatic disorders may be relevant to R.A.P.

2.4.2.0 Lines of Investigation: this Thesis.

The present study will examine a number of hypotheses which emerge from the above literature regarding psychosomatic disorders, insofar as they bear upon the specific condition of R.A.P. in children. A general statement of aim would be to examine certain psychological variables which may play a part in the production of psychosomatic abdominal pain in children. This will be addressed at two levels: intrinsic, namely the personality and cognitive factors which may engender the production of symptoms; and extrinsic, which may be the circumstances which the child experiences as 'stressful' in an ongoing manner. Specifically, comparing a group of children suffering from R.A.P. with an Organic Control Group, it is predicted that regarding:

(i) Social Maturity, Adjustment and Individuation.

(a) Hypothesis; that children with R.A.P. are significantly less 'socially mature', 'socially adjusted', and have a less 'individuated' sense of self, than children with organic abdominal pain.

(b) Background; from medical observations (see 1.3.1.0), and the

conclusions of Alvarez (1983; see 1.3.3.0), it may be suggested that children with R.A.P. are 'socially immature', and poorly 'adjusted' to their 'surroundings'. In addition, the work of Minuchin *et al.* (1978; see 2.3.2.0), if applicable to R.A.P. as Alvarez (1983) suggests, indicates that a child member of a 'psychosomatic family' would have a less individuated sense of self than other children.

(c) Test; the hypothesis regarding 'social maturity', 'social adjustment' and 'individuation' will be tested using the V.S.M.S. (see 1.3.2.0), the Bristol Social Adjustment Guide (Stott 1980), the S.I.R.T. (see 1.3.2.0) and the F.R.T.- total involvement to self score (see 1.3.2.0). The administration of the tests and the results are reported in Chapter 5.

(ii) Cognitive Factors

(a) Hypothesis; that children with R.A.P. exhibit the aspects of cognitive styles reported to be relevant to 'psychosomatic' disorders in the literature. Namely, children with R.A.P. will be more 'field-dependent' and 'alexithymic' than children with organic abdominal pain.

(b) Background; from the discussion on cognitive styles and psychosomatic disorders, specifically F.D. (see 2.1.3.0) and alexithymia (see 2.1.2.0), it would seem that a systematic difference in these cognitive styles may be present when comparing children with R.A.P. to children with organic pain.

(c) Test; this hypothesis will be tested by employing the Ravens Standard Progressive Matrices (S.P.M.; Raven 1983), the C.E.F.T. (see 2.1.3.0), the R.F.T. (see 2.1.3.0), the S.I.R.T. (see 1.3.2.0) and the F.R.T.- strong feelings to nobody score (see 1.3.2.0). The test administration and results are reported in Chapter 6.

(iii) The Eysenckian Dimensions of Personality

(a) Hypothesis; that there is no systematic difference between children with R.A.P. and those with organic pain, on the Eysenckian dimensions of 'E', 'N' or 'P'.

(b) Background; Knasel (1982; see 1.3.2.0), found no significant difference between children with R.A.P. and a group of children with organic pain on the dimensions of 'E' or 'N', as measured by the J.E.P.I.. Thus failing to support Eysenck's suggested 'preferential conditioning' of 'neurotic introverts' with reference to R.A.P. of childhood.

(c) Test; This hypothesis will be tested using the J.E.P.Q. (see 1.3.2.0). The test administration and results are reported in Chapter 7.

(iv) Family Dynamics

(a) Hypothesis; that children with R.A.P. will be members of families whose functioning is in line with that described by Minuchin et al. (1978; see 2.3.2.0).

(b) Background; from section 2.3.1.0 it can be seen that certain 'disorders' may be exacerbated by the characteristic functioning of the 'psychosomatic family'. It may be that this type of functioning is important in the occurrence of symptoms in children with R.A.P.

(c) Test; This hypothesis will be tested using the F.R.T. (see 1.3.2.0). In addition elements of tests which were administered to investigate other hypotheses, namely the B.S.A.G. 'withdrawal' score, the S.I.R.T., the R.F.T. (see 2.1.3.0), combined with the F.R.T.-total involvement of mother score, will be employed to examine specifically for the presence of 'enmeshment' in the children tested. The test

administration and results are reported in Chapter 8.

Chapter Three. Design of the Study.

- 3.1 Criteria for inclusion in the study.
- 3.2 Sample size.
- 3.3 Age range.
- 3.4 Clinical symptoms of the subject group.
- 3.5 Family history.
- 3.6 Experimental design.
- 3.7 Analysis

3.1 Criteria for inclusion in the study.

All the children tested in this study were referred to the Paediatric Department of Ysbyty Gwynedd, the local general hospital, complaining of abdominal pain.

The children who were placed in the Experimental Group (R.A.P.) had to have had a history of abdominal pain of no less than six months, with at least three episodes within that time. The episodes of pain had to have been severe enough to prevent the child from taking part in usual activities. Obviously, the pain must have been severe enough in the first instance for the parent to decide to consult his/her general practitioner, otherwise there would have been no referral to a Consultant Paediatrician. The children allocated to the R.A.P. group had undergone the standard battery of medical tests (see Chapter 4, 4.5), and also any other tests which were indicated clinically in their individual case, without any relevant organic pathology coming to light. If a child's reports of pain could be linked to a specific activity, e.g. school attendance, then that child was excluded from the study because, in the terms of the present study, 'R.A.P. of childhood' is a condition which, by definition, is not associated with specific events.

The children placed in the 'Organic Control Group'; on the other hand, were those who had been admitted to the hospital with abdominal pain of organic origin. In practice this meant acute appendicitis. The excised appendices were examined by post-operative histology to ensure they were indeed, infected.

3.2 Sample size.

The total number of children, both R.A.P. and Organic Controls, whose 'psychological' Test results were used in the study was 83. These comprised 48 R.A.P. Patients (i.e. those meeting the criteria of R.A.P.), and 35 Controls. The R.A.P. group consisted of 22 females and 26 males. The Organic Control group consisted of 15 females and 20 males (see Table 3.1).

	R.A.P	Organic Control	Total
MALE	26	20	46
FEMALE	22	15	37
Total	48	35	83

Table 3.1. Composition of Subjects by group and Gender

3.3 Age range.

The mean age of the R.A.P. group was 10.2 years with a range of 5.6 to 15.6 years. The mean age of the control group was 11.2 years with a range of 6.7 to 15.2 years.

3.4 Clinical symptoms of the R.A.P. group.

The symptoms associated with R.A.P. have been well documented (Apley

1975) as indicated above (1.3.1.0), and the symptoms associated with the abdominal pain for the R.A.P. group are summarised in Table 3.2. The average time for which these symptoms had been experienced prior to inclusion in the group was about 2 years 5 months, but with a wide range from 6 months to 6 years.

ASSOCIATED SYMPTOMS (n=48)

Pallor	Diarrhoea	Headache	Vomiting	Pyrexia	Leg Pain
17 (35.4%)	6 (12.5%)	16 (33.3%)	14 (29.2%)	15 (31.3%)	8 (16.7%)

Table 3.2 The number of the R.A.P. subjects exhibiting associated symptoms.

3.5 Family history.

Histories of family health were taken from a parent by the researcher. These histories included reference to operations and illnesses that the immediate family had experienced, and the parents were also asked about pains in the abdomen and migraine headaches in themselves and their other children. These inquiries found that nearly 87% of the R.A.P. group had one or more close relatives who suffered, or had suffered, migraine headaches or long-standing non-organic abdominal problems. For the control group the figure was 75%.

3.6 Experimental Design.

The study compared two groups of children over a range of psychological variables. One group, the R.A.P. group, had been diagnosed by a Consultant Paediatrician as suffering from R.A.P. of childhood (according to the criteria described in 3.1 above); and the other, the

Organic Control group, had been diagnosed as suffering from an organic disorder which produced abdominal pain. The aim was to have two groups of roughly the same numbers, with about the same numbers of males and females in each group, and with each group having approximately the same mean age and age-range.

However, because of the nature of working with a clinical population, and because testing took place over two separate days, nine children failed to attend for the second day's testing. This was most likely due to children who had had a short unpleasant illness not wishing to return to hospital, or to parents not 'seeing the point' of returning since their child was now well. This non-return or drop-out rate in this research study may be compared with the general rate of failure to attend for appointments at Paediatric clinics, which is said to be about 20% (Davies, 1987).

Another factor which reduced the sample size and affected its internal balance was that at the completion of the testing stage, the tester 'double checked' the group to which each child had been allocated. This was done using the child's medical records, and resulted in some children being withdrawn from the study because it was felt that they could not be classified safely into either the R.A.P. or Organic Control group.

The researcher who carried out the psychological tests worked 'blind.' That is, he did not know, at the time of testing, into which group the children had been classified. This prevented any systematic experimenter-effect on the psychological test-results. Testing was

carried out over two separate days, with a three month gap between the days. The schedule of testing over the two days was:

Day 1. CHILDREN'S EMBEDDED FIGURES TEST,
FAMILY RELATIONS TEST,
VINELAND SOCIAL MATURITY SCALE,
SELF IDENTIFICATION FORM OF THE REPERTORY GRID TECHNIQUE.

Day 2. JUNIOR EYSENCK PERSONALITY QUESTIONNAIRE,
RAVEN'S STANDARD PROGRESSIVE MATRICES,
ROD-AND-FRAME TEST.

(The Bristol Social Adjustment Guide was sent to each child's school by post, after written permission had been granted by the parents).

The reason for the three-month gap between the testing days, was to accommodate the 'Bannister and Agnew technique' (Bannister and Agnew, 1976), but it had to be dropped from the test battery due to difficulties in administration. It is a measure of 'self-differentiation', and consists of the child first being asked 10 questions by the researcher (the responses being tape-recorded and transcribed), and the child then being required to identify their own responses when they are presented, after a period of 3 months, with their own responses mixed in with other responses to the same questions from children the same age. The technique was originally included to provide data which would allow a comparison of 'self-differentiation' between the R.A.P. and Organic Control groups. Unfortunately, unlike Bannister and Agnew's original study (1976), the children experienced

great difficulty in answering the questions, despite encouragement from the researcher. As a result, many questions remained unanswered, and this in turn contributed to a paucity of responses available for comparison on the second day's testing.

3.7 Analysis.

Each of the hypotheses listed at the end of Chapter Two (2.4.2.0) was examined using 'discriminant analysis' (see e.g. Klecka 1980). Specifically, 'discriminant function analysis' was used, each of the particular test-results relating to an individual hypothesis being used to derive mathematical equations, which Klecka (1980, p.9) states may be used for:

"...the purpose of *classification*. These equations, called "discriminant functions," combine the group characteristics in a way that will allow one to identify the group which a case most closely resembles".

Discriminant function analysis allowed the simultaneous use of a number of independent variables, to predict group membership (i.e. the dependent variable). The difference between actual and predicted performance on the test-variables could then be tested for significance.

Discriminant function analysis assumes that the data-cases are members of two mutually exclusive groups, and that the discriminating variables are measured at the interval or ratio level of measurement. In addition, it is assumed that each group is drawn from a population which has multivariate normal distribution. Discriminant function analysis is a 'robust' statistical technique, in that it can tolerate some deviation from the assumptions listed. In particular, it is

"... not particularly sensitive to minor violations of the normality assumption" (Klecka 1980, p.61). The analysis was computed, and tested for significance, using the SPSS/PC+ statistical package; and the same package was used for the Pearson product-moment correlation coefficient, which was computed to examine the relationship between the C.E.F.T., R.F.T. and Raven's Matrices.

Chapter Four Organic Perspectives on the Study.

4.0 Introduction

4.1 Organic disorders of the gastrointestinal tract.

4.2 Organic disorders of the urinary tract.

4.3 Metabolic disorders.

4.4 Other organic conditions which produce abdominal pain.

4.5 Medical test battery.

4.6 Confusion in medical nomenclature.

4.0. Introduction.

It is necessary for any work concerning psychogenic R.A.P. to show that it has taken into account possible organic causes for such pain, and where possible controlled for them. For this purpose, medical advice was sought and a literature search undertaken, to identify such causes, suitable tests, and the logistics and ethical considerations concerning their administration. From discussions with the Consultant Paediatrician and from the literature review, a number of physical conditions were deemed to be relevant (that is to say, needing to be considered and excluded); the medical test-battery to be employed in the study was formulated; and some confusions of nomenclature in the area were identified. Discussion of these essential background considerations is the subject of this chapter.

4.1. Organic Disorders of the Gastrointestinal Tract.

4.1.1. Peptic Ulcer and Duodenal Ulcer.

This condition is rare in childhood. Features which are suggestive are severe pain located towards the right side or the middle of the upper abdomen towards the ribs (Pounder 1983, p.82), vomiting, pain at night/early morning, and a family history of related problems. Detection is by means of endoscopy, carried out after a suggestive history. Endoscopy was not part of the standard battery of medical

tests employed in this study.

4.1.2. Constipation.

Constipation is defined as the production of "excessively infrequent or dry stools" (Behrman and Vaughan 1983, p.889). It is not certain that constipation alone is a cause of chronic abdominal pain, indeed "most children who have constipation long term, have no pain" (Davies 1987, p5). In children with constipation, the history and physical examination are indicative.

4.1.3 Crohn's Disease.

This condition is uncommon. The disease causes inflammation of segments of the alimentary tract. According to Behrman and Vaughan (1983, p.923), "Most childhood cases appear in preadolescence or adolescence". Symptoms include crampy abdominal pain, weight-loss, fever, recurrent intestinal obstruction, and in time, diarrhoea. Crohn's disease is unlikely to be mistaken for non-organic abdominal pain. If the disease is present, then an erythrocyte sedimentation rate (E.S.R.) test would have a raised level. This test was part of the standard test battery employed in this study. If the E.S.R. is raised then further investigations are indicated.

4.1.4. Ulcerative colitis.

This chronic condition affects the large bowel and colon, causing inflammatory lesions in the mucosa. The commonest symptoms are diarrhoea containing blood, and lower abdominal cramps. The haemoglobin and full blood count (F.B.C.) tests from a sufferer would suggest further investigations. This condition is diagnosed once bacterial and parasitic causes have been eliminated, by sigmoidoscopy and biopsy. It is widely believed, for example by Dixon (1981), that psychological factors play a major role in the aetiology and maintenance of this

condition. Of particular concern is the fact that "...after some ten to fifteen years of symptoms there is a significant incidence of adenocarcinoma" (Jones 1976).

4.1.5. Hiatus Hernia.

This is "The herniation of part of the stomach into the thorax through the esophageal hiatus" (Behrman and Vaughan 1983). The main symptom is central upper abdominal pain radiating to the mouth, usually with vomiting. "There may also be stooping or lying, and anaemia" (Davies 1987, p.6). The history would be indicative of the condition, and if it were suspected a barium meal would be diagnostic.

4.1.6. Cholecystitis (Inflammation of the gall bladder).

This condition, which is rare in children, is characterized by recurrent right upper abdominal pain and tenderness, "especially after fatty foods" (Davies 1987, p.6). There may be fever and a "palpable mass on examination" (Behrman and Vaughan 1983, p.986). If the history and examination are indicative, then an ultrasound scan would be used to investigate.

4.1.7. Meckel Diverticulum.

This structure is a remnant of an embryonic duct, a blind-ending sac a few centimetres long, approximately seventy centimetres from the ileum. According to Behrman and Vaughan (1983, p.912), "2-3% of all people have a Meckel Diverticulum," and Davies (1987, p.6) says that they are often "silent and symptomless". The most common presentation is of painless rectal bleeding, due to the gastric cells in the Meckel producing erosions. However, abdominal pain may be associated with this condition and can be of two types: "...acute and due to Diverticulitis, with a clinical picture resembling that of acute appendicitis, or vague

and recurrent" (Behrman and Vaughan 1983, p.913). A Meckel's Diverticulum may sometimes be wrongly diagnosed as acute appendicitis, and the appropriate procedures carried out when the abdomen is open. "There is no good way of diagnosing Meckel's Diverticulum short of laparotomy" (Davies 1987, p.3).

4.1.8. Recurrent Intussusception.

An Intussusception occurs when a portion of the alimentary tract is telescoped into a segment ahead of it. If this occurs and is left untreated, it results in death, because of the obstruction formed. Chronic or recurrent intussusception is a variation on this, in which the intussusception reduces spontaneously. Current opinion suggests that this is rare (Behrman and Vaughan 1983, p.915; Davies 1987, p.7). The child would have severe recurrent abdominal pain and vomiting. There may also be blood in the stools. Over time, the child would present with an intestinal obstruction that did not reduce spontaneously. The intussusception would then be diagnosed using a Barium enema, or during an exacerbation of the chronic condition. During an exacerbation, physical examination of the abdomen may reveal a sausage-shaped mass. Bloodied mucus on rectal examination suggests intussusception.

4.1.9. Carcinoid Tumour.

These tumours are very rare, and are usually located in the appendix. The tumour secretes pharmacologically active substances which can cause "pallor, diarrhoea, abdominal pain, tachycardia, wheezing etc." (Davies 1987, p.7). The metabolite of the active substance is detectable in the urine of sufferers.

4.1.10. Abdominal Cysts causing sub-acute obstruction.

This again is rare. "It would present as an intestinal obstruct

-ion. That is: abdominal pain, vomiting, abdominal distension and constipation. It is diagnosed using an ultra sound scan (U.S.S.)" (Davies 1987, p.7).

4.1.11. Coeliac Disease.

This is the inability to tolerate wheat and rye gluten. The clinical features range from severe intestinal problems (constipation, malabsorption, distension) and anorexia, to near normal health. There may be a wide range of symptoms, the most common ones being diarrhoea, loss of (or decrease in) weight-gain and anaemia. Behrman and Vaughan (1983) do not cite abdominal pain as a major feature of the condition; Forfar and Arneil (1984, p.458), however, state that " In approximately 25% of cases there is a report of abdominal pain". Both sources agree that there may be a wide range of clinical findings.

Some patients, apparently with the same disease, remain perfectly well throughout childhood only to develop the typical symptoms in adult life. "A few cases diagnosed in adult life give a history of a previous episode of the same disorder in childhood, but most adult cases give no such history and are assumed to be of recent onset" (Forfar and Arneil 1984, p.457). Abdominal pain is not widely accepted as a common symptom of Coeliac Disease, but, given the varying presentation of the condition, it can be seen that an affected child could satisfy the criteria for inclusion in the experimental group.

The diagnostic technique which has a high rate of success at disclosing Coeliac Disease is the "Jejunal Biopsy". This entails the child having a catheter passed via the mouth, down the alimentary tract to the Jejunum. This is an unpleasant procedure and is carried out

under sedation. Once the physician has placed the catheter, an x-ray is taken to ensure it is situated in the correct area, then a biopsy of the Jejunum is taken. The Celiac Jejunum will have typical diffuse lesions in its cell structure.

For obvious ethical reasons, the Jejunal Biopsy could not be included in the standard medical test battery. It was the practice of the Consultant Paediatrician whose patients were used in this study, to carry out Jejunal Biopsies only in the presence of at least one of the symptom-group comprising weight-loss, diarrhoea and anaemia, and in the absence of any other positive pathologies.

This would seem to leave a small group of patients who may present with abdominal pain in the absence of other signs, who give negative test results to the standard medical battery and satisfy the six-month time criterion for inclusion in the study (see Chapter 3), but who nevertheless go on to develop the full-blown disease in later life. In fact this situation has never occurred in the experience of the Consultant Paediatrician involved in the present study. Apart from the Forfar and Arneil figures, no references were found suggesting abdominal pain as a major symptom of coeliac disease. In the light of these considerations, it can be said that we would be unfortunate to have even one "hidden" Coeliac Disease sufferer in the experimental group, in the sense that there was no reason to suspect that any of the children were from this notional sub-group of Coeliac Disease sufferers who present with abdominal pain as the sole symptom.

4.1.12. Pancreatitis.

"The pancreas is susceptible to inflammation due to the presence

of enzymes within it, which when activated can rapidly digest pancreatic tissue"(Behrman and Vaughan 1983, p952). Most cases occur after ten years of age, and can be attributed to specific causes such as mechanical trauma.

Chronic Pancreatitis, which is characterized by recurrent abdominal pain, steatorrhoea (fatty stools) and Diabetes Mellitus (Forfar and Arneil 1984), is very rare in childhood. The serum amylase level would be raised in a patient suffering from pancreatitis, and the routine test for this variable was one of the standard battery.

4.1.13. Missed Appendicitis.

Everyone is familiar with appendicitis in its acute form. If the appendix is not removed, peritonitis occurs; and, if there is no surgical intervention, death results within days. This contingency, however tragic in itself, does not bear directly on a study of chronic pain. However, if the appendix is infected and does not burst there are two other possibilities:

- (a) An appendix mass may be formed; this is when a mass, of a gangrenous nature, forms due to the infection;
- (b) An appendix abscess; as the name suggests, an abscess is formed as opposed to a mass.

In both conditions, the pain may last a few weeks, but there would also be vomiting, fever, diarrhoea and weight loss which would be indicative of the problem. Patients with either of these two conditions would not satisfy the six-month time criterion employed for inclusion in the experimental group, since neither could continue for that duration. If either were suspected, then an ultra sound scan (U.S.S.) would be diagnostic.

There is a small possibility that an abscess could discharge into the interior of the colon and thus avoid peritonitis (the contents being passed out in the usual manner, relieving symptoms), but this is unlikely.

4.1.14. Hirschsprung's Disease.

This is a congenital disorder due to the absence of ganglion cells in the bowel wall, resulting in abnormal bowel movements. "It is associated with recurrent sub-acute intestinal obstruction, with vomiting, pain and constipation. The child usually fails to thrive." (Davies 1987, p.11). This condition is diagnosed by rectal biopsy via sigmoidoscopy, although a barium enema may disclose its presence.

4.2. Organic disorders of the Urinary tract.

4.2.1. Hydronephrosis.

This is the dilation of the pelvis and of the calices of one or both kidneys, which results in obstruction to the flow of urine in the ureter or bladder. There is often a large abdominal mass. There may be flank pain and urinary tract infection. Any patient with flank pain was investigated using U.S.S. or intravenous pyelogram (I.V.P.), which is diagnostic (Forfar and Arneil 1984).

4.2.2 Recurrent Pyleonephretitis or Cystitis.

Pyleonephretitis is the bacterial infection of the kidney. The main symptom may be loin pain, although there may be others including fever and dysuria. Cystitis is a bladder infection with "central low pain radiating to the urethra, worse on micturition, associated with frequency and pain on passing of urine." (Davies 1987, p.8). Urinalysis was one of the standard tests given to patients, and both cystitis and

recurrent pyelonephritis would show pus and perhaps blood cells in the urine. If left untreated, the clinical features may subside over a period of weeks, but the infection may persist and recurrences are common (Behrman and Vaughan 1983).

4.2.3. Calculi.

These are stones in the kidney ureters or bladder. They may produce pain which may be chronic or "renal colic, the pain being severe but intermittent" (Davies 1987, p.9). "Usually there is microscopic haematuria and the pain may be in the loin or groin. There may be repeated urinary infections, and passing of the calculus" (Behrman and Vaughan 1983 p.1377). Patients with these indications are investigated using abdominal x-rays, U.S.S., or I.V.P.

4.3. Metabolic Disorders.

4.3.1. Ketotic Diabetes Mellitus.

Usually diabetic children present with polyuria (excessive secretion of urine), polydipsia (frequent drinking because of extreme thirst), polyphagia (excessive eating) and weight loss. However, they may present with acute abdominal pain and/or vomiting, and possibly tachypnoea. There would be sweet-smelling breath. The standard tests employed in this study would show the presence of both sugar and ketones in the urine.

4.3.2 Hypoglycaemia.

This is the state where there is an abnormally low blood glucose level. There are variable symptoms which may include sweating, pallor, fatigue, hunger, tachycardia, nervousness (Behrman and Vaughan 1983, p. 1428) and abdominal pain (Davies 1987, p.9). There may also be central

nervous system (C.N.S.) symptoms such as headache and confusion. Hypoglycaemia would be identified by blood glucose determinations (Behrman and Vaughan 1983, pp.1428-9).

4.3.3. Lead Poisoning.

This can be caused by children peeling, then chewing or licking, the paint from lead-painted toys or walls. If undetected, the typical pattern is one of episodes of symptoms. Lead can cause abdominal pain, but there would also be other signs (e.g. anaemia, changes in bone x-rays) and C.N.S. symptoms such as fitting, by the time it had progressed to that stage. However, such problems as a child occasionally visiting a relative's house which had lead-painted walls, and thus producing milder symptoms over time, can also occur.

4.3.4. Porphyria (especially acute intermittent porphyria) (A.I.P.).

Berhman and Vaughan (1983, p.488) state:

"The Porphyrias are a group of syndromes characterized biochemically by errors in pyrrole metabolism, and clinically by photodermatitis and visceral and neuropsychiatric complaints."

This is an hereditary condition, being dominant, and is relatively rare. In the present study, the possibility of A.I.P. is an important consideration, since recurrent colicky abdominal pain is often the presenting symptom. There may also be fits and other C.N.S. symptoms. All of the subjects of the present study had urine and stools checked for porphyrias as part of the standard medical test battery. However, these tests are not infallible, and in the quiescent stage they would not detect the condition. To have been certain, the blood would have had to be sent to Glasgow for a detailed analysis which was not available at the hospital at which the study was conducted. Detailed analysis "is impractical for all cases of R.A.P." (Davies 1987, p.10).

4.3.5 Hypercalcaemia.

This is an abnormally high concentration of calcium compounds in the circulating blood. "The classic symptoms are urinary stones, bones thinning in a characteristic manner upon x-ray investigation, and complaints of abdominal pain and constipation".(Davies 1987, p.10). If it is indicated , a serum calcium test is diagnostic.

4.3.6 Rare Aminoacalaemurias, e.g. Methylmalonturia.

These are more associated with recurrent vomiting than with abdominal pain. There may also be C.N.S. manifestations such as fits. Also this condition is more likely to occur in the first four years of life. Urine analysis for the condition would be indicative.

4.4. Other conditions producing abdominal pain.

4.4.1. Referred pain from chest or spine.

The usual causes for this are pneumonia, which may produce pain in the left or right abdomen; shingles, which has a dermatome distribution; and tumour of the spinal cord or bone (rare), which would be accompanied by paraplegic signs (Davies 1987). These conditions, and others, which produce referred abdominal pain would be picked up on clinical examination or, if missed, would exacerbate over the six-month time criterion for inclusion in the study.

4.4.2. Ovarian cysts.

These can produce recurrent lateral pain in girls. If torsion occurs, abdominal pain is produced often with nausea and vomiting (Berhman and Vaughan 1983). The cysts are detected using U.S.S..

4.4.3. Pelvic Inflammatory Disease, e.g. Salpingitis.

This type of infection occurs only in girls who are sexually active, which, in view of the age-range of the present study, would

imply sexual abuse. Vaginal discharge is produced, and pain is characteristically in the pelvic area of the abdomen.

This catalogue is not claimed to be an exhaustive list of conditions which may produce R.A.P.. Nevertheless, when considered in conjunction with the standard medical tests, which were given to each patient in the experimental group, it will provide a fuller picture of the medical screening employed in the study. The immediate purpose is to establish the medical context, which in practice comprises an awareness of the prevalent organic causes of R.A.P. and the technical means that were used to control for them.

4.5. Medical Test Battery.

The following tests were, except where indicated, administered to all the children in the experimental group. This resume of tests is based upon a summary supplied by Davies (1987).

4.5.1. Haemoglobin and Full Blood Count.

These would be used in detecting any gut disorder involving bleeding, e.g. peptic ulcer, hiatus hernia, Meckel's diverticulum, ulcerative colitis, Crohn's disease, polyposis etc.(as discussed above). They are also relevant to any gut disorders involving infection or inflammation (e.g. urinary tract infection, appendicitis, pelvic abscess, pancreatitis) and to miscellaneous disorders such as lead colic, sickle-cell anaemia, parasites, allergic disorders.

4.5.2 Erythrocyte Sedimentation Rate. (E.S.R.)

This blood test detects any inflammatory or infectious disorders.

A high E.S.R. is suggestive of an organic disorder, unless an alternative explanation can be found: a good, but not infallible, test for

hidden disease.

4.5.3. Blood, Urea and Liver Function Tests.

The blood and urea tests would detect renal and urinary problems, such as chronic pyelonephritis, stones or hydronephrosis. The liver-function tests would detect hepatitis, pancreatitis and gall bladder disease.

4.5.4. Serum Amylase.

This detects Pancreatitis.

4.5.5. Urine.

For (a) Protein - renal failure or infection; (b) Sugar - diabetes mellitus; (c) Microscopy - urinary infection, nephritis or stones; (d) Culture - urinary infection.

4.5.6. Urine and stools for Porphyrins.

This investigation is used to detect acute intermittent porphyria, but is not one hundred per cent effective (see 4.3.4.).

4.5.7. I.V.P. or U.S.S.

These tests were used if the pain was lateralized. Depending on the area scanned, different conditions may be detected: (a) Stones or anatomical abnormalities (e.g. Duplex kidney), which would give rise to infection producing pain, and may obstruct the flow of urine; (b) Gall bladder disease; (c) Ovarian cysts or pregnancy; (d) Appendix abscess or mass.

4.5.8. Post-operative histology.

All excised appendices were examined by post-operative histology. This ensured that the subjects in the Control group were indeed suffering acute appendicitis, and that any of the R.A.P. group who had happened to have had their appendix removed were not similarly affected.

Other tests which were used, if indicated, included:

4.5.9. Abdominal x-rays.

This test would have disclosed intestinal obstructions, certain renal stones and certain gall stones. Constipation would also have been detected.

4.5.10. Barium meal.

This test was used to detect Gastric Ulcer (G.U.), hiatus hernia, duodenal ulcer (D.U.), Crohn's disease, and may have been followed through for Meckel's diverticulum. Apart from the detection of hiatus hernia, this test is not one hundred per cent effective.

4.5.11. Barium enema.

This was used, when indicated, to detect intussusception, ulcerative colitis, Crohn's disease, polyposis and Hirschprung's disease.

If any of the children had symptoms which would have been better investigated by tests not listed here, those tests were used as indicated. However, this list covers the great majority of symptoms and conditions considered in the study, and of the tests used to investigate them.

4.6.0. Confusion in Medical Nomenclature.

Many of the psychological investigations concerning R.A.P., such as those of Knasel (1982) and Alvarez (1983) described above (1.3.0.0), remark on the number of other labels which have been used for the condition. These accounts, however, only list certain of the labels which appear in the medical literature, and do not comment on the difficulties which their use may have led to for any of the people

involved, such as patients, parents, teachers, G.P.'s and hospital staff.

The range of diagnostic labels occurring in the literature, which are synonymous (or at least have large overlaps) with R.A.P., is indicated by the following sample: Abdominal Migraine, Periodic Syndrome, Cyclical Vomiting, Abdominal Epilepsy, Irritable Bowel Syndrome, Spastic Colon, Colicky Bowel, Non-specific Mesenteric Adenitis and Chronic (Grumbling) Appendix. Some of these need to be expanded upon, there being a theoretical rationale behind the labelling, while others can be seen in terms of their purely descriptive nature. The evidence regarding 'Abdominal Epilepsy' as a clinical entity, for example, is well defined but questionable, and is discussed further in section 4.6.4. The reason for carrying out this review of terms is to show that the present study is dealing with the same group of clinical phenomena as are denoted by labels other than R.A.P..

4.6.1. Abdominal Migraine.

Migraine headaches in adults often lead to stomach upsets as well as to neurological symptoms such as visual disturbance. This is not questioned. It is also accepted that a child may have a migrainous attack, with associated stomach upsets. Krupp and Friedman (1953) suggest that the difference between attacks in adults and children is that for the child the abdominal symptoms are more prominent than the headache. It could be said that this is a different phenomenological emphasis within the symptomatology of the same condition, and therefore does not warrant a different diagnostic label. For example, a patient with multiple sclerosis is not diagnosed as having muscle wasting, although this is a prominent symptom in some cases, but not others. However, the

area in which the case for abdominal migraine, as an explanation for R.A.P., falls down is in claiming that children without migrainous headaches, who present with recurrent abdominal pain, may be classified as suffering from an 'abdominal migraine' (Farquhar 1956, discussed below).

Another claim, which is argued only tenuously, but can be seen throughout the literature, is that there do seem to be connections (a) between R.A.P. in childhood and migraine headaches in the near family, and (b) between the childhood pains and their future development in the patient (Apley 1975). It may be, however, that the relationship arises not, as it may seem, from different symptoms of the same condition being expressed at different ages, but rather from both symptom-patterns being viable 'psychosomatic' outlets. That is to say, the relationship may be to do with the aetiology, rather than with the overt channel through which it is expressed.

Farquhar (1956) considered 112 patients whom he diagnosed as suffering from 'abdominal migraine'. Of these, 34 suffered from migrainous headaches, and 84 suffered from recurrent abdominal pains. Seventy-two of the parents of the children in the sample suffered from migraine. Farquhar suggests that 'abdominal' migraine can account for the recurrent abdominal pains in the children who do not suffer migrainous headaches. No objective evidence has been put forward to support this, but commonly the label has 'caught on,' amongst practitioners. This is understandable when concerned parents are asking "What is it Doctor?" Thus Jones (1976, p234) writes:

"In view of the generally favourable outcome, the inevitable question "What is it doctor?" should be answered with a simple and full discussion, confirming that the pain is indeed real, and that stress may play some part. 'Abdominal migraine' is perhaps an acceptable label if one has to be given, such terms as 'visceral epilepsy' or 'psychogenic pain' are best avoided, for they may be frightening or offensive to the parents."

This can be seen to perpetuate the label of 'abdominal migraine' as proposed by Farquhar. The above is an example of "say this if pressed, but we know what we are talking about!" If this had to be adopted as a tactic by harassed practitioners, then it would be clearer if the 'abdominal migraine' label were given to the parents, but recorded as R.A.P. in the notes and literature as standard. However, the ideal would be for practitioners to explain to parents in a full and sympathetic manner, the nature of R.A.P., as far as is possible.

4.6.2. Periodic Syndrome.

Although this label is purely descriptive, as with abdominal migraine, its use does seem to have become widespread (e.g. Hull and Johnstone 1981; Illingworth 1983). The term 'periodic syndrome' has been used to describe the manner in which symptoms of R.A.P. may occur in regular patterns over time. The literature concerning 'periodic syndrome' illustrates the confusion in the area. Hull and Johnstone (1981, p.291), for example, see 'periodic syndrome' as being significantly associated with severe vomiting, but they go on to say:

"However in its milder form it merges with the clinical entity of recurrent abdominal pain."

Illingworth (1983, p.300), however, considers the 'periodic syndrome' to be intimately related to migrainous headaches, and refers to Apley's work (Apley and Mackeith 1962; Apley 1975):

"Recurrent headaches, fever, vomiting and abdominal pain are common symptoms in children. They may occur singly or in association. Some have looseness of the stools and the stools may be pale in the attacks. There may be any combination of those symptoms. The term commonly applied to the condition is "the periodic syndrome." It used to be called "cyclical vomiting" or "acidosis attacks."

Following from this:

4.6.3. Cyclical vomiting.

This term again is purely descriptive, focusing on the symptom of vomiting and its regular occurrence. Forfar and Arneil (1984, p.822) see this as a special case of the periodic syndrome, which has "vomiting as the prominent symptom." They say the attack may last "twelve hours to four days, with severe abdominal colic."

"Milder attacks may only be a period of constipation, some colicky abdominal pain and a sick looking pallid child, who is abnormally irritable and off food for 21-46 hours." (sic)

What this seems to mean is that such attacks may be recognised, essentially, from the child being pale and constipated, and having abdominal pain.

4.6.4. Abdominal Epilepsy.

Although abdominal pains and epilepsy had been connected as early as 1878, when Charcot noted pains in the abdomens of "hystero-epileptics" (Veith 1970, p.231), one of the earliest formal references to a connection was made by Still (1912). Still used the term "colicky abdominal pain" to represent the abdominal symptom. However, conjecture was given more support with the advent of reliable electroencephalographic (E.E.G.) equipment.

Moore (1945) was one of the first to utilize the new recording equipment in this context. He looked at six cases, four of whom were adults, and three of these four had had their abdominal pain since childhood. When the E.E.G. tracings for five of the patients were examined, two had no abnormalities, one had epileptiform spike and wave, and two had abnormal slow activity. When the anticonvulsant diphenylhydantoin was administered, there was relief from abdominal pain in five of the six cases. Moore suggested that the abdominal pains were an epileptic phenomenon, shown by "symptomatology, electroencephalography and response to anticonvulsant drugs." In a further study, Moore (1950) expanded on his earlier work and made it clear that he had not described overt epileptics who had abdominal symptoms. According to Moore's notion of abdominal epilepsy, overt fits may be absent or rare.

Knasel (1982, p.147), to some extent following Papatheophilou et al. (1972), has made three criticisms of Moore's work: (a) no criteria are given as to what is an abnormal E.E.G. tracing, and certainly they were not all specifically epileptiform (only one was); (b) in the 1945 study, five of the six patients had an organic history, three of which included head injury; (c) all but one of Moore's 1945 patients exhibited signs of overt epilepsy.

Despite these limitations, momentum for the recognition of the condition grew, and in 1951 Livingstone looked at fourteen children with periumbilical pain. E.E.G. tracings showed abnormalities in ten cases. These abnormalities had various patterns with no consistent

features. One child had an attack during the E.E.G. and showed high-voltage slow activity. Livingstone treated all fourteen patients with Dilantin (phenytoin), with the subsequent cessation in abdominal pain in eleven cases. He suggested that a diagnosis of abdominal epilepsy should first fulfil the following criteria: (a) recurrent paroxysmal attacks of abdominal pain followed by postictal-like exhaustion and sleep; (b) E.E.G. abnormalities; (c) a favourable clinical response to Dilantin therapy.

These would seem to be specific guidelines for diagnosis, but Apley et al. (1956) criticized the studies upon which they were based for lack of control and small samples. They went on to compare 133 children with R.A.P. with the same number who were free of pain. They found no significant differences in the E.E.G. readings between the groups, in any phases of the testing. They concluded that "As the sole manifestation of epilepsy, abdominal pain must be rare."

Papatheophilou et al. (1972) were critical of previous studies for not having clearly identified what "normality" was in E.E.G. tracings. Their study used children who had been diagnosed as having either R.A.P. or periodic syndrome or abdominal migraine. This can be seen as reflecting their dissatisfaction with the number of labels available concerning non-organic abdominal conditions in children. On examination of both waking and sleeping E.E.G.'s, they found that twenty-one (42%) of the fifty patients showed abnormal E.E.G. readings; but only eleven of these (i.e. 22% of the sample) included epileptiform spike, or spike-and-wave patterns. They followed up fourteen years later and found that only one of the patients had developed epilepsy, and that

that individual had shown a spike-and-wave E.E.G. originally. Papatheophilou et al. (1972) suggested that the finding of E.E.G. abnormalities other than spikes, or spikes-and-waves, should not be regarded as indicative of epilepsy being present.

Knasel (1982) suggests, from his review of the literature, that, on one hand, epileptiform tracings are found in only 70%-80% of people who actually have epilepsy, whereas, on the other, they are found in some 10%-15% of the normal population who by definition do not. Knasel's statement may need treating with some caution, but does represent a view quite different to that of Moore (1950). Concerning 'abdominal epilepsy' he concludes (p.152): "The condition, however, seems to be rare, and it would seem that in only a very small number of cases could the concept be used to explain R.A.P. in childhood." In confirmation of this judgement, Behrman and Vaughan (1983, p.1543) have subsequently stated:

"Some epileptiform children with psychomotor or grand mal seizures do have abdominal pain just prior to the onset of a convulsion, but abdominal pain as the only overt manifestation of epilepsy must, if it does occur, be extremely rare."

More recently, O'Donnell (1985, p.115) has considered the concept as follows:

"Abdominal epilepsy has been defined to include the classical features of epilepsy together with abdominal pain. There should be an aura, a prodromal or anticipatory feeling of attack, momentary loss of consciousness, paroxysmal and incapacitating abdominal pain with amnesia for the actual event even though the pain is well remembered.

This closely knit intellectual definition convincingly excludes most potential candidates. The definition is so comprehensive that I cannot recall seeing such a patient."

(In order to make sense of this somewhat informal appeal to personal clinical experience, we must assume that "comprehensive" means 'comprehensively exclusive'). Forfar and Arneil (1984) merely refer to the suggestion, made by some authors, of an epileptic "involvement" in the periodic syndrome. In her study of R.A.P., Alvarez (1983) reviewed the evidence (Apley et al. 1956; Papatheophilou et al. 1972) and dismissed the notion of abdominal epilepsy as unimportant.

If there is such a thing as abdominal epilepsy, defined in the way O'Donnell suggests, then it could be seen as a source of variability and error in the present study: for it could mean that there is a group of patients who satisfy the criteria for inclusion in the R.A.P. group but are not actually suffering from R.A.P. (but from something else). The main thrust of opinion in the literature is that, if it does exist, its incidence is small. This attitude may be satisfactory in clinical practice, where the rule is to look for the common things first, but it will not do in a research study. The three main criteria for a diagnosis of abdominal epilepsy must therefore be reviewed critically.

(a) The first criterion is recurrent attacks of abdominal pain, paroxysmal in nature with sleepiness. It is the nature of R.A.P. also that it comes and goes, and that the child is often tired after a bout of stomach pain.

(b) An abnormal E.E.G. reading is cited as being indicative of abdominal epilepsy, whether or not the child has an 'attack' at the time. Certainly this does not follow present procedures for diagnosis of, say, petit mal using E.E.G. equipment. Patten (1982, p.231) states:

"An E.E.G. is usually diagnostic, as a run of 2-3 c.p.s. spike-wave activity during an observed attack confirms the diagnosis. The reverse is not true and this is a second cause of misdiagnosis. In any epileptic patient the most frequent epileptic event seen on an E.E.G. is a short run of spike-and-wave activity. This does not mean that the patient has petit mal, unless the E.E.G. technician noted a clinical attack of petit mal at the same time." (emphasis added)

While Patten's 'strict' diagnostic criteria may be open to question, it does represent an alternative view to that expressed by the proponents of 'abdominal epilepsy'. Kiloh et al. (1981, p.64) had previously expressed similar reservations concerning the analysis of E.E.G. recordings;

"The so-called normal E.E.G. patterns now to be described are simply those that are most often found in people without demonstrable functional or structural cerebral abnormality. This stipulation in no way precludes their occurrence in patients who are manifestly ill; nor does it preclude the occurrence of statistically abnormal findings in people who in other respects satisfy the most stringent definition of normality."

(c) The third and, it would seem, most persuasive criterion, is the cessation of abdominal symptoms with anticonvulsant therapy. Although this indication has been widely accepted as diagnostic, there are, nevertheless, grounds for objection, due to the nature of the drug used.

Phenytoin, the drug used in the abdominal epilepsy studies, is a widely prescribed anticonvulsant, but the exact mechanism of its action is not fully understood. Rall and Schleifer (1990, p.440) state:

"The most easily demonstrated properties of phenytoin are its ability to limit the development of the maximal seizure activity, and to reduce the spread of the seizure process from an active focus."

Fits are caused by neural over-excitation occurring at some point in the brain, and (usually) radiating out to other areas (Lishman 1978). This being the case, an examination of the pharmacological properties of phenytoin may disclose whether its effect on abdominal pains may be understood in a different way from that adopted by the proponents of abdominal epilepsy. As to the neurochemical action of the drug, Argov and Mastiglia (1979) state;

"...phenytoin (diphenylhydantoin) interferes with neuromuscular transmission principally through a depressant effect on transmitter release."

Rall and Schleifer (1990) state:

"Phenytoin exerts antiepileptic activity without causing general depression of the C.N.S." (p.440);

"After absorption phenytoin is widely distributed in all tissues"(p.441);

"Phenytoin does, however, restore abnormally increased excitability toward normal"(p.440).

If, as Alvarez (1984) suggests, R.A.P. is due immediately to abnormal excitation of the muscle in the walls of the colon, Phenytoin may well act so as to suppress it directly, without having suppressed some notional antecedent cerebral dysrhythmia.

Rall and Schleifer (1990, p.452) also state:

"Phenytoin can induce complete remission of generalized tonic-clonic and certain other partial seizures, but does not completely eliminate the sensory aura or other prodromal signs."

This has obvious implications for the argument that abdominal epilepsy is the aura (abdominal pain), without the overt fit. Given the properties of phenytoin, and the nature of R.A.P., there can be seen to be two areas in which pharmacological action might serve to reduce pain.

(a) The cerebral mechanisms involved in 'psychosomatic' disorders are not fully understood, but what does seem clear is that at some stage the somatic response to external stimuli is mediated via the Central Nervous System. The activity at this 'interface' may be affected by the "elevation of threshold" action of phenytoin. Goodman et al. (1975, p.453) state;

"Its elevation of threshold is relatively selective for the cerebral cortex and hippocampus."

There is anatomical evidence tracing neural pathways, from the hippocampus to recognized centres of autonomic control. Patten (1982, p.100) states:

"The main fibre tract from the hippocampal area is the fimbria which is joined by other fibres from adjacent areas to form a dense bundle called the fornix, which sweeps posteriorly and then up and over anteriorly to distribute to all areas of the hypothalamus, but particularly to the mamillary body and parts of the thalamus."

Walton (1985, p.638), implicates the hippocampus in autonomic nervous system activity, stating:

"The hippocampus distributes many outgoing signals to the hypothalamus and other parts of the limbic system. Stimulation of other parts of the limbic cortex (the Cingulate gyrus and orbitofrontal cortex) can affect the respiratory and cardiac rate and blood pressure, facilitate movements induced by cortical stimulation elsewhere, and can produce licking, swallowing and changes in gastrointestinal motility and secretion, and various affective reactions (e.g. rage or docility, increased or diminished awareness).

From the above it can be postulated that phenytoin has a tranquillizing effect on 'psychosomatic' responses, which are mediated by the autonomic nervous system, at the cerebral stage of "processing."

(b) The second hypothesis about possible pharmacological action is as follows. Given that some explanations (e.g. Alvarez 1984),

suggest that R.A.P. is due to abnormal contractions of the colon, administration of phenytoin could act so as to reduce directly this abnormal peripheral excitability, thus lessening the muscular contractions at the local level. Regarding phenytoin's effects on the A.N.S. Bigger and Hoffman (1990, p.859) state:

"Except for phenytoin, the agents..., have no significant interaction with the A.N.S. most of the effects of phenytoin, if not all, arise from actions within the C.N.S.; vagal efferent activity is modulated, and the efferent traffic in cardiac sympathetic nerves... is reduced by phenytoin."

In fact, phenytoin has been used in the U.S.A. for the treatment of irritable bowel syndrome (I.B.S.). De la Torre *et al.* (1985) carried out a study looking at the efficacy of just such an application of phenytoin. They used two groups of forty patients, all of whom had been diagnosed as having I.B.S.. The experimental group were given 100mg. phenytoin three times a day (T.I.D.). The control group was given the apparently standard treatment of dicyclomine HCl 10mg. T.I.D., magnesium hydroxide 30ml. T.I.D., and either diazepam 10mg. twice a day (B.I.D.) or desipramine HCl 10mg. B.I.D. for sixteen weeks. The important point here is the result of the experimental group, as opposed to a psychological opinion of the 'standard' treatment. Table 4.1 below summarizes the results of the two groups. Table 4.1 gives figures as percentages of the subjects in the treatment group who fell into the categories from 'poor' to 'excellent', as judged by the experimenters who were 'blind' as to the treatment used, after the treatment was complete.

Experimenters' Subjective report of outcome	TREATMENT USED	
	Phenytoin	'Standard'
Excellent	21%	10%
Good	55%	35%
Fair	19%	47%
Poor	5%	8%

Table 4.1. Showing report of 'outcome' in patients with I.B.S treated with the standard protocol or phenytoin.
(De la Torre et al. 1985)

De la Torre et al. (1985) review a number of studies which demonstrate the effect of phenytoin in decreasing the activity of the colon and the terminal ileum, which implies some local action. They describe (p.668) the beneficial effect that phenytoin can have on:

"Anger, stress tension, irritability, sleep disturbances, anxiety, depression and impatience observed in psychiatric patients, with behavioural abnormalities."

They found significant improvements in emotional stress in the experimental group. They conclude that:

"... phenytoin by favourably affecting the emotional disorders and the gastrointestinal symptoms encompassing the irritable bowel syndrome, is a suitable drug, if not the drug of choice, in the treatment of the disease."

This study shows that phenytoin reduces the abdominal pain, through various mechanisms, in patients who show no epileptic characteristics whatsoever. From this it may be suggested that the drug has an action on the gut, quite separate from its anti-epileptic properties.

It is significant that more recent proponents of abdominal epilepsy have modified the criteria for diagnosis. For example, Galler *et al.* (1980) suggest: (a) Paroxysmal symptom pattern; (b) Abnormal (spike and wave or slow wave) E.E.G. during abdominal pain; (c) Impairment of consciousness during the course of the abdominal pain; (d) Post-ictal manifestations of drowsiness, confusion or sleepiness. They report that, in one hundred cases, they found only one who satisfied these criteria and then responded to anticonvulsant therapy. It could be said that the above criteria are no different from those satisfied by an epileptic patient having an epileptic episode coupled with abdominal pain; a phenomenon which is already widely documented (e.g. Behrman and Vaughan 1983), and does not support or give validity to the concept which Livingstone put forward.

This review of the evidence for and against the concept of 'abdominal epilepsy', suggests that there is no good reason to suspect that the R.A.P. group, in the present study, contained any children with 'abdominal epilepsy'.

4.6.5 Irritable bowel syndrome.

Some workers, such as Hamilton (1992), use this term as if it were synonymous with R.A.P., while others, such as O'Donnell (1985), do not. Barbero (1987, p.810) states:

"The predominant symptom in patients with the syndrome may be recurrent diarrhoea, constipation, fecal incontinence, vomiting or abdominal pain."

Descriptions of I.B.S. seem to be little more than 'bowel- oriented' accounts of R.A.P. in the infant and school-age child, with the type of stools produced by the child given special attention. However, the

accounts do acknowledge that the presenting school-age child usually has abdominal pain. For example, Pounder (1983) describes I.B.S. almost totally in terms of abdominal pain and diarrhoea, with a comprehensive description of the type of stools which may be produced.

Barbero and McKay (1983, p.940) describe a number of "common" secondary symptoms, such as headaches, facial pallor, dizziness, and blurred vision; and they suggest that "some disturbance of autonomic function" is involved. In the light of this, the overlap between I.B.S. and R.A.P. would seem to be considerable.

4.6.6 Spastic colon, Irritable colon, Spastic colitis.

In a number of texts (e.g. Spiro 1977, Behrman and Vaughan 1983) these descriptive terms, are considered to be less acceptable synonyms for the I.B.S., which has already been discussed. Nixon and O'Donnell (1976, Ch.20) state:

"Colon spasm. (Irritable colon). The history may include the relief of pain following defecation and the pelvic colon may be firmly palpable and tender. The condition has a psychosomatic component, but an antispasmodic such as Donnotal and a bulk-forming diet, may be helpful."

They see R.A.P. of emotional origin as being associated with nausea and vomiting, and describe it as usually being sited around the umbilicus. They go on to say that: "the most common factor triggering emotionally induced abdominal pain is some aspect of school life".

It is difficult to make any comment on this statement. There is no doubt that school problems can lead to reports of "tummy aches" to parents, and it is recognised that school life is a common source of stress or conflict, which may possibly affect some children so as to respond in a 'psychosomatic' manner. However, it should be remembered

that reactive pain to a known stressor is excluded by definition from R.A.P.. Criteria for inclusion in the experimental group of the present study are given in the Design section (Chapter 3 (3.1)).

4.6.7 Colicky bowel.

This label was put forward by Still (1909), and is sometimes used in general practice, but not nowadays found in the literature. The term is descriptive only.

4.6.8 Non- specific mesenteric adenitis.

It is not the purpose of this section to deny the existence of the condition known as 'mesenteric adenitis': it is rather to question the use of the label, and its diagnostic implications, as an explanation for R.A.P., at least when R.A.P. is defined by the criteria (especially concerning duration) used in the present study.

The mesentery is the double layer of peritoneum which supports the intestines by its attachment to the back of the abdomen wall. It contains some lymph glands, the inflammation of which is known as mesenteric adenitis. If, at surgery for 'appendicitis', the appendix is found to be normal, O'Donnell (1985, p.49) states that sometimes:

"...enlarged juicy mesenteric lymph nodes were found. The glands were then considered to be the cause of the symptoms."

O'Donnell reports that with the number of appendectomies which found no organic problem coming under general scrutiny, the surgeons concerned began to take more conservative approaches in the initial assessment. In a number of cases the symptoms decreased during observation, and following from this it became accepted practice to make the diagnosis of 'mesenteric adenitis', without operation. O'Donnell, however, casts doubt on the wisdom of this when he goes on to state (1985,p.49):

"It seems at present that many patients labelled as mesenteric adenitis would more honestly fit into the category, acute non-specific abdominal pain."

With regard to the time-criteria for inclusion in the present study, the mesenteric adenitis would have to be recurrent in nature, i.e. a period of pain, period pain-free, and so on. The aetiology of mesenteric adenitis makes it unlikely that it would fulfil the criteria for inclusion. There has to be a cause for the lymph glands in the mesentery to swell, the usual cause being infection. Infection can be split into two groups, viral and bacterial. A viral infection of this kind is relatively short lived (Davies 1987), and, in order to satisfy the time-criteria, there would have to be repeated viral infections. This seems unlikely. If the inflammation were due to bacterial infection, it would have been detected in the present study by the standard medical tests administered to the subject group.

O'Donnell (1985, p.50) says of the small group of patients that he considers to be suffering from mesenteric adenitis:

"The condition settles spontaneously or on antipyretics within 24-48hrs, but the abdominal pain, which is the worrying feature of the problem, usually settles or at least improves within 12hrs. In our experience recurrence is uncommon."

During the course of this study, anecdotal evidence has been noted concerning the observation of swollen mesenteric glands upon opening of the abdomen for reasons other than abdominal pain. This brings into question the role, if any, that swollen mesenteric lymph glands play in the production of abdominal pain.

4.6.9 Chronic or grumbling appendicitis.

These terms have lost the popularity they once enjoyed in the medical literature. The notion of an appendix which would inflame, causing pain and other symptoms, and then return to a normal state and repeat the cycle periodically, is now considered improbable.

O'Donnell (1985) carried out a survey over two years on 588 children who were admitted with acute abdominal pain of less than one week's duration. Of these, 299 were diagnosed as "Acute non-specific abdominal pain" (O'Donnell's term for R.A.P.); these 299 patients, included 22 who were readmitted once and two were readmitted twice. For the 24 readmissions, the diagnosis was "Acute non-specific abdominal pain" in 16, a normal appendix was removed in 6 cases, and 'acute appendicitis' was diagnosed in one eight months after first admission. O'Donnell (1985, p.58) concludes:

"It certainly provided no evidence for the existence of recurrent or chronic appendicitis or a grumbling appendix."

Some writers go further. For example, Fallis and Shandling (1983, p.944) conclude that "it is doubtful that chronic inflammation of the appendix ever occurs."

There is seen to be a few cases, where a child has had two-to- four weeks of episodes of pain and, after removal of the appendix, the post operative histology has shown the build-up of fibrous tissue within the appendix (Davies 1987). In those cases, the pain was situated for the two-to-four weeks in the right lower quadrant. These cases are currently being looked into, independently of the present study. The presence of fibrous tissue in the appendix, apart from pus

which indicates acute infection at the time of excision, implies previous infection and recovery.

However, anecdotal evidence from paediatricians in the clinical field, suggests that in some children who have no history of abdominal pain, fibrous tissue has been found in the appendix on excision, after the abdomen had been opened for reasons other than pain. From this it seems that the relationship between the build-up of fibrous tissue in the appendix and the occurrence of pain is not clear. One view (Davies 1987) is that there is a very small sub-group of patients with an infected appendix, whose pain is localised in the right lower quadrant, for up to four weeks before excision is necessary. The 6 months time-criterion for inclusion in the present study, would have prevented these patients from being included mistakenly in the experimental (R.A.P.) group.

It may be that children who have been diagnosed in the past as having had 'grumbling' or 'chronic' appendicitis, of more than four weeks' duration, would nowadays be regarded (in the absence of other indications) as suffering from R.A.P..

This Chapter has reviewed the 'screening' medical tests employed in the present study. It has been a weakness in the design of previous psychological studies examining R.A.P., that they have failed to consider and exclude organic pathology in a systematic and comprehensive manner (e.g. Alvarez 1983). Given the comprehensive medical screening employed in the present study, it would seem reasonable to assume that the R.A.P. group was not 'contaminated', by children with abdominal pain due to organic causes.

Chapter Five. Social Maturity, Adjustment and Individuation.

5.1.0.0 Introduction

5.2.0.0 Vineland Social Maturity Scale

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5.2.1.1 Scoring

5.3.0.0 Bristol Social Adjustment Guide

5.3.1.0 Core Syndromes

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5.3.1.4 Inconsequence

5.3.1.5 Hostility

5.3.2.0 Associated Groupings

5.3.2.1 Non-Syndromic Under reaction

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5.3.3.0 Scoring

5.4.0.0 The Self-Identification form of the Pole Repertory Technique

5.4.1.0 Materials

5.4.2.0 Training

5.4.3.0 Administration

5.4.4.0 Scoring

5.5.0.0 The Family Relations Test

5.5.0.1 Materials

5.5.0.2 Administration

5.5.0.3 Scoring

5.6.0.0 Results

5.6.1.0 Discriminant Function Analysis

5.6.2.1 Descriptive Statistics - Vineland Social Maturity Scale

5.6.2.2 Descriptive Statistics - Bristol Social Adjustment Guide

5.6.2.3 Descriptive Statistics - Self-Identification form of the
Role Repertory Technique

5.6.4.4 Descriptive Statistics - Family Relations Test

5.7.0.0 Discussion

5.1.0.0 Introduction.

From the clinical picture described in Chapter 1, it can be seen that some of the accounts in the medical literature, such as Galler et al.'s (1980) review of R.A.P., suggest that 'emotional problems' and

'maladjustment' may be present in children with R.A.P.. Galler et al. (p.44) state:

"Emotional maladjustment has been observed in other series of cases of R.A.P.. For example Heinild and co-workers concluded that 87% of their cases had some maladjustment, such as restlessness, defiance, jealousy, enuresis, tics, eating problems and even anxiety states and compulsive neurosis. However 65% of their control population of children without R.A.P. also showed maladjustment, a finding on which they do not comment. Other series studied also illustrated the high frequency of emotional disturbance, but did not provide a control population."

It has been stated previously (see 1.3.1.0) Apley (1975), describes the 'typical' R.A.P. child as highly strung, fussy and excitable, or anxious, timid and apprehensive, and a similar description is given by O'Donnell (1985). These descriptions are suggestive of a kind of general social immaturity or dependency. Knasel's (1982) study tested this hypothesis using the Vineland Social Maturity Scale (V.S.M.S.(Doll 1965)) which as we have seen above (1.3.2.0) is a questionnaire about a child's personal and social functioning, and can be completed at interview by a parent or carer. Knasel found no evidence to suggest that R.A.P. children (n=20) are 'socially immature', with the R.A.P. children scoring if anything slightly above the norm. Unfortunately Knasel did not compare R.A.P. children with Organic controls on this test. In the present study the V.S.M.S. (see below 5.2.0.0 for reference to Sparrow et al.'s (1981) revision of this Scale) was administered to the parents of both the R.A.P. group and the Organic Control Group.

Due to the V.S.M.S. being dependent upon parental judgement of the child's behaviour, and therefore being open to either over- or underestimation of the child's abilities, it was decided to obtain an independent assessment of each of the children's 'social functioning'. This was achieved by sending the *Bristol Social Adjustment Guide* (B.S.A.G.; Stott and Marston 1980), to each child's school, in order for it to be completed by the teacher most familiar with the child concerned. This also allowed evidence to be gathered about the child's social functioning among peers in a non-family situation; in fact, in the school environment, which as Alvarez (1983) specifically argues, may well be a difficult and stressful situation for a child with R.A.P.

Certain of the hypotheses in the area of 'psychosomatic disorders', such as Witkin (1964) and Minuchin *et al.* (1978), suggest that the 'psychosomatic individual' has a less differentiated sense of self. This may be due to the particular 'Cognitive Style' (See 2.1.3.0) of the individual, or to the way the individual has become 'enmeshed' within the family system (See 2.3.2.0). Knasel (1982) tested this hypothesis using the *Self-Identification Form of Kelly's Repertory Role Technique* (S.I.R.T.; Norris and Makhoul-Norris, 1976). This test is more fully described in section 5.4.0.0 below. Suffice it to say here that it gives the child the opportunity of either 'identifying with' (emergent pole), or seeing themselves as 'different from' (implicit pole), two other individuals within a triad of 'significant others' in the child's life. Knasel found that R.A.P. children (n=20), took the 'different from' option significantly more often than did organic controls (n=20). Regarding this finding Cheshire *et al.* (1987, p.193) state:

"Although this could be conveniently seen as a denial-motivated over-assertion of differentiation where none (or too little) is in fact felt, it also represents an avoidance by these children of the chance of perceiving themselves as qualitatively similar to, even though numerically different from, significant others."

Knasel suggests that R.A.P. children are unable or unwilling to "construe themselves as a person amongst other people". In this study, the S.I.R.T. was administered to the R.A.P. and Organic Control Groups, thus allowing an examination, with larger numbers, of Knasel's finding.

The administration of the *Family Relations Test* (F.R.T.; Bene and Anthony 1978) to the children in both groups, allowed one of its scales to be used in an additional investigation of self-differentiation or 'individuation': the scale in question is the 'total involvement of self' score; and the nature of the test is discussed in detail below (5.5.0.0). It was felt that this particular score from the F.R.T. would give extra information to enhance that from the S.I.R.T., as the child has more 'options' in terms of significant others in the F.R.T.; and the 'constructs' which the child has to use to construe her/his apperceptions of self and other people are 'supplied' in the materials of the test in this procedure, as opposed to being 'elicited' from the child in the first place as they are in the S.I.R.T..

Specifically the hypothesis under test was that children with R.A.P. are significantly more socially immature, maladjusted and less personally 'individuated' than children with appendicitis.

The results of the four tests administered were analyzed using discriminant function analysis, as discussed below (5.6.1.0).

5.2.0.0 The Vineland Social Maturity Scale (V.S.M.S.)

The V.S.M.S. was used to examine the 'social maturity' of the children taking part in the study. This allowed a replication of the work of Knasel (1982), again, with larger numbers, and was also in part due to the fact that Sparrow et al.'s (1981) comprehensive revision of (or replacement for) the V.S.M.S. was not available in Britain when the study commenced.

The V.S.M.S. was first formulated in 1935, and Doll (1965, p.1) describes its nature by saying that it

"...provides a definite outline of detailed performances in respect to which children show a progressive capacity for looking after themselves and for participating in those activities which lead toward ultimate independence as adults."

The scale consists of 117 items of social behaviour, which are arranged in "order of increasing average difficulty," related to chronological age. The 117 items are divided into eight categories;

SHG- Self help general	O- Occupation
SHE- Self help eating	C- Communication
SHD- Self help dressing	L- Locomotion
SD - Self direction	S- Socialisation.

Age-norms have been calculated, from North American standardisation data, and are assigned to each item. They are referred to in the scale as "life ages" (L.A.'s), and represent the mean age at which the item can first be performed. It is recognised that due to the nature and

make-up of the V.S.M.S., there may well be cultural differences between the populations of North Wales and the standardisation sample. It is also recognised that changes in social norms over time have occurred, for example in respect of looking after money or crossing the road alone. Typical items in the scale are:

Self-help, general.

8. (L.A. .45) Sits unsupported.

Sits upright on a hard, flat surface without support for indefinite period (about a minute). Balance may be unsteady, but body does not fall from erect spinal posture.

Occupation

71. (L.A. 8.5) Uses tool or utensils.

Makes some practical use of simple tools or utensils, such as hammer, saw, screw driver, household or sewing utensils or garden tools.

Self direction.

112. (L.A. 25+) Purchases for others.

Makes or approves major purchases outside of own or dependent's household's needs as an agent for others, involving responsibility and critical choice with mature discretion as to appropriateness and cost.

5.2.1.0 Administration

The procedure for using the Scale is that it is completed with someone who is "intimately familiar" with the child. In the present study this was the mother in all but one case. The researcher asked the informant about the items on the scale as they related to the child's usual functioning. The researcher retained the scoring sheet, and the items were started below the anticipated level of final performance. The researcher, in accordance with the V.S.M.S. instructions, avoided asking whether the child could perform the task in question, but rather asked if they do usually perform the task. The researcher and not the

informant made the scoring judgement, after obtaining from the informant as much detail as possible about the child's behaviour and performance on each item. The test took between 15-20 minutes to administer.

The researcher scored an item as plus (+), in accordance with the instructions (Doll 1965, p.10), if:

"...it seemed clear that the essentials for that item are satisfied and habitually performed without the need of undue urging or artificial incentive, or with only occasional assistance in case of special circumstances."

A score of minus (-) was given when the child (Doll 1965, p.11);

"..has not yet succeeded at all, or only rarely, or under extreme pressure or unusual incentive."

There are also scoring categories for formerly being able to perform an item but not doing so at the time of testing due to "special restraint or lack of opportunity" (Doll 1965, p.13), this being scored '+F'.

A score of '+ N.O'. was given when the subject was clearly capable of performing a task but had no opportunity to do so, "...due to grossly limiting circumstances". The reader is referred to Doll (1965, p.11) for a more detailed account of the use of the '+N.O.' score.

A plus/minus (+-) score was given for those items which were in the "transitional or emergent state: that is (items) which are occasionally but not ordinarily performed with full success" (Doll 1965, p.12).

The researcher asked questions of the informant (in ascending order of 'difficulty') until there had been two successive minus (-) scores in each category.

5.2.1.1 Scoring

The basal score is the highest of all the 'continuous plus (+)' scores, and this was added to the additional 'scattered plus (+)' scores, which produced the total number of items passed. Plus/minus (+-) scores were scored as half passes. Tables in the Manual were used to determine the 'age equivalents' for each total score. For example, a total score of 76.5 corresponds to an "Equivalent Social Age Value" (S.A.) of 9.8 years. A Sociality Quotient (S.Q.) was then calculated using the formula;

$$\text{Sociality Quotient} = \frac{\text{Social age equivalent}}{\text{Chronological age}} \times 100$$

An S.Q. of 100 is an 'average' score, and the manual suggests that the S.Q.'s are statistically and methodologically comparable to 'old-style' Binet I.Q.'s.

The V.S.M.S. not only enabled Knasel's (1982) work to be replicated, but also produced a structured behavioural description of the functioning of the child in question, which contrasts with the subjective descriptions which are found in the literature. Additionally, involving the mother in the procedure may have improved understanding of the study, and hence compliance.

Knasel (1982, p.174) raised some concerns regarding the number of subjects used to produce the normative data (only 620), and cautioned against "assigning too much significance to the obtained S.Q.'s." He also criticised the extent to which the scale relied upon experimenter

judgement, which may lead to experimenter bias, in terms of the subjective impression of the parent-informant. This criticism is not applicable to the present study as testing was done 'blind', and therefore there is no reason to suspect a selective bias for either group of mothers. In addition, the employment of the B.S.A.G. in the present study, allowed the performance of the two groups to be rated 'independently'.

5.3.0.0 The Bristol Social Adjustment Guide.

The B.S.A.G. is, essentially, a questionnaire addressed to a teacher who knows the child well, about his/her typical behaviour and apparent attitudes towards both other children and staff. Stott (1980, p.7) describes the B.S.A.G. as providing

"A means of detecting and assessing behaviour disturbances (maladjustments) in children aged five to sixteen years within a school setting."

The guide consists of seven sections:

- | | |
|-----------------------------|---------------------------------|
| 1) Interaction with teacher | 2) School Work |
| 3) Games and Play | 4) Attitudes to Other Children. |
| 5) Personal Ways | 6) Physique |
| 7) School Achievement. | |

Within each section, phrases are grouped in paragraphs under headings related to particular aspects of that section. Where appropriate there is a 'n.n' (nothing noticeable) category within the paragraph. For example:

Greeting teacher:	INTERACTION WITH TEACHER Waits to be noticed/ hails teacher loudly/greets normally/ can be surly/ never thinks of greeting/ is too unaware of people to greet/ n.n.
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	GAMES and PLAY
Informal Play:	Plays childish games for his age/ plays sensibly/ healthily noisy and boisterous/ tries to dominate and won't co-operate when he can't get his own way/starts off others in scrapping and rough play, disturbs others' games/ shrinks from active play/ has his own special solitary activity/ n.n.

The instructions for the teacher, written on the top of the form, requested that the phrases which described the child's behaviour or attitudes over the past month or so were underlined. It was permissible to underline more than one item in each paragraph, but no item was to be underlined unless it definitely applied to the child. If an item seemed inappropriate, for example because of age, it could be ignored. There was space in the guide for the teacher to add any comments they wished. The guide takes about 15 minutes to complete for each child. Stott (1980, p.8) states that:

"The B.S.A.G. is thus in no sense a forced-choice check list or a rating scale. It has been designed so as to give the maximum freedom of recording and to avoid forcing teachers to make decisions which they feel are artificial."

Two forms of the B.S.A.G. were used, depending on the sex of the child. The B.S.A.G. has two main scales representing the under- and over-reacting modes of maladjustment; scores within these scales may be grouped as 'core syndromes' and 'associated groupings'. Stott (1980, p.8) explains that:

"... certain fundamental processes of the behavioural system may get into a state of dysfunction in standard, recognisable ways. When this occurs we may speak of handicaps or impairments of temperament. These temperamental handicaps are represented by the five Core Syndromes (Unforthcomingness, Withdrawal, Depression, Inconsequence and Hostility) which form the basis of the assessment."

Regarding the items classified as Associated Groupings Stott (1980,

p.8) states:

"They are those which have been found to be good indicators of under-reacting or over-reacting maladjustment without being specific to a syndrome. On the over-reacting side they reveal the style of response of a maladjusted child to his social environment."

5.3.1.0 Core Syndromes

5.3.1.1 Unforthcomingness

Stott (1980, p.11) describes this as a "handicap of temperament (that) appears to be a deficiency of effectiveness-motivation...", and he goes on to suggest (p.11), that children who fall into this category "... (may) take few initiatives, and it is difficult to get them to respond."

5.3.1.2 Withdrawal

Stott (*ibid.*) describes this syndrome as the "...variations of unresponsiveness which fall within this range (often loosely described as autism...)". The items in this section essentially cover at any failure in expected communication.

5.3.1.3 Depression

Stott (*ibid.*) describes this as: "...a lack of response to the stimuli to which children normally respond." Stott suggests that 'Depression', may be seen by the teacher as lethargy, lack of energy, or laziness. It is important to note that this section does not claim to measure 'Clinical Depression', as described by the D.S.M.III-R and familiar to mental health professionals; and it may best be construed in the sense of a 'depressed' (i.e. less than normal) level of responsiveness/activity.

5.3.1.4 Inconsequence

Stott describes this as a measure of 'impulsivity' that is to say a lack of inhibition of "first response-impulses" which come to a child's mind. Stott states (ibid.):

"The child thus behaves in ways which are unsuitable, or harmful, or annoying to other people, and he is forgetful of the bad results of previous actions in the past (poor conditionability)."

Stott goes on to say that the child may react in a similar way when confronted with learning tasks, resulting in failure and discouragement. Or the child may avoid such tasks, and develop hostile attitudes (as a means of 'defence' against fear of failure) towards other people's attempts to get him to learn.

5.3.1.5 Hostility

Stott distinguishes between aggressiveness and Hostility, stating (ibid.) that Hostility is:

"...a primitive response, compounded of attack and avoidance, the motivation of which is to sever a love relationship which is construed as unreliable or disappointing."

Examples of Hostility are: refusal to respond to friendliness, aggressive or provocative acts, or running away or otherwise removing him/herself from home.

5.3.2.0 Associated Groupings

These groupings comprise items within the Guide, which have been found to be "...good indicators of under-reacting or over-reacting maladjustment without being specific to a syndrome". They have been classified under the following group-labels: Non-Syndromic Under-

reaction, Peer Maladaptiveness, and Non-Syndromic Over-reaction.

5.3.2.1 Non-syndromic Under-reaction

In Stott's words:

"The items in this grouping should be interpreted as supporting whichever of the under-reacting core syndromes (Unforthcomingness, Withdrawal, Depression) is present."

5.3.2.2 Peer Maladaptiveness

The items in this grouping concern anti-social or hostile attitudes towards other children, and are closely related to Inconsequence or Hostility. Stott suggests that these items should be interpreted in the light of whichever of Inconsequence or Hostility is scored more highly. For ease of analysis, Stott categorises the behaviours which comprise Peer Maladaptiveness according to the following categories: Aggressive, Domineering, Lack of control and Evidence of unpopularity.

5.3.2.3 Non-Syndromic Over-reaction

The items comprising this grouping are again related to Inconsequence and Hostility. The items are grouped under: Delinquency, Peer-group deviance and Defiance of social norms.

5.3.3.0 Scoring

The B.S.A.G. forms were sent to the headteachers of the appropriate schools, with an accompanying letter in both English and Welsh (see Appendix 1).

When the completed forms were returned to the hospital, they were scored using transparent templates which were fitted over each page of the schedule. The template assigns a letter code and numeral to each item which described maladjusted behaviour. The items describing well adjusted behaviour were not scored. The corresponding codes were ringed on a scoring 'Diagnostic form.' All of the items which were ringed were scored as 1, for the purposes of the totals. There is no weighting for severity of maladjustment. Stott suggests that the total number of items scored reflects severity.

5.4.0.0 The Self-Identification Form of the Role Repertory Technique.

Knasel (1982) used this derivative of the Role Repertory Test (the S.I.R.T.; see section 1.3.2.0) with R.A.P. children (n=20) and compared them with an Organic Control Group (n=20). The technique allows the child to take themselves as an 'element', that is, as an individual to be adjudged according to a construct (see 1.3.2.0), and to construe themselves for similarity ('emergent pole') or difference ('implicit pole'), as one of the elements in a standard 'triad'. Cheshire et al. (1987, p.192)) explain this as:

"That is, we ask him to choose two other people from a range of elements to form a group with himself such that two of the 'triad' have some quality in common which is lacked by the third."

Knasel found that R.A.P. children used the 'implicit' pole, that is construed themselves as different from the other two members of the 'triad', significantly more often than did organic Controls. Knasel interpreted this finding in terms of the R.A.P. child not having "self available as an object", in order to be able to construe comparisons with the other elements. Thus the 'self-identification system' was concluded to be less differentiated or developed in the R.A.P. children.

The S.I.R.T. was administered to both the R.A.P. and organic control group in the present study.

5.4.1.0 Materials

The materials for the S.I.R.T. consisted of a total of 30 pieces of card covered with clear cellophane. Cellophane was used as it was found to be a suitable surface for the water-soluble marker which was used to write the elicited 'elements'.

5.4.1.1 Training.

The children were asked to name 3 animals that they knew. The researcher then wrote these onto three cards, and said:

" Can you tell me a reason how two of these animals are the same, in a way that makes them different to the other one?"

If there was any difficulty the researcher suggested a 'difference', for example "A lion has four legs but a fish does not". It was emphasised that there were no 'right or wrong' answers, and the test was introduced very much as a 'game'. This procedure was repeated until children had demonstrated that they clearly understood the nature

of the task.

They were then asked about the kind of cartoon programmes that they watched on television. Characters from one of these programmes were elicited from the child, and the procedure repeated as with the animals. With the cartoon characters the child was encouraged to give reasons that concerned what the character was 'like'. Again this was repeated until the child had demonstrated she/he understood the nature of the task. During training, the child was instructed not to repeat the same types of difference; that is to say, not to use the same constructs in subsequent comparisons. This was important for the ratings of 'emotionality' of the constructs (see Chapter 6).

5.4.3.0 Administration

When the child had satisfactorily completed the training, the researcher elicited 15 further elements, this time in terms of 'significant others' in the child's life. The child was asked to supply names of immediate family, then some aunties, uncles, friends etc. The sixteenth and final element was the child her-/himself. The 16 cards were arranged in front of the child and the card with her/his name brought forward separate from the other 15. It was then explained that the child should choose 2 further cards from the 'significant other' elements. The researcher gave the following instructions:

"Think of two people from the names we have written on the cards and bring them down so they are by your name. Now think of a way in which two of the people whose names are in front of you, are the same and that makes them different to the other one, just like you did with the people from the cartoon."

Once the child had made a selection, and thereby composed a 'triad',

this was recorded by the researcher; and the 'construct' elicited from the child by means of that triad was also recorded. The two chosen elements were then returned to the main group of elements. The procedure was repeated with different self-selected triads until 10 constructs had been elicited from each child. In each case, the children had the chance either of 'identifying' with one of the 'elements' or of seeing themselves as different from both the other two elements, - according to which 'pole' of the construct they choose for themselves.

5.4.4.0 Scoring

A score of 'one' was recorded each time the children completing the S.I.R.T. adjudged themselves to be different from the other two 'elements' in the triad: that is to say, every time they construed themselves on the implied pole of their constructs.

5.5.0.0 The Family Relations Test. (F.R.T.)

The test is subtitled 'An objective technique for exploring emotional attitudes in children,' (Bene and Anthony, 1978), and the aim of the test is to create for the child a miniature life-situation through the medium of a stylised scenario. The child is invited to play a game in which cardboard figures represent the child's family or household. The childhood form of the test was used in the present study, which the manual states is suitable for children aged 7-15yrs. In the interests of consistency this version was administered to all the children who took part in the study, including three children under the age of 7 years.

5.5.1.0 Materials.

The test material consists of 20 figures drawn in outline, which represent individuals of various sex, shape, size and age. Each figure is attached to a cardboard box, which has a slot in the top. The test Manual suggests that the stereotypic nature of the representations allows the 'set' of cardboard figures to represent members of any child's family, and that when suggestion is used by the examiner the 'set' may become a specific family. The children are invited to choose figures from the set of 20 to represent themselves and members of their family. The family is interpreted in the sense of 'household', and this is explained to the child, since there may well be 'significant others' living in the house and the test accommodates their inclusion. The children are invited to arrange the figures in front of themselves in the order that best represents the family to them. A figure is added by the researcher: 'Mr. Nobody', whose drawing is that of the rearview of a man wearing a hat. The test contains 86 item cards, each of which describes a feeling about a potential relationship which the child might have with a member within the family. The item cards comprise 11 sub-categories:

Mild positive outgoing feelings.

Strong positive outgoing feelings.

Mild negative outgoing feelings.

Strong negative outgoing feelings.

Mild positive incoming feelings.

Strong positive incoming feelings.

Mild negative incoming feelings.

Strong negative incoming feelings.

Paternal overindulgence.

Maternal overindulgence.

Maternal overprotection.

Cards classified as 'Outgoing', represent the child's feelings towards other members of the family, while 'Incoming' represent the child's perception of how the family feels or acts towards her/him. 'Positive' and 'negative' describe the quality of the feeling expressed in each message. Examples of item cards and their classification are:

- Mild positive outgoing.
- 09 "This person in the family is very kind-hearted."
- Strong negative incoming.
- 77 "This person in the family does not love me."
- Maternal overprotection.
- 86 "Mother is afraid to let this person play with rough children."
- Paternal over-indulgence.
- 93 "This is the person in the family father spends too much time with."
- Maternal overindulgence.
- 97 "This is the person in the family mother spends spoils too much."

5.5.2.0 Administration.

The researcher 'shuffled' the item cards before they were presented to the child. The researcher was to ensure that the first 4 and the last 2 cards were of a positive nature, and that there was not a high number of items from the same category in any 'run' of item cards. If it was obvious the child had no problems reading written English, then she/he was told to read the card and 'post it' to the person that it best 'fits'. Where necessary the researcher read the card items to the child, who was then given the card to 'post'. If the child stated that

an item applied equally to more than one member of the family this was recorded by the researcher. If the child decided that the statement on the card did not apply to anybody in the family, then it was sent to 'Mr. Nobody.' The test took about 25-30 minutes to administer.

5.5.3.0 Scoring

The children's scores were calculated by emptying the boxes, and entering the code-numbers of the posted cards in the appropriate spaces on the record form. For the purposes of this analysis, only the total involvement to self score was considered, i.e. the number of cards of all categories that the children 'posted' to themselves.

5.6.0.0 Results

5.6.1.0 Discriminant Function Analysis

Seventy-eight cases were processed in the analysis, due to the procedural difficulties previously mentioned (chapter 3, 3.6). The discriminant function analysis showed that the function produced from the group's (n=78) performance on the V.S.M.S., B.S.A.G., S.I.R.T. and the F.R.T. did not significantly predict group membership ($p = 0.1883$). Table 5.1 shows the results of the discriminant function analysis. This means that the present study has produced no evidence to suggest that children with R.A.P. differ from children with appendicitis, in terms of (a) social maturity, (b) school and family adjustment or (c) personal individuation.

Wilks' Lambda	Chisquare	D.F.	Significance
0.9034	7.464	5	0.1883

Table 5.1 Results of the discriminant function analysis

Standardized canonical discriminant function coefficients indicate the relative importance of each independent variable to the function: the larger the magnitude the greater the contribution to the function, regardless of sign. The values of these coefficients, for the five sets of test-scores described in this chapter, are shown in Table 5.2. It can be seen that performance on the S.I.R.T. was the most important independent variable in contributing to the discriminant function, and that this was followed by the B.S.A.G. 'total under-reaction' variable. Relatively, the least important variable, in terms of its contribution to the discriminant function, was 'total involvement to self' in the F.R.T..

	FUNCTION 1
S.Q.	-.45088
S.I.R.T.	.64559
F.R.T./T.I.S.	-.02778
B.S.A.G./T.U.R.	.51719
B.S.A.G./T.O.R.	-.06262

Table 5.2 Standardized canonical discriminant function coefficients of five test scores

Information regarding the performance of the discriminant function analysis, in relation to predicted and actual group membership for individual cases is shown in Table 5.3. It can be seen from that Table that, of the 45 cases of children with R.A.P. (Group 1), 35 (77.8%) were correctly classified to belong to that group and that 10 (22.2%) were misclassified to belong to the Organic Control group (Group 2). Of the 33 children with appendicitis, 14 (42.4%) were correctly classified and 19 (57.6%) were misclassified into the R.A.P. group (group 1). Overall, 62.82% of cases were correctly classified.

		Predicted Group Membership	
Actual Group	No. of Cases	1	2
Group 1	45	35 (77.8%)	10 (22.2%)
Group 2	33	19 (57.6%)	14 (42.4%)
Percent of 'grouped' cases correctly classified = 62.82%			

Table 5.3 Classification Results

The following sections show the descriptive statistics for the two groups on the tests administered.

5.6.2.0 Descriptive Statistics

5.6.2.1 Vineland Social Maturity Scale

Table 5.4 shows the mean S.Q.'s, range and standard deviations for the two groups. The R.A.P. group's mean S.Q.'s are higher than those of the Organic Control Group though not significantly so ($t=1.3$, $p>0.05$) and

a similar difference can be seen between the males and females. This finding is in line with Knasel's (1982) results (see 1.3.2.0) which found that children with R.A.P. scored above the 'average' on the V.S.M.S., and therefore (on the face of it) did not comprise a sub-sample of children with some social developmental delay. It can be seen that possible maternal over-estimation of the child's ability may affect this test.

	MEAN	RANGE	S.D.
R.A.P gp.(n=48)	98.61	73.85-139.65	12.97
R.A.P. Males (n=26)	97.10	73.85-139.65	14.36
R.A.P. Females(n=22)	100.41	73.85-129.23	11.18
Organic Control gp(n=35)	94.88	74.91-120.68	12.876
Organic Control Males(n=20)	94.06	75.61-119.99	13.09
Organic Control Females(n=15)	95.97	74.91-120.66	12.96

Table 5.4 Social Quotient Mean Scores, Ranges and Standard Deviations by Group and Gender.

At a superficial level it could be said that children suffering from R.A.P. are functioning at a higher socio-maturational level than the children in the control group, however it must be remembered that this difference is not significant. In line with this, it is necessary to bear in mind the hypothesis that due to possible overprotection (Knasel, 1982), and the oversolicitous/demanding (O'Donnell, 1985) characteristics of the mother's of R.A.P. children, that they

systematically idealize or over-rate the child's actual behavioural performance.

5.6.2.2 Bristol Social Adjustment Guide

The following tables show the modal values, ranges and number of cases scoring above the relevant 'cut-off' point (where available), as supplied by the test-Manual for; (a) 'total under-reaction', (b) 'total over-reaction', (c) the 'core syndromes' and (d) 'associated groupings' scores on the B.S.A.G.. It can be seen from the tables that there was little difference between the two groups with reference to Stotts cut-off points. The core-syndrome which produced the greatest variance in results was 'Unforthcomingness'. Chi-square analysis showed there to be no significant difference between the two groups regarding distribution across cut-off points on 'Unforthcomingness' ($p > 0.2$). It was therefore decided that further analysis of the B.S.A.G. data would be redundant.

Inspection of the raw scores for male Controls showed there to be one extremely high value which was 'skewing' the figures. This value was removed for the purposes of analysis.

(a) Total Under-reaction:

The breakdown of the raw scores by Gender, compared with Stott's (1980) cut-off scores for 'Maladjustment', showed that the R.A.P. Group (n=46) had zero female patients scoring above the cut-off, and two male patients scoring above the cut-off. The modes for both males and females were zero. Of the children in the Organic Control group (n=32) one female and four males scored above the cut-off. Table 5.5 shows the modal values for 'total under-reaction' by Group and Gender.

	Mode	Range	No. Cases above Cut-Off (>9)
R.A.P. Gp.(n=46)	0 (n=20)	0-14	2
R.A.P. Males(n=24)	0 (n=11)	0-14	2
R.A.P. Females(n=22)	0 (n=9)	0-7	0
Organic Control Gp.(n=32)	0 (n=9)	0-17	5
Organic Control Males(n=17)	0 (n=5)	0-16	4
Organic Control Females(n=15)	1 (n=5)	0-17	1

Table 5.5 Total under-reaction: Modes, Ranges and Number of Cases Above Stott's Cut-off for Dysfunction, by Group and Gender

(b) Total Over-reaction:

A breakdown of the Group-scores showed that in the R.A.P. group (n=46) one male scored above the cut-off for 'Maladjustment', as did two males in the Organic Control group (n=32). Table 5.6 shows the modal values for 'total over-reaction' by group and gender.

	Mode	Range	No. Cases above Cut-Off (>12)
R.A.P. Gp.(n=46)	0 (n=20)	0-14	1
R.A.P. Males(n=24)	0 (n=9)	0-14	1
R.A.P. Females(n=22)	0 (n=11)	0-5	0
Organic Control Gp.(n=32)	0 (n=22)	0-15	2
Organic Control Males(n=17)	0 (n=11)	0-15	2
Organic Control Females(n=15)	0 (n=11)	0-6	0

Table 5.6 Total over-reaction: Modes, Ranges and Number of Cases Above Stott's Cut-off for Dysfunction, by Group and Gender

(c) Core syndromes (under-reaction)Depression

	Mode	Range	No. Cases above Cut-Off (>2)
R.A.P. Gp. (n=46)	0 (n=40)	0-3	2
R.A.P. Males(n=24)	0 (n=20)	0-3	1
R.A.P. Females(n=22)	0 (n=20)	0-3	1
Organic Control Gp. (n=32)	0 (n=26)	0-4	3
Organic Control Males(n=17)	0 (n=14)	0-4	2
Organic Control Females(n=15)	0 (n=12)	0-4	1

Table 5.7 Depression Syndrome: Modes, Range and Number of Cases Scoring in the Moderate and above categories by Group and Gender

It follows from Table 5.7 that there was definitely no tendency for the R.A.P. children to be observed as more 'lazy' or having 'less energy', than their peers who had some 'organic' illness, when rated relatively 'blind' by a teacher for their social adjustment to the school situation.

Unforthcomingness

	Mode	Range	No. Cases above Cut-Off (>4)
R.A.P. Gp. (n=46)	0 (n=24)	0-7	8
R.A.P. Males (n=24)	0 (n=13)	0-7	5
R.A.P. Females (n=22)	0 (n=11)	0-6	3
Organic Control Gp. (n=32)	1 (n=10)	0-9	6
Organic Control Males (n=17)	0 (n=5)	0-8	4
Organic Control Females (n=15)	1 (n=6)	0-9	2

Table 5.8 Unforthcomingness: Modes, Range and Number of Cases Scoring in the Moderate and above categories by Group and Gender

This was the core-syndrome with the highest number of children scoring in the 'moderate' and above categories as supplied by Stott. However Chi-square analysis showed there was no significant association between group membership and scoring above or below the cut-off point (chi sq.=0.02, d.f. 1, $p > 0.20$) i.e. none significant at the 20% level.

Withdrawal

	Mode	Range	No. Cases above Cut-Off (>1)
R.A.P. Gp. (n=46)	0 (n=42)	0-2	1
R.A.P. Males (n=24)	0 (n=20)	0-2	1
R.A.P. Females (n=22)	0 (n=22)	0	0
Organic Control Gp. (n=32)	0 (n=26)	0-2	2
Organic Control Males (n=17)	0 (n=14)	0-2	1
Organic Control Females (n=15)	0 (n=12)	0-2	1

Table 5.9 Withdrawal: Modes, Range and Number of Cases Scoring in the Moderate and above categories by Group and Gender

(d) Associated grouping (under-reaction)Non-syndromic under-reaction

No cut-off scores are supplied by Stott for Non-syndromic under-reaction, as he suggests that it is merely indicative of under-reaction in general.

	Mode	Range
R.A.P. Gp. (n=46)	0 (n=32)	0-4
R.A.P. Males (n=24)	0 (n=18)	0-4
R.A.P. Females (n=22)	0 (n=14)	0-2
Organic Control Gp. (n=32)	0 (n=22)	0-4
Organic Control Males (n=17)	0 (n=10)	0-3
Organic Control Females (n=15)	0 (n=12)	0-4

Table 5.10 Non-syndromic Under-reaction: Modes, and Range by Group and Gender

Core syndromes (over-reaction)Inconsequence

Table 5.11 shows the modes for Inconsequence by group and Gender.

	Mode	Range	No. Cases Cut-Off (>6)
R.A.P. Gp.(n=46)	0 (n=25)	0-8	3
R.A.P. Males(n=24)	0 (n=11)	0-8	3
R.A.P. Females(n=22)	0 (n=14)	0-3	0
Organic Control Gp.(n=32)	0 (n=26)	0-5	0
Organic Control Males(n=17)	0 (n=13)	0-5	0
Organic Control Females(n=15)	0 (n=13)	0-2	0

Table 5.11 Inconsequence: Modes, Range and Number of Cases Scoring in the Moderate and above categories by Group and Gender

Hostility

	Mode	Range	No. Cases above Cut-Off (>3)
R.A.P. Gp. (n=46)	0 (n=35)	0-4	2
R.A.P. Males (n=24)	0 (n=19)	0-4	2
R.A.P. Females (n=22)	0 (n=16)	0-3	0
Organic Control Gp. (n=32)	0 (n=27)	0-9	3
Organic Control Males (n=17)	0 (n=14)	0-4	1
Organic Control Females (n=15)	0 (n=13)	0-9	2

Table 5.12 Hostility: Modes, Range and Number of Cases Scoring in the Moderate and above categories by Group and Gender

Associated groupings (over-reaction)

No cut-off scores are supplied by Stott for 'Peer-Maladaptiveness' or Non-syndromic over-reaction. He suggests they merely indicate a tendency for over-reaction.

Peer-maladaptiveness

	Mode	Range
R.A.P. Gp. (n=46)	0 (n=37)	0-3
R.A.P. Males (n=24)	0 (n=18)	0-3
R.A.P. Females (n=22)	0 (n=19)	0-2
Organic Control gp. (n=32)	0 (n=25)	0-6
Organic Control Males (n=17)	0 (n=14)	0-3
Organic Control Females (n=15)	0 (n=11)	0-6

Table 5.13 Peer-Maladaptiveness: Modes and Ranges by Group and Gender

Non-syndromic over-reaction

	Mode	Range
R.A.P. Gp. (n=46)	0 (n=38)	0-2
R.A.P. Male (n=24)	0 (n=18)	0-1
R.A.P. Female (n=22)	0 (n=20)	0-2
Organic Control Gp. (n=32)	0 (n=26)	0-8
Organic Control Males (n=17)	0 (n=13)	0-5
Organic Control Females (n=15)	0 (n=13)	0-8

Table 5.14 Non-syndromic over-reaction: Modes and Ranges
by Group and Gender.

The overall results from the B.S.A.G. suggest that there was little difference between the two Groups in terms of 'social adjustment', and that very few children of either Group obtained scores outside the normal range on any of the factors tapped by the test. The independence of the teachers' ratings, compared with the possibility of overestimation of social competence by mothers on the V.S.M.S., provides more 'objective', and therefore important, evidence regarding the child's social functioning. This means that neither the R.A.P. Group nor the Organic Control Group was significantly 'maladjusted' in terms of Stott's criteria.

5.6.2.3 S.I.R.T.

Table 5.15 shows the means and standard deviations of the number of times the children construed themselves on the 'implicit pole' of the triad, there being a maximum possible of 10 for each subject. Using a Mann Whitney U test, the R.A.P. group were found to construe themselves significantly less often, on the 'implicit' pole than the Organic Control Group ($z=-2.3$, $p<0.05$).

	MEAN	RANGE	S.D.
R.A.P Group.(n=47)	2.89	0-10	2.01
R.A.P. Males(n=25)	2.84	0-7	1.75
R.A.P. Females(n=22)	2.96	0-10	2.32
Organic Control Group(n=35)	3.77	1-9	1.83
Organic Control Males(n=20)	3.75	1-9	2.00
Organic Control Females(n=15)	3.80	1-6	1.66

Table 5.15 Use of 'implicit pole' (number of times): Mean Scores, Range and Standard Deviations by Group and Gender.

5.6.2.4 Family Relations Test

Table 5.16 shows the means, range and standard deviation for the 'total involvement to self' score, for both groups. Using a Mann Whitney U test no significant difference was found between the two groups on this measure ($z = -.345$, $p > 0.05$).

	MEAN	RANGE	S.D.
R.A.P Group.(n=48)	2.15	0-10	2.33
R.A.P. Males(n=26)	2.50	0-10	2.43
R.A.P. Females(n=22)	1.73	0-8	2.19
Organic Control Group(n=35)	1.83	0-8	1.89
Organic Control Males(n=20)	1.65	0-5	1.14
Organic Control Females(n=15)	2.07	0-8	2.60

Table 5.16 Total involvement to self: Mean Scores, Ranges and Standard Deviations

5.7.0.0 Discussion.

The hypothesis that children with R.A.P. may be less 'socially mature', be less 'socially adjusted', and less personally 'individuated' than other children, has been outlined earlier (see 2.4.2.0). The findings of the tests described in this Chapter, suggest that children suffering from R.A.P. do not differ significantly from Organic Control children, in terms of overall 'social maturity' as estimated by their mothers, 'social adjustment' as adjudged by a teacher who knew them well, or personal 'individuation' as measured by the F.R.T. 'total involvement of self' score. However, analysis of the S.I.R.T. results showed the R.A.P. group to place themselves significantly more often on the 'implicit' pole of a construct, which may suggest a less developed sense of personal individuation compared to the Organic Control group.

The findings therefore do not support O'Donnell's 'clinical impressions' (1985. p.111) of R.A.P. children as being "ambitious, conscientious, hardworking, highly-strung perfectionists", but rather suggest that there is no significant difference between R.A.P. children and their peers in terms of social adjustment. However, they do replicate the previous research finding by Knasel (1982), who used the S.I.R.T., to the effect that the children with R.A.P. were relatively unable to see themselves as individuals amongst others. The results also do not support Alvarez's conclusion (1983 p.179) that:

"Children with R.A.P. have personalities which reflect parental overprotection e.g. they are sensitive, attention-seeking, dependent, anxious children who are eager to be liked. However, they have difficulties in making relationships with peers, and therefore, a pattern of conflict surrounding interpersonal relationships is established".

Presumably the conflict in interpersonal relationships that Alvarez assigns to children with R.A.P., would be evident in the school life of

the child in question, and therefore would be noticed by the teacher in the school who knew the child best. The B.S.A.G. failed to disclose any significant difference between the children with R.A.P. and children with appendicitis, thus suggesting that conflict in interpersonal relationships with peers is not relevant to R.A.P. of childhood. The results of the B.S.A.G. also provides objective evidence that there is no connection between 'school problems' and R.A.P. of childhood.

The findings also raise questions about the danger of attaching too much importance to medical observations, such as those of O'Donnell (1985), of a child's behaviour in a hospital or clinic setting. They suggest, further, that Knasel may be mistaken in saying (1982, p.224) that the difference between such clinical observations and psychometric findings may:

"...lie in a mis-match between the intuitive criteria on which clinicians may base impressions of 'anxiety' and 'outwardgoingness' and the more formalized and operationalised definition of 'Introversion-Extraversion' and 'Neuroticism-Stability'..."

For it could be argued that these discrepancies may occur because of the inappropriateness of the observational setting, or a lack of psychological sophistication, in terms of training and education, on the part of the clinician.

The findings of this Chapter may be summarized as suggesting that social maturity and problems of socializing with peers are not related to R.A.P. of childhood, but that the child's 'reduced' level of personal individuation may be implicated in some way (see Chapter 8).

Chapter Six Cognitive Factors and R.A.P. of Childhood.

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6.5.0.0 Results

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6.6.0.0 Discussion

6.1.0.0 Introduction

In this Chapter certain cognitive aspects of R.A.P. will be examined, these are defined in section chapter 2 (2.4.2.0). General mental ability will be assessed using the *Standard Progressive Matrices* (Raven

et al., 1983). 'Cognitive style', in terms of 'field-dependence' will be examined using the *Children's Embedded Figures Test* (Karp and Konstadt, 1971) and the *Rod and Frame Test* (Witkin, 1965; see section 2.1.3.0). In addition testing for the presence of 'alexithymia' in the children will be carried out using ratings for 'emotionality' of the constructs elicited on the S.I.R.T. (see sections 1.3.2.0 and 2.1.2.0)

6.1.1.0 General Mental Ability: Abstract and Concrete

Apley's idea that R.A.P. children are "talking with their bodies" raises the question of whether they resort to this, because of some kind of deficit in general mental ability. The progression from thinking in fairly concrete terms, towards the ability to think more abstractly is, after all, one feature of 'normal' cognitive development.

Any delay in 'normal' development from concrete to abstract thinking may affect how children perceive people, and additionally limit their repertoire of 'responses'. An examination of the development of abilities in 'person perception' in children was carried out by Livesley and Bromley (1973). They tested 320 schoolchildren aged 7-11 years, the children being divided into 8 age groups with 40 subjects in each group. Essentially, the children were asked to describe a number of people known to them, in terms of 'what sort of people they are'. Livesley and Bromley (p.288) report:

"Quantitative analysis revealed a number of systematic changes in the content and organization of the descriptions over the age range studied. In general the change in content was greatest between the ages of 7 and 8 years. It is not clear whether we have discovered a special sort of developmental sequence, namely, that associated with impression formation, or whether we have simply demonstrated that the development of impression formation follows a sequence comparable to that of cognitive development."

They describe how the 'psychological content' of impressions was greater in the older children's descriptions, and they suggest that development brings more refined concepts of 'personality and behaviour'. Livesley and Bromley (*ibid.*) put it this way:

"Children under the age of 7 or 8 years described people in terms of external, readily observable attributes. Their concept of a person was too inclusive - it embraced not only the person proper, but his family, possessions and physical circumstances. At this age children categorized people in a simple, absolute, moralistic manner and used vague, global terms, such as good, bad, horrible, nice."

They go on to describe how, between the ages of 8-12 years, the 'global evaluative concepts' become differentiated into more specific and precise terms, and that by adolescence (p.289):

"...they had developed the ability to organize impressions and to see behaviour in its context of personal qualities, historical links, biological factors and other surrounding circumstances."

Regarding 'intelligence' and its relation to formation of impressions, Livesley and Bromley suggest that those of the 'more intelligent' children (p.119):

"..were not as dominated by concrete and particular stimuli as those of less intelligent subjects, and enabled them to process and integrate information more efficiently so as to discern some of the more important central regulating factors in the behaviour of individuals."

It may be, then, that R.A.P. children represent a sub-group of children who are somehow 'stuck' at the earlier concrete, as opposed to the later abstract, 'level' of thinking, and therefore have concrete/physical perceptions of their environment, with consequent 'immature' responses to it.

6.1.2.0 'Spatial Intelligence' and 'Cognitive Style'.

The idea that Witkin's 'Field Dependence' is an indicator of 'Cognitive Style' (see 2.1.3.0 above) has been criticised by McKenna (1984). He reviews the literature, mainly focusing on the *Embedded Figures Test*, suggesting that 'Cognitive Style', as detected by the *Rod and Frame Test* (R.F.T.) and *The Embedded Figures Test* (E.F.T.), is really 'cognitive ability'. McKenna considered three alternative explanations for 'Cognitive Style'; (a) General Ability, (b) Spatial Ability and (c) Fluid Ability.

Regarding (a) 'general ability', McKenna (*ibid.*, p.597) states that the Embedded Figures test "does clearly correlate with standard ability measures". (b) He goes on to review the evidence regarding 'spatial ability', covering the spatial nature of the E.F.T. and the correlations between the E.F.T. and measures of spatial ability, concluding with the observation that the sex difference (males performing best) is typical of a measure of spatial ability. (c) 'Fluid Ability' was the third explanation that McKenna examined. He contrasted 'crystallized intelligence', namely "that which is 'measured by information tests and concerned with stored knowledge", with what he calls 'fluid intelligence' which is "concerned with facility in reasoning, independent of previous knowledge".

McKenna considered a number of studies which had demonstrated "substantial correlations" between the E.F.T. and the *Standard Progressive Matrices* (S.P.M.), which is a measure of 'fluid ability' but has also been found to be "heavily loaded with a factor common to most intelligence tests (identified with Spearman's 'g' by British psychologists)", according to Anastasi (1988, p.304). It can be seen, therefore, that poor performance on a measure of field dependence (F.D.) could be due to 'poor mental ability', and that there is consequently a need in any study examining 'cognitive style' to control for general intelligence.

6.1.3.0 General Mental Ability and Alexithymia.

Alexithymia (see 2.1.2.0) has been noted in a number of studies to be related to 'psychosomatic' disorders. However, it may be that the R.A.P. children have a poorer 'general mental ability' than the organic controls and therefore have learnt rather concrete or somatic ways of behaving which gain parental attention, not having developed the conceptual 'vocabulary' to do so more appropriately. This would view the lack of 'emotionality' in the child as reflecting a delay in cognitive development as opposed to a psychological 'defence' or a neurobiological deficit. Harter (1982) has demonstrated a developmental basis in the use of "affect and trait labels" in children, and it is necessary for any investigation into alexithymia in children to control for cognitive ability.

It can be seen from 6.1.1.0 to 6.1.3.0, that general intellectual deficits could account for any differences found between the R.A.P. and Organic Control Groups, on the variously 'cognitive' measures described

in this Chapter. Therefore the S.P.M. (see 6.2.1.0) was administered to all the children in the present study, in order to control for 'general mental ability'. In addition, this also allowed correlations to be carried out between the two measures of 'field dependence' (i.e. R.F.T. and C.E.F.T) and the S.P.M. (see 6.5.2.5).

6.2.0.0 Testing General Mental Ability

The test used to assess 'general mental ability' was the *Standard Progressive Matrices* as indicated above (6.1.1.0).

6.2.1.0 The Raven's Standard Progressive Matrices. (S.P.M.)

Evidence from clinicians, e.g. Apley (1975), has suggested that children with R.A.P. may be unrepresentative in general intelligence, and that this may in some way contribute to the presenting symptoms-picture. Since the population of the catchment area of this study was bilingual, it was decided that any 'verbal' test of intelligence would be unsatisfactory, because it would risk introducing a form of systematic error. The translation into Welsh of standard tests was not felt to be practicable. It was therefore decided that a 'non-verbal' test of intelligence would best be employed. The S.P.M. is described by Raven *et al.* (1983, p.2) as:

"...a test of a person's capacity at the time of the test to apprehend meaningless figures presented for his observation, see the relation between them, conceive the nature of the figure completing each system of relations presented, and, by so doing, develop a systematic method of reasoning."

The S.P.M. was originally developed in the mid 1930's, and since that time there have been a number of revisions and standardisations. The latest of these relevant to the present study, was the 1979 British

standardisation.

The Manual for the test (Raven et al., 1983) contains sections reporting reliability (p.6) and validity (p.8). This is not the place to review these studies, save to say the S.P.M. is used internationally and has been the subject of very many studies since the 1930's, e.g. Sydiaha (1967) and Van Dongen et al. (1972, quoted in, Raven et al., 1983). However, some workers, e.g. Deutsch et al. (1968, quoted in, Raven et al., 1983), have suggested that cultural differences could be mediated in performance differences on the S.P.M. due to language differences (S.P.M. Manual, Raven et al., 1983); this has become known as the 'verbalisation hypothesis'. This would seem to be relevant to the present study, as this test was chosen precisely because it was a 'non-verbal' test.

The verbalisation hypothesis has been tested using brain-damaged subjects (Arrigan and DeRenzi, 1964, quoted in, Raven et al., 1983), and patients with temporal lobe epilepsy. The results were contradictory, and studies using deaf subjects have also been inconclusive. Goetzinger et al. (1967, quoted in, Raven et al., 1983) suggested that language deficiency in deaf children resulted in poor performance on the S.P.M. However, Goetzinger et al. (ibid.) found that "non-verbal abstract reasoning ability" had very little association with language development. Although there is some mention of possible "cultural differences" (Raven et al., 1983), there is no evidence showing systematic cultural differences on test performance. It would seem that if any cultural differences did exist, they would be more likely between those cultures with the largest 'differences', not between two northern European languages spoken by people living on the same island,

possessing the communications systems of the twentieth century. In the present study, any children who had language or educational difficulties were excluded from testing.

6.2.2.0 Administration.

The test was administered in a quiet room, and the materials were the S.P.M. booklet and a record form. The standard instructions for administration of the individual test were followed. The test booklet was opened at the first illustration, A1. The tester then pointed to the upper figure and instructed as follows:

"Look at this. You see it is a pattern with a piece cut out of it. Each of these pieces (pointing to each in turn) is the right shape to fit the space but only one of them is the right pattern. No. 1 is the right shape, but it is not the right pattern. No. 2 is not a pattern at all. No. 3 is quite wrong. No. 6 is nearly right but it is wrong here (pointing to the white piece). Only one is right. Point to the piece which is quite right."

If the child did not point to the right piece, explanation was continued until the child 'grasped' the nature of the problem to be solved. The researcher then turned to problem A2 and said:

"Now point to the piece that came out of this pattern."

If the child failed to do so, then problem A1 was re-demonstrated and the child asked to do A2 again. If the child solved the problem correctly, the page was turned to problem A3, and the procedure repeated as before. In test A4, before the child had time to point to one of the pieces, the researcher said:

"Look carefully at the pattern. (The researcher moved a finger across it.) Only one of these pieces is quite right. Be careful, look at each of them first. (Each was pointed to by the researcher.) Now point to the right one to go in here. (The space was pointed to.)

When the child had pointed to one of the pieces, whether right or wrong, the researcher asked:

"Is that the right one to go in here?" (Pointing to the pattern and the shape to be filled).

If the child replied "Yes", the choice was accepted with approval, whether right or wrong. If the child wished to change her/his mind the researcher again asked:

"Is that the right one?"

If the child was satisfied, the choice was accepted. If the child was still in doubt the researcher asked:

"Well, which is the right one?"

The piece the child pointed to was then accepted as the child's final decision. Problem A5 was demonstrated in the same way as A4. It is permissible at any stage to use problem A1 to illustrate what the child had to do, and then ask her/him to try again. If a child could not solve problems 1-5 correctly then the test was discontinued. In practice this did not occur. If problems 1-5 were solved fairly easily, then problem 6 was turned to, the researcher saying:

"Look at this pattern carefully. Now which of these pieces (the researcher pointing to each in turn) goes in here? (the researcher pointing to the space). Be careful only one is quite right. Which one is it? Be sure you find the right one before you point to it."

As each problem was presented the same instruction was given. The child's answers were recorded on the appropriate place on the record form.

6.2.3.0 Scoring.

When the child pointed to a piece, the researcher entered the number of the piece in the appropriate place on the record form. If the child

pointed to more than one piece, the piece that was pointed to last was counted, right or wrong. The child's score was the total number of problems solved correctly. The raw scores for the S.P.M. were converted to percentile norms, by age, supplied in the Manual (Raven,1983). These scores were then computed in the discriminant function analysis.

6.3.0.0 Testing Field Dependence

The children in the present study were administered both the R.F.T. (see 6.3.2.0) and the C.E.F.T. (see 6.3.1.0) as measures of their Field Dependence.

6.3.1.0 The Childrens Embedded Figures Test.

The C.E.F.T. (Karp and Konstadt, 1971) is a perceptual test and is a development of the Embedded Figures test (Witkin,1950), which was found to be too difficult for children below the age of 9 years to complete. A child's version of the E.F.T., the C.H.E.F.T was developed by Goodenough and Eagle (1963), and the C.E.F.T. differs from this in having cards with drawings instead of three-dimensional objects, which were found to be problematical in administration.

6.3.1.1 Reliability and Validity.

One hundred and sixty children, age range 5-12yrs, were used in the standardizing of the C.E.F.T., and norms produced. The Manual also supplies reliability data for the age ranges 7-12yrs, the internal consistency reliability coefficients ranging from 0.83 to 0.90. Test-retest reliability data are supplied for the 5-6yr age group, the test-retest correlation being 0.87.

The validity of the C.E.F.T. was examined by looking at the concurrent validity in the performances of the 9-10 and 11-12 year olds on both the C.E.F.T. and the E.F.T. The results are supplied as validity coefficients. For 11 year olds the validity coefficients were 0.83 for females and 0.86 for males. The validity coefficients are lower for 9 year olds, 0.70 for males 0.73 for females. Witkin et al. (1971) suggest that this lowering of values is due to the lowered reliability of the E.F.T. for 9 year olds. They go on to describe studies which examine the relationship between the performance of children under the age of 9 years on the C.E.F.T. with variables which are known to relate to E.F.T. performance. They conclude (p.126):

"These studies suggest that the C.E.F.T. is related to some of the same measures of psychological differentiation as the E.F.T. Since validation data are still sparse and incomplete, it is recommended that, for the present, the C.E.F.T. be used for research purposes only."

6.3.1.2 Administration.

The C.E.F.T. comprises:

1. Simple Forms. Cut-out models of the two forms used in the test (TENT and HOUSE). These outlines are embedded in the complex forms.
2. Discrimination Sets. A set of 8 plates each of which shows one of the simple forms (TENT or HOUSE) and three similar but obviously incorrect forms. There are 4 cards each for the TENT and HOUSE.
3. Demonstration Series. Three incomplete pictures representing stages of "embeddedness" of the simple TENT form in a complex figure. (There is no demonstration series for the HOUSE.)
4. Practice Series. Three complex figures which are designed to illustrate the procedure for the child, 2 for the TENT series and 1 for the HOUSE series.

5. Test Series. A series of complex figures, 11 of which have the simple TENT figure embedded in them (T1-11) and 14 of which have the simple HOUSE figure embedded in them (H1-14).

A "training procedure" is described in the manual and this was followed in the testing of the children in the present study.

6.3.1.3 Training Procedure.

(a) Training on the Discrimination Figures:

The child was shown the first simple cut-out form (TENT) and the tester said:

"This looks something like a TENT, doesn't it? This black line at the bottom shows where the TENT rests on the ground. See if you can find another tent that looks exactly like ours on this page."

The child is shown the first discrimination card and the tester said:

"Go ahead and point to the one like ours."

The cut-out was then placed over the child's choice, and compared. Whether or not the child was correct, the tester compared the cut-out to the incorrect alternatives and said:

"You see this is not like our TENT because it is too small" or "This one is not like our TENT because it is upside down."

The child is shown the second discrimination card, and then the other cards until she/he got two items correct in succession. If the child failed to reach that standard on the first trial, the series could be repeated two additional times; if the child did not achieve the two successive correct discriminations, testing is discontinued. In practice this did not occur.

(b) Demonstrating the Embedding Process:

Following the TENT discrimination procedure, the process of embedding a TENT figure was illustrated. The child held the cut-out simple form and the tester said "Find the TENT here," pointing in turn to each of the 3 complex figures on the two cards. If the child had any difficulty in locating the TENT, the tester showed her/him where it was. It was pointed out to the child that the TENT in the complex figure was the same as the form in the child's hand, even though lines may pass through it and it may be different colours.

(c) Practice on the Embedding Figures (2 cards):

The first card was presented and the tester said:

"A TENT like ours is hidden somewhere in this picture. The idea of our game is to find the hidden TENT. Show me where the TENT is."

The child was allowed to retain the simple cut-out form for comparison with the first card. The child was asked to run a finger around the outline of the embedded figure, and to verify her/his choice by placing the cut-out over the area indicated. If the child did not indicate the correct choice, the tester indicated where it was, and then placed the simple cut-out over the area. The cut-out of the simple form was then taken from the child and the tester presented the second card. The child was told that although ,up to now, the embedded figure had appeared as an unbroken unit, it might also be made up of several shapes and/or colours. The tester said:

"Now find our TENT and outline it just the way you did before."

The response was verified with the cut-out form. If the child could not find the TENT, the tester showed her/him where it was, outlining the

sides of the TENT, explaining that it is the same TENT even though it has two different colours and a line inside it. The tester then said: "Now you outline where the TENT is."

(d) Testing:

All children started testing with card T1. Testing was stopped, in accordance with the instructions, if the child failed items T7-11. If the child passed one of those items, then testing continued with the HOUSE series. Before this was administered, the tester presented the discrimination series D5-8, using the same directions as for the previous discrimination series. The tester then gave card P3 as the single practice item for the HOUSE series, and then proceeded to the first test card H1. The test series was presented until there had been five consecutive failures, or the series completed.

The first three items in both test series were introduced by the tester saying, "What does this look like to you?". When the child named the figure in the appropriate manner, the tester said "Now find our TENT (or HOUSE) and outline it with your finger the way you did before". The cut-out forms were not visible to the child at that time, and the tester corrected any child who did not arrive at the correct solution; these were scored as incorrect. After the first three items in each series, the children were usually not shown the cut-out again, unless either they asked to see it, or they failed three consecutive items; but occasionally it was shown to enable them to verify their choice. There is no time-limit on this test, it taking approximately 25 minutes to complete.

6.3.1.4 Scoring and Analysis.

Responses were scored 1 or 0. A score of 1 was given only when the first choice was correct and verified as in the training section. If the child corrected an incorrect choice spontaneously before she/he saw the cut-out model, full credit was given. A correct choice made after the cut-out had been seen was scored as incorrect. The total score was the number of items passed; 25 was the maximum score possible.

As field dependence (F.D.) varies with age, the raw scores were converted into 'indices' of F.D. using the equation:

$$\text{F.D. index} = \frac{\text{Raw Score}}{\text{Chronological Age}}$$

6.3.2.0 The Rod and Frame Test.

The R.F.T. (Witkin, 1965) was the major instrument used by Witkin in his early research into F.D.. There have been a number of different designs of the R.F.T. and also in the methodology of its administration. The test takes place in the dark, where the subject views a luminous rod surrounded by a luminous frame. Both the frame and the rod within it can be tilted independently in either direction. The essence of the test is that the rod and frame are tilted in various directions and subjects, sitting in a tilted seat, instruct the researcher to move the rod to a position where they judge it to be at a true vertical to the ground. The more that individuals are influenced by the frame in their placing of the rod, the more F.D. they are in terms of 'cognitive style'. If they are able to orient the rod

correctly to the vertical, then they are said to be more 'field independent', i.e. less influenced by the surrounding environment, and therefore score a lower 'index' of F.D..

According to Goldstein and Blackman (1978) the 'standard' administration of the R.F.T. consists of three series of eight trials. Each trial has the frame and the subject's chair tilted by 28 degrees, firstly in the same direction, then the chair and frame were tilted in opposite directions. In the final trial, the subject sits erect while the frame is tilted 28 degrees to the left or right. A review of studies which used the R.F.T. (Handel, 1972) revealed that there are a number of well validated alternatives to the 'standard' method, including some which allowed the subject to manipulate the rod directly (Oltman, 1968). In the present study, as a result of pilot study difficulties, it was decided the 'standard' administration would be too time-consuming and a shortened form was devised. This incorporated the manipulation of the rod by the child using a joystick, as this would prevent any communication difficulties regarding the positioning of the rod.

6.3.2.1 Apparatus.

The rod and frame used consisted of a 3-legged platform, this providing a base for the frame, and also a pivot for the rod. Front and back views of the rod and frame can be seen in Figures 6.1(a) and (b).

The front-facing sides of both the rod and frame were painted with luminous, non-radioactive, paint. The rest of the apparatus was painted black. The movement of the rod was controlled by an electric motor, which was operated via a joystick connected to the motor by a length of

insulated cable. If the joystick was moved to the left, the rod moved to the left, and the same in the other direction. The motor could also be worked, in the same manner, by a switch situated on a platform (4"x 6") behind the rod.

Also situated behind the rod was a protractor, fixed onto a wooden plate, which allowed the rod to be set with accuracy to various angles. Four holes had been drilled into the wooden plate, two to the left and two to the right, which allowed the frame to be tilted quickly and accurately to set angles, a piece of doweling placed through the hole limiting the tilt. Also situated on the platform was a light-source in the form of a red electric light bulb, which was also operated by a switch located on the platform. In front of the rod and frame a screen was erected in the form of a 'blackout' curtain on a line. The curtain could be drawn or opened by the researcher. The same chair was used for testing all children, the chair being tilted to an angle of 24 degrees from the horizontal, with the child placing their feet on a footrest which was tilted in the same direction.

6.3.2.2 Training.

Before any training with the equipment, the children were asked if they knew any objects which were "upright" from the ground. The usual answers were telegraph poles or lampposts etc.. They were then asked to point to something in the room which was "upright" from the ground, usual answers being chair leg etc..

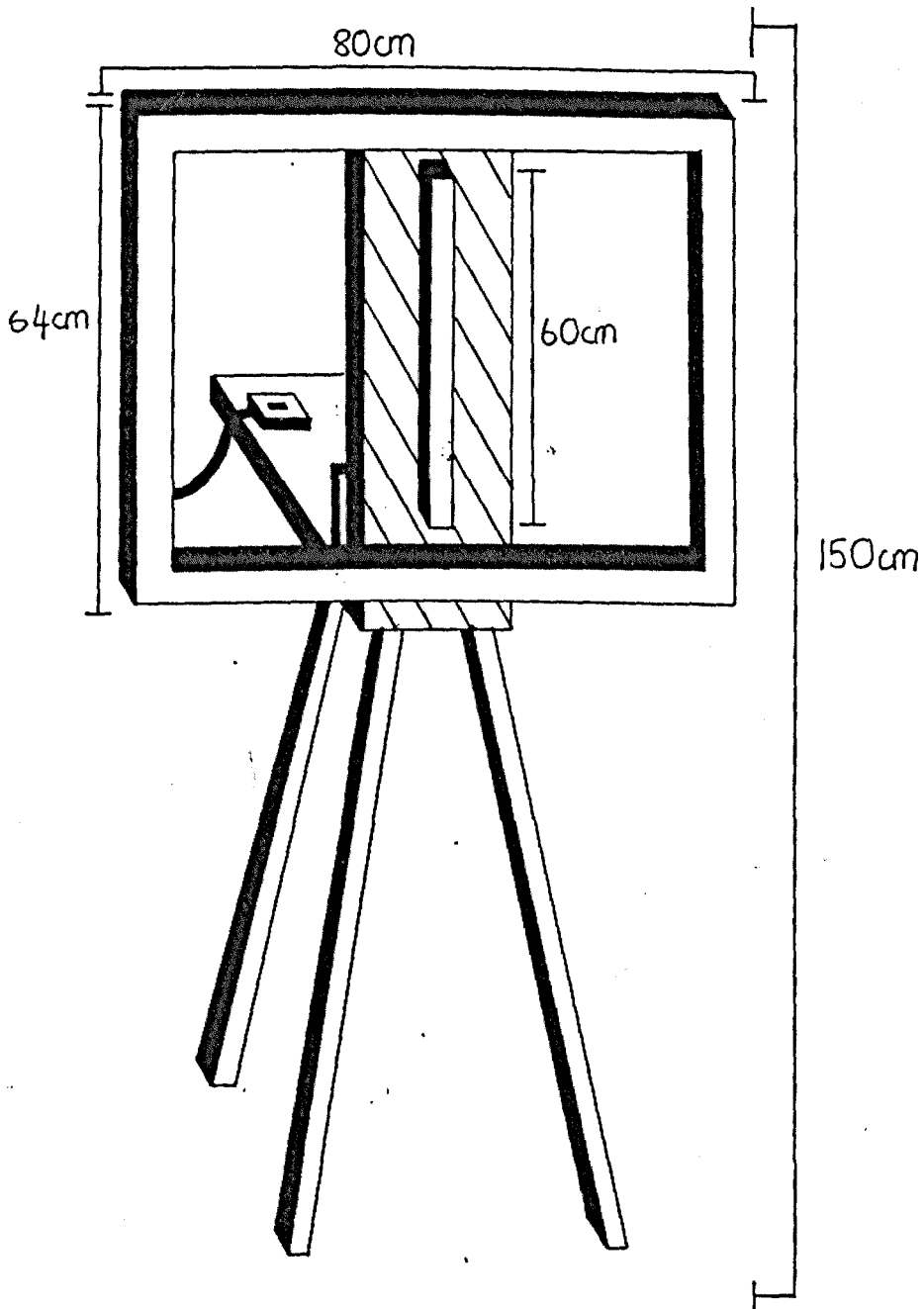


Fig. 6.1(a) Front view of the Rod and Frame apparatus.

If the child had difficulty with giving examples, then these were supplied by the researcher. Training using the equipment did not begin until the child had shown that they understood the concept 'uprightness' from the ground.

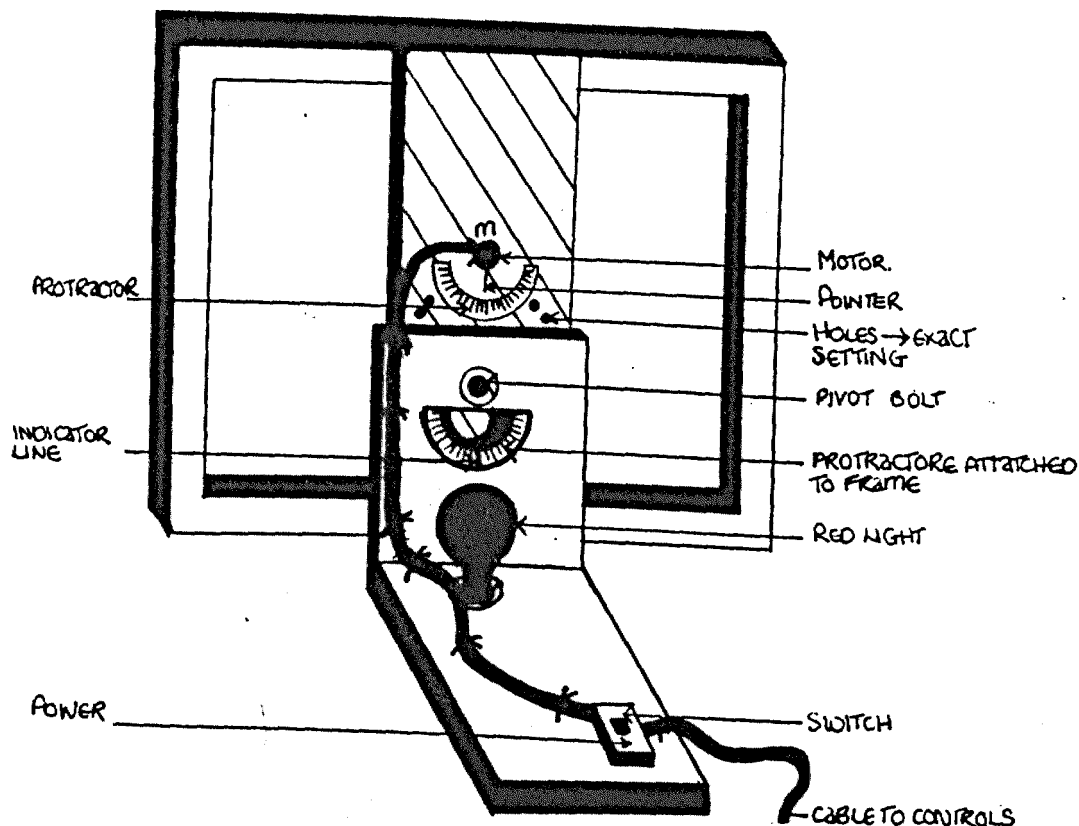


Fig. 6.1(b) Rear view of the Rod and Frame apparatus.

Training with the rod and frame commenced with the child sitting in the chair, untilted with the lights on, getting used to moving the joystick in order to control the movement of the rod. When the child had shown she/he could move the rod in the desired direction, the researcher moved the rod, via the controls on the platform, to the right and left asking the child to bring the rod back to the upright. This was then

repeated with the frame tilted to the left and right, in order to confirm that the child understood that the task was to return the rod to the 'upright' with reference to the ground and not to the frame.

When children had demonstrated that they understood the nature of the task, they were informed that the light would be switched out; but that what they had to do, the "game" to the younger children, was exactly the same as they had been doing with the light on.

6.3.2.3 Administration.

The child sat in the experimental chair, which was tilted, with the light on and the screen drawn so that the rod and frame were not visible. The researcher stated:

"In a moment I am going to turn the room light off. I will then draw back the screen and you will see the rod and frame glowing. When I say NOW I want you to use the joystick to move the rod so that it is straight up and down to the ground, exactly as you have just been doing. When you have finished, say FINISHED."

The researcher then turned the light off and said NOW. When the child had said FINISHED, the researcher stated:

"Take your hands off the joystick, and do not touch it until I ask you to. Do you understand?"

Once the child had replied YES, the researcher drew the screen, and, using the red light, in order to preserve night vision, noted the position of the rod in terms of degrees error from the vertical. A sign of "+" was given to errors to the right of the vertical, from the child's perspective, and "-" to errors on the left. The researcher then set the rod, using the switch situated on the platform behind the frame, and the frame using the doweling and pre-drilled holes, to the required angles of deviation from the vertical. The screen was then

opened and the researcher repeated the instructions. The tilt of the child's chair was altered after each set of 2 trials. This was accomplished by the child moving to a chair nearby, by the light of the slightly opened door, while the researcher made the required adjustments to the tilting of both the footrest and the chair. The starting points for the rod and frame for each trial are shown in table 6.1. Also shown is the direction of the tilt of the child's chair. (All figures are degrees.)

SET	ROD	FRAME	CHAIR
1	R24	R24	L24
	R24	L24	L24
2	L24	R24	R24
	L24	L24	R24
3	R40	R40	L24
	L40	L40	L24
4	L40	R40	R24
	R40	L40	R24

Table 6.1 Showing 'Starting Point' positions for the Rod, Frame and Chair.

The error scores were recorded on the scoring sheet.

6.3.2.4 Scoring.

The mean absolute error score was calculated by summing the error score and dividing by the number of trials. This was then converted into indices by the equation:

$$\frac{\text{Mean Absolute Error}}{\text{Chronological Age}} \times 100$$

The F.D. indices of both Groups of subjects were fed into the discriminant function analysis of the cluster of variables which reflect the 'cognitive factors' in this part of the study.

6.4.0.0 Testing for Alexithymia.

The term 'Alexithymia' was first used by Sifneos (1973), to represent a difficulty in experiencing and expressing emotion. Sifneos et al. (1977, p.47) state that the word 'alexithymia' derives:

"..from the Greek 'a' for lack, 'lexis' for word, and 'thymos' for emotion."

Sifneos et al. (1977) explain that the term has its origins in observations made on patients suffering from various psychosomatic diseases, as we have seen above (2.1.2.0). They made the distinction between patients denying feelings which they did experience, and the alexithymic patients who do not experience the feelings at all. The constructs which were elicited during from the S.I.R.T. (see 5.4.3.0) were rated for emotionality by two clinical psychologists as a measure of alexithymia.

6.4.1.0 The S.I.R.T

This test has been fully described above (5.4.0.0). For the purposes of examining for the presence of any lack of 'emotionality', the constructs elicited from the children were rated for their emotional content by two Clinical Psychologists working independently of each other and 'blind' as to the provenance of each construct.

6.4.1.1 Scoring and Analysis.

The 10 constructs elicited from the children, were placed in an alphabetical 'construct glossary', consisting of all the constructs elicited during the study. This glossary was given to two experienced clinical psychologists (one male, one female) in order to be rated on 'emotionality'. By using the glossary the psychologists were kept 'blind' as to the classification of the child whose constructs they were rating. Each rater used the following scoring system:

- 0 - Non-emotional
- 1 - Mildly emotional
- 2 - Strongly emotional.

The raters were instructed to judge the construct for 'emotionality', in terms of a score being allocated to represent the 'inferred' emotionality of the construct: That is to say, to assess not the 'face value' of the construct (as entailed in the meaning of the word or words), but rather the emotionality related to, for example, the actions associated with the construct. An example of this would be 'bullies', in which case the related actions may be seen as 'bad' and productive of distress, in the normal course of events.

An 'emotionality quotient' was calculated by summing the child's score for the 10 constructs, dividing by chronological age and multiplying by 100, i.e.:

$$\text{Score} = \frac{\text{Sum ratings on constructs}}{\text{Chronological age}} \times 100$$

6.4.2.0 The Family Relations Test. (F.R.T., Bene and Anthony, 1978).

This test has been described in detail above (5.5.0.0 to 5.5.0.3). The present analysis used the 'strong feelings to Nobody' as an indicator of alexithymia.

6.4.2.1 Scoring

The children's scores were calculated by emptying the boxes, and entering numbers of the posted cards in the appropriate spaces on the record form. For the purposes of the present analysis, the only score used was that of 'strong feelings to Nobody', which was calculated for each child, and subsequently computed in the discriminant function analysis.

6.5.0.0 Results of all 'cognitive factors' tests

6.5.1.0 Discriminant Function Analysis

The discriminant function analysis showed that the function produced from the children's (n=73) performance on the C.E.F.T., R.F.T., S.P.M., S.I.R.T., and F.R.T. did not significantly predict group membership ($p=0.1986$). Table 6.2 shows the results of the discriminant function analysis. This means that the present study has produced no evidence to suggest that children with R.A.P. differ from children with appendicitis on the broad range of cognitive factors examined in this chapter.

Wilks' Lambda	Chisquare	D.F	Significance
0.8988	7.310	5	0.1986

Table 6.2 Results of the discriminant function analysis

Table 6.3 shows the standardized canonical discriminant function, indicating the relative importance of each independent variable to the function, the larger the magnitude the greater the contribution to the function regardless of sign. From Table 6.3 it can be seen that performance on the 'strong feelings to Nobody' variable was the most important in contributing to the function, and that three of the other four tests were of roughly the same importance as each other

FUNCTION 1	
C.E.F.T.	- 0.34201
R.F.T.	- 0.33761
S.P.M.	0.36729
S.I.R.T.E.	0.48474
S.F.N.(F.R.T.)	0.65891

Table 6.3 Standardized canonical discriminant function coefficients for tests of 'cognitive factors'

Table 6.4 shows the classification results in terms of predicted and actual group membership for individual cases.

Actual Group	No. of Cases	Predicted Group Membership	
		1	2
Group 1	41	25 (61.0%)	16 (39.0%)
Group 2	32	12 (37.5%)	20 (62.5%)

Percent of "grouped" cases correctly classified: 61.64%

Table 6.4 Classification Results

The following sections show the descriptive statistics for the two groups on the tests administered.

6.5.2.0 Descriptive Statistics

6.5.2.1 Raven's S.P.M. (units in percentile rank)

	Mean	Range	S.D.
R.A.P. Gp.(n=41)	45.6	2-97	31.5
R.A.P. Males (n=22)	45.7	4-97	31.2
R.A.P. Females(n=19)	45.5	2-97	32.8
Organic Control Gp.(n=32)	51.6	11-99	29.2
Organic Control Males(n=19)	53.3	11-99	29.0
Organic Control Females(n=13)	49.2	13-84	29.3

Table 6.5 S.P.M.: Means, Ranges and Standard Deviations for percentile ranks by Group and Gender.

From Table 6.5 the mean percentile rank score on the S.P.M. for the children with R.A.P. can be seen to be six points lower than that of the children in the organic control group. However, using a Mann Whitney U test, the difference was found not to be significant (($z = -0.50$, $p > 0.05$). The ranges and standard deviations are similarly large for both groups.

6.5.2.2 Descriptive Statistics C.E.F.T.

	Mean	Range	S.D.
R.A.P. Gp.(n=47)	1.8	1.05-2.70	0.38
R.A.P. Males(n=26)	1.8	1.05-2.70	0.38
R.A.P. Females(n=21)	1.8	1.22-2.63	0.38
Organic Control Gp.(n=35)	1.8	1.21-2.59	0.36
Organic Control Males(n=20)	1.8	1.33-2.40	0.32
Organic Control Females(n=15)	1.7	1.21-2.59	0.40

Table 6.6 C.E.F.T.: Means, Ranges and Standard Deviations for the F.D. Indices by Group and Gender

It can be seen from Table 6.6 that performance on the C.E.F.T. was very similar for both groups.

6.5.2.3 Descriptive Statistic R.F.T

	Mean	Range	S.D.
R.A.P. Gp.(n=42)	88	6-363	73
R.A.P. Males (n=23)	72	6-363	77
R.A.P. Females (n=19)	107	35-258	65
Organic Control Gp. (n=32)	63	6-236	58
Organic Control Males (n=19)	55	6-217	48
Organic Control Females (n=13)	76	13-236	71

Table 6.7 R.F.T.: Means, Ranges and Standard Deviations of the F.D. Indices by Group and Gender

Table 6.4 shows that the R.F.T. produced a greater difference in performance between the two groups than did the other measure of field-dependence the (C.E.F.T.). The mean score for the children with R.A.P. was higher than that for the children in the organic control group. The score represents an error score, and as such the higher the score the more field-dependent the individual. The difference is in the direction predicted by Witkin with regard to psychosomatics and 'field dependence', however using a Mann Whitney U test the difference between the two groups was found not to be significant ($z = -1.926$, $p = 0.0541$).

6.5.2.4 Descriptive Statistics. 'Inferred emotionality' on the S.I.R.T

	Mean	Range	S.D.
R.A.P. Group(n=47)	6.02	0-15	3.47
R.A.P. Males(n=25)	5.76	0-11	3.18
R.A.P. Females(n=22)	6.32	0-15	3.82
Organic Control Gp.(n=35)	7.14	2-18	3.54
Organic Control Males(n=20)	6.25	2-11	2.75
Organic Control Females(n=15)	8.33	3-18	4.19

Table 6.8 'Inferred Emotionality': Means, Ranges and Standard Deviations of scores, by Group and Gender.

It can be seen from Table 6.8 that the mean value of the 'emotionality' of the constructs elicited from the children with R.A.P. was less than that of the children in the organic control group. The difference was found not to be significant using a Mann Whitney U test ($z = -1.21$, $p > 0.05$). The trend was the same when the groups were broken down by gender, and was especially noticeable as between the two female subgroups. It is in the direction predicted by the 'alexithymia hypothesis' in psychosomatics.

and the S.P.M.. Table 6.10 shows the values of the Pearson product-moment correlation between the three tests (n=74).

	RAVEN	RFT	CEFT
RAVEN	1.0000	-.1921*	.3461**
RFT	-.1921*	1.0000	.0940
CEFT	.3461**	.0940	1.0000

Table 6.10 Showing the Correlations between performance on the C.E.F.T., R.F.T and the S.P.M.

** sig at 0.01 level

* sig at 0.05 level

It can be seen that the Ravens and the C.E.F.T. are significantly correlated ($p < 0.01$), and that the Ravens is significantly negatively correlated with the R.F.T. ($p < 0.05$), with the coefficient just reaching significance at this level. This would be expected if the R.F.T. were connected to 'visuo spatial ability' as it produces an error score such that a lower score indicates a better performance in the sense of less F.D.. The C.E.F.T. and the R.F.T. scores were not significantly correlated, suggesting that they share little of the same variance and are in fact measuring different things, even though they are both advanced as tests of F.D. Whether they may nevertheless be thought to be measuring different 'attributes' or aspects of F.D. (by appeal to Frenkel-Brunswik's (1942) 'principle of alternative manifestation', which Eysenck also invokes (1972, p.267) in his dispute with Cattell about the number of basic factors of personality), must be left to speculation as far as this study is concerned.

Certainly, when the stronger correlation between the C.E.F.T. and the S.P.M. is taken into consideration, the question of whether the R.F.T. is providing a 'purer' measure of field dependence remains to be answered. The use of the subject's judgements of his/her body in space, as a term of reference to determine the vertical independently of the visual field, may well be an important difference from those measures which simply use 'paper and pencil' in determining a person's susceptibility to field dependence.

6.6.0.0 Discussion

The results in this chapter show that the measures of 'cognitive factors' employed, failed to predict significantly the group membership of the children who did the tests involved; that is to say, the measures, taken overall, did not discriminate between the two groups of children.

Consideration of the descriptive statistics of the results on the tests showed little difference in the performance of the two groups, with the exception of a few small-scale trends in 'predicted' directions.

Regarding the scores for 'emotionality' on the S.I.R.T., they are consistently lower for the children with R.A.P.. These findings are in line with the theory that individuals with psychosomatic disorders compared with others have differences in the expression of emotion. However the present measure of 'emotionality', can be seen to be out of context in an emotional sense. There would be no reason for the child to be experiencing the emotion they were describing, and they may therefore just be utilizing labels. Nevertheless, this criticism also

applies to the work described by Nemiah et al. (1976), and they did succeed in distinguishing between 'psychosomatic' and other patients.

In one sense the present 'test' is a purer measure of alexithymia, in as much as it was up to the child whether she/he 'chose' to deploy an emotionally loaded construct or not; and it was possibly a more accurate measure of the level of 'emotionality' that the child used in his\her everyday language. This may be the important difference between the two measures of alexithymia, and go some way to explaining the failure to replicate the trend in the case of the 'strong feelings to Nobody' score from the F.R.T.. The 'inferred' scoring system by-passes Nemiah's (1975) observation that alexithymic individuals may use words such as 'sad', 'angry' etc. appropriately enough when they have been introduced by others, and it may thereby give a more accurate picture of the 'emotional life' of the individual.

Some evidence was provided suggesting that the C.E.F.T. and R.F.T. must at best, be measuring very different aspects of F.D.; and that the C.E.F.T. is heavily loaded, as several critics had suspected, with 'spatial intelligence'. It may be that the R.F.T. provides a 'purer' measure of field-dependence than the C.E.F.T., and that this measure is more closely related to those questions of 'body image' and 'self-differentiation' which are so often raised in the literature of psychosomatics.

It may be that some of the tests employed to measure the same attributes, were more 'sensitive' than others. This raised the question of the possibility of them being combined in some way, with other tests

which may be relevant to R.A.P. of childhood, to produce an 'overall' function which may be used in a discriminant function analysis (see Chapter 8).

Chapter 7 Investigating Extraversion, Neuroticism and Psychoticism Related to R.A.P.

- 7.0.0 Introduction
- 7.1.0 The Junior Eysenck Personality Questionnaire
- 7.1.1 Scales Measured on the J.E.P.Q.
- 7.1.2 The Lie Scale
- 7.1.3 Reliability of J.E.P.Q.
- 7.1.4 Administration
- 7.1.5 Scoring and Analysis
- 7.2.0 Results
- 7.2.1 Discriminant function analysis
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- 7.2.3 Descriptive statistics Extraversion
- 7.2.4 Descriptive statistics Psychoticism
- 7.2.5 Descriptive statistics Lie scale
- 7.3.0 Discussion

7.0.0 Introduction

This chapter reports the investigation of the Eysenckian personality dimensions, as measured by the Junior Eysenck Personality Questionnaire (J.E.P.Q.; Eysenck and Eysenck 1975), and attempts to relate these to a 'susceptibility' (Lachmann 1972; Eysenck 1975) of children with R.A.P. for 'autonomic conditioning'. The 'Autonomic Conditioning Theory' (A.C.T.) as an explanation of R.A.P. of childhood, has previously been described (section 2.2.2.0). The J.E.P.Q. is a development of the Junior Eysenck Personality Inventory (J.E.P.I.; S.B.G. Eysenck 1965), and therefore some background in terms of the J.E.P.I. is given.

7.1.0 Junior Eysenck Personality Questionnaire.

The J.E.P.Q. is a development from the J.E.P.I. which is a 60-item questionnaire designed to measure the personality variables of Neuroticism or Emotionality, and Extraversion/Introversion in children (see section 2.2.3.0 above). The questionnaire also contains a Lie scale which is intended to detect faking. S.B.Eysenck states in her Manual (1965) that this inventory is itself a development of the

Maudsley Personality Inventory (Eysenck 1959) and the *Eysenck Personality Inventory* (Eysenck and Eysenck 1964), for adults. It states specifically (p.3) that construction began:

"..by carefully selecting, adapting or rewriting some items contained in the adult version of the E.P.I. and adding some others. Originally a total of 124 items were administered to sets of children (a total of 2,777) aged between 7 and 16. Results from these surveys were factor analyzed, and 60 suitable items were chosen for the final inventory of which 24 measured E, 24 N and 12 constituted the Lie scale. The choice was based on the loadings of the items for their respective factors, and their lack of loading on other factors."

The J.E.P.Q. differs from the J.E.P.I. by including an additional scale, the P (Psychoticism) scale. Regarding the alterations to the scale the Manual (p.5) states:

"Similarly, the E and the N scales of the present questionnaire are so similar to the corresponding scales of the other questionnaires that whatever has been discovered about the correlates of E and N with the use of the older scales must be assumed to apply with equal force to the new scales."

The Manual suggests that Psychoticism is an underlying personality trait, present in varying degrees in all persons. It is also suggested, that an individual is predisposed to psychiatric abnormalities if psychoticism is present to a "marked degree." They point out that the P scale is not measuring psychosis, and that high P scores do not suggest that an individual will go on to develop a psychotic illness. The question of precisely what the P-scale measures has been considered in some detail by Hargreaves (1985), among others.

7.1.1 Scales measured on the J.E.P.Q..

The three scales used in the J.E.P.Q. were developed using about twenty factorial studies. Efforts were made to:

1. Eliminate or reduce correlations between factors.
2. Eliminate items having loadings on more than one factor.
3. Increase the reliability of the scales in question.

In addition the scales were designed to be independent of 'intelligence.'

Eysenck and Eysenck (1975) suggest that, in the extreme, psychiatric terms like 'schizoid', 'psychopathic' and 'behaviour disorders', overlap with their concept of 'psychoticism' (see section 2.2.3.0).

It must be remembered that the J.E.P.Q. is examining 'normal behaviours' rather than symptoms, and that the inventory is "concerned with personality variables underlying behaviours which become pathological only in extreme cases" (p.11).

7.1.2 Lie Scale

The J.E.P.Q. contains 'Lie scale' items which are intended to detect 'faking'. This allows workers using the questionnaires to state in advance at what 'cut-off' point an individual's overall performance must be called into question. However, in the context of the present study, it was decided not to have a 'cut-off' point, but rather to consider the 'L' scale in the light of 'psychosomatic individuals' having a propensity for 'denial' (Nemiah 1975). It may be that if the R.A.P. group were using 'denial' as a blanket defence then their 'L' scale scores would be higher than those of the Organic Control Group.

7.1.3 Reliability of the J.E.P.Q.

The test-retest reliabilities for the J.E.P.Q. are given in the Manual. They range from as low as 0.33 for 15 year old girls on the 'P' scale and 15 year old boys on the 'E' scale, to 0.79 for 15 year old boys on the 'L' scale and 0.83 for 15 year old girls on the 'L' scale. The Manual also supplies tables showing the internal consistencies of the questionnaire for P, E, N and L. These range from 0.43 for 11 year old girls on the 'P' scale and 0.64 for 7 year old boys on the 'P' scale, to 0.89 for 9 year old girls on the 'L' scale and 0.87 for 9 year old boys on the 'L' scale. Eysenck and Eysenck (1975), describe these reliabilities as "acceptable"; but the test-retest reliabilities, especially for younger children, are low. One explanation they put forward to account for this, is the 6 month time period between test and retest "giving time for genuine changes to take place."

The Manual also supplies means and standard deviations for the scales, by age and sex. The sample from which the figures were obtained, included over 3,000 schoolchildren from various parts of the country and different kinds of schools.

7.1.4 Administration.

The questionnaires were administered in a quiet room. The child was given a ball-point pen and ruler, and asked to read the instructions on the front of the questionnaire:

"Here are some questions about the way you behave feel and act. After each question is a space for answering YES or NO.

Try to decide whether YES or NO is your usual way of acting or feeling. Use a ruler as you work down each question, and then put a cross in the circle under the column headed YES or NO. Work quickly, and don't spend too much time over any question. Be sure not to leave out any questions."

Any children who had difficulty with reading, had the instructions and questions read to them, and the tester marked the form. The questionnaires took approximately 20-25 minutes to complete.

7.1.5 Scoring and Analysis

Raw scores for each of the scales were calculated, using the supplied scoring templates, and these were then converted to 'z scores' by means of the equation:

$$z = \frac{\text{Raw Score} - \text{Age Norm}}{\text{Standard Deviation}}$$

The 'z scores' for each of the four scales for both groups were then fed into a discriminant function analysis.

7.2.0 Results

7.2.1 Discriminant function analysis

The discriminant function analysis showed that the function produced from the groups (n=76) performance on the E, N, P and L scales of the J.E.P.Q., did not significantly predict group membership (p=0.4662). Table 7.1 shows the results of the discriminant function analysis.

Wilks' Lambda	Chisquare	D.F.	Significance
0.9515	3.577	4	0.4662

Table 7.1 Results of the discriminant function analysis

This result means that the present study has produced no evidence to suggest that children with R.A.P. differ from children with appendicitis-pain in terms of the Eysenckian dimensions of personality. The 'null hypothesis' therefore still stands, contrary to the implications of many of the 'clinical descriptions' in the literature.

Table 7.2 shows the standardized canonical discriminant function coefficients for the analysis. These show the relative importance of each of the independent variables to the function; the larger the magnitude, the greater the contribution to the function, regardless of sign.

	FUNCTION 1
Psychoticism	-0.85191
Extraversion	0.12260
Neuroticism	1.02170
Lie	0.00594

Table 7.2 Standardized Canonical Discriminant Function Coefficients

It can be seen from Table 7.2 that the Neuroticism scale was the most important in contributing to the function, followed by the Psychoticism scale. Relatively the least important variable contributing to the function was the Lie scale.

Table 7.3 shows the performance of the discriminant function analysis in terms of predicted and actual group membership.

Actual Group	No. of Cases	Predicted Group Membership	
		1	2
Group 1	44	27 (61.4%)	17 (38.6%)
Group 2	32	14 (43.8%)	18 (56.3%)

Percent of 'grouped' cases correctly classified = 59.21%

Table 7.3 Classification Results

It can be seen from Table 7.3 that of the 44 children with R.A.P. (Group 1), 27 (61.4%) were correctly classified to belong to that group, and that 17 (38.6%) were misclassified to belong to the group which consisted of children with appendicitis (Group 2). Of the 32 children with appendicitis, 18 (56.3%) were correctly classified and 14 (43.8%) were misclassified into the R.A.P. group. Overall 59.21% of cases were correctly classified.

The following sections show the descriptive statistics for the two groups, on the four scales of the J.E.P.Q..

7.2.2 Descriptive statistics

7.2.2.1 Neuroticism

Table 7.4 shows the mean raw scores ranges and standard deviations for the R.A.P. and Organic Control Groups on the 'N' scale for the J.E.P.Q., by group and gender. No significant difference was found between the two groups on this scale ($t=0.47$, $p>0.05$).

	Mean	Range	S.D
R.A.P. Group (n=44)	11.5	3-19	4.354
R.A.P. Males (n=24)	11.8	3-19	4.167
R.A.P. Females (n=20)	11.1	3-19	4.644
Organic Control gp.(n=32)	10.1	1-19	5.183
Organic Control Males (n=19)	10.7	1-19	5.290
Organic Control Females n=13	9.2	2-16	5.080

Table 7.4 Neuroticism: means, ranges and S.D's of scores on the J.E.P.Q., by group and gender.

7.2.2.2 Extraversion

Table 7.5 shows the mean raw scores ranges and standard deviations for the R.A.P. and Organic Control group on the 'E' scale of the J.E.P.Q. No significant difference was found between the two groups on this scale ($t=-0.39$, $p>0.05$).

	Mean	Range	S.D.
R.A.P. Group (n=44)	16.9	8-23	3.728
R.A.P. Males (n=24)	17.4	10-23	4.020
R.A.P. Females (n=20)	16.4	8-22	3.360
Org.Con.Grp. (n=32)	17.8	10-24	4.056
O.C.Males (n=19)	18.7	11-24	4.124
O.C. Females (n=13)	16.4	10-21	3.686

Table 7.5 Extraversion: means, ranges and S.D.'s of scores by group and gender.

7.2.2.3 Psychoticism

Table 7.6 shows the means, ranges and S.D.'s of scores on the 'P' scale as measured by the J.E.P.Q.. No significant difference was found between the two groups on this scale ($t=-0.87$, $p>0.05$).

	Mean	Range	S.D
R.A.P. Group (n=44)	2.4	0-8	1.978
R.A.P. Males (n=24)	3.0	0-6	2.092
R.A.P. Females (n=20)	1.8	0-6	1.682
Org. Con.Grp. (n=32)	2.8	0-11	2.468
O.C. Males (n=19)	3.7	0-11	2.709
O.C. Females (n=13)	1.5	0-5	1.330

Table 7.6 Psychoticism: means, ranges and S.D.'s of scores by group and gender.

7.2.2.4 Lie Scale.

Table 7.7 shows the means, ranges and S.D.'s of scores for the R.A.P. and Organic Control group, on the J.E.P.Q. The means and ranges are also given by gender. No significant difference was found between the two groups on this scale ($t=0.53$, $p>0.05$).

	Mean	Range	S.D.
R.A.P. Group (n=44)	11.8	3-20	4.715
R.A.P. Males (n=24)	10.3	3-19	4.239
R.A.P. Females (n=20)	13.7	7-20	4.716
Org. Con. Grp. (n=32)	10.0	0-18	5.026
O.C. Males (n=19)	9.7	0-18	5.344
O.C. Females (n=13)	10.4	4-18	4.700

Table 7.7 Lie: means, ranges and S.D.'s of scores
by group and gender.

7.3.0.0 Discussion.

From the findings it may be concluded that this study has found no evidence to support the hypothesis that children with R.A.P. differ significantly on the Eysenckian dimensions of personality from children with organic abdominal pain. This finding is in agreement with Knasel's (1982) study which found no difference between children with R.A.P. and Organic Controls on the dimensions of 'N' or 'I', using the J.E.P.I..

The results suggest that the Eysenckian theory, that Introverts have a biologically predetermined higher resting level of cortical arousal due to a higher level of reactivity of the ascending reticular activating system (Barlow, 1988), and therefore 'seek out lower levels of stimulation', is not relevant to R.A.P. of childhood. Similarly, the results suggest that Neuroticism, and its proposed biological basis of 'intense A.N.S. activity and slow rates of habituation', which would

predispose to higher 'conditionability' of the A.N.S., is also not relevant to R.A.P. of childhood.

One other theory proposes to explain 'anxiety responses' in a manner which has been partially related to the Eysenckian dimensions already addressed. Gray (1982) put forward the 'Behavioural Inhibition System' (B.I.S.) as an explanation for the production of 'anxiety responses'. Gray has suggested that two neurobiological systems determine 'personality and emotions'. These have been summarized by Barlow (1988, p.47) as:

"The primary system in his model is the behavioural inhibition system, which consists of the septo-hippocampal system, its monoamine afferents, and the frontal cortex. After specific stimulus input (particularly signals of punishment, non-reward, and novelty), the behavioural inhibition system suppresses ongoing behaviour and redirects attention toward the relevant stimuli.... A complementary system involving the medial forebrain bundle responds to signals of rewards and non-punishment (safety signals) by facilitating approach."

Gray suggests that the biological basis of anxiety is exaggerated inhibition produced by an 'acute and sensitive' B.I.S. reacting to novel stimuli, and punishment. Gray (1985) proposed that this model adds a further axis to the dimensional model of personality proposed by Eysenck (1967). This relationship is represented in Fig 7.0. The B.I.S. lies at one end of the 'new' axis, between 'I' and 'N', and the 'Behavioural Approach System', termed 'Impulsivity', lies at the other end between 'Stability' and 'E'. It is difficult to comment on Gray's model in the context of the present study, except to say that as the R.A.P. and Organic Control Groups do not differ on 'N' or 'I', the results provide no evidence to suggest there would be any significant difference on an additional 'axis'(B.I.S.), which intersects the two

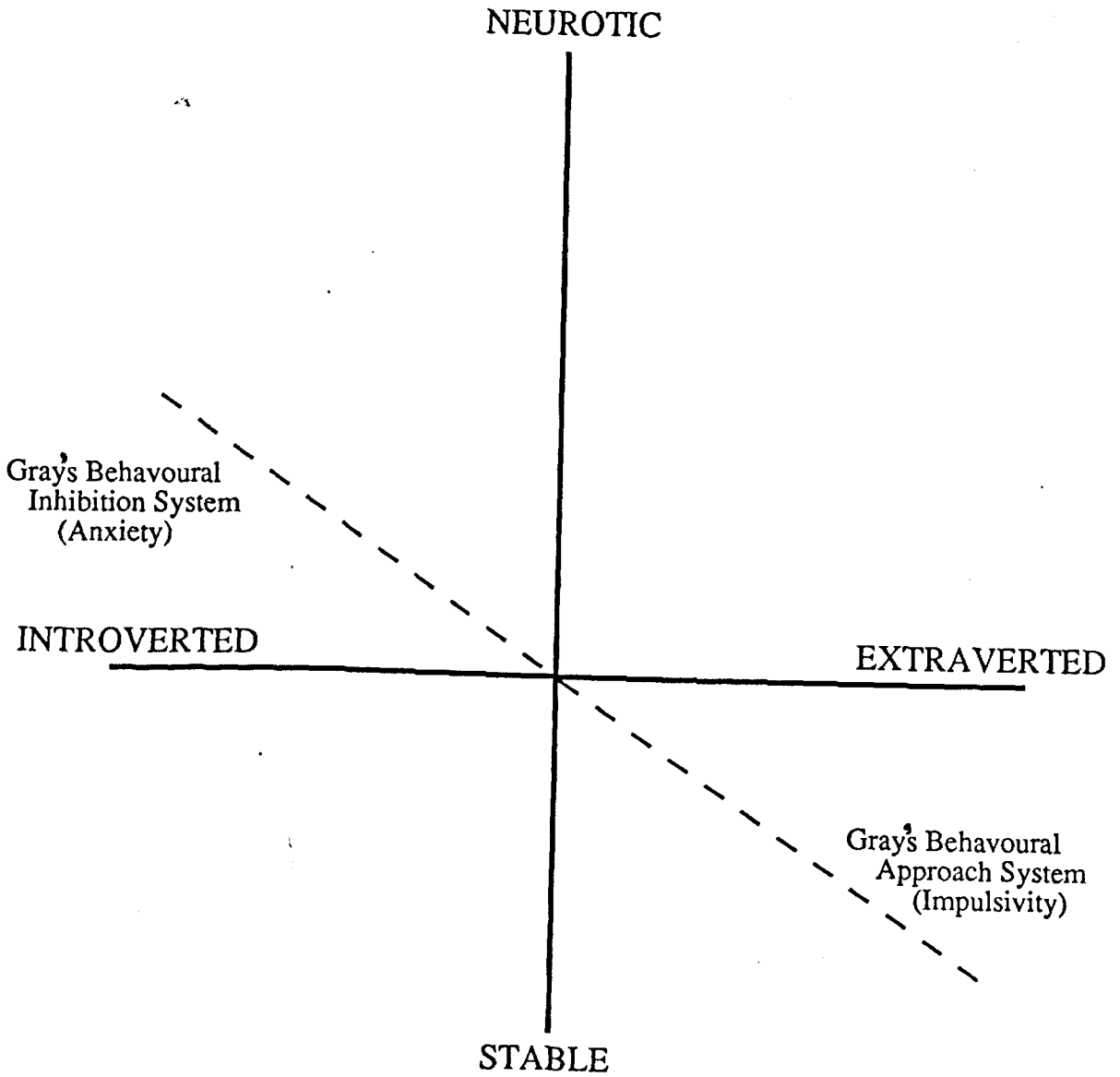


Figure 7.0 The Relationship between the Eysenckian Dimensions of Personality and Gray's 'System' model of Anxiety.

Scales at 45 degrees.

It can be seen that the results do not support the anecdotal descriptions of the 'typical' R.A.P. child which is found in the medical literature (e.g. O'Donnell 1985). This fits in with the findings from Chapter 5 in the present study, and it is suggested that further use of labels such as "...highly strung, fussy, excitable, anxious..." (Apley, 1975), as characteristic descriptions of this clinical group, is inappropriate.

With reference to potential treatments of R.A.P., it can be seen that those treatments which have their theoretical basis in the neo-Pavlovian theory that these children have an 'over-active' A.N.S., may be misplaced.

Chapter Eight Family Dynamics and R.A.P.

8.1.0.0 Introduction

8.2.0.0 Choice of test.

8.2.1.0 The Family Relations Test.

8.2.2.0 Scoring and Analysis

8.3.0.0 Results

8.3.1.0 Family factors

8.3.2.0 Enmeshment

8.3.2.1 Analysis A (S.I.R.T. without age correction)

8.3.2.2 Analysis B (S.I.R.T. with age correction)

8.4.0.0 Discussion

8.1.0.0 Introduction.

In this Chapter, the child's perception of family interaction is assessed, with reference to Minuchin *et al.*'s (1978) model of the 'psychosomatic family'. The characteristics of the psychosomatic family have previously been described (section 2.3.1.0). The Family Relations Test (F.R.T.; Bene and Anthony, 1978) is used, looking specifically for indicators of 'overinvolvement', 'rigidity' and 'lack of conflict resolution' in the child's relationships with other members of the family. In addition, a number of test results from the present study which were considered to measure properties related to the 'enmeshment' of an individual, were analysed separately.

8.2.0.0 Choice of Test.

The F.R.T. gives information which can be seen to be relevant to some of the areas which Minuchin *et al.* (*ibid.*) have suggested are characteristic of the 'psychosomatic family'. For example, 'Overprotectiveness' would be measured by the corresponding items in the test. The 'total involvement' scores for individual members of the family is the total number of items of all categories 'posted' to that individual, and may give an indication of overinvolvement with a member of the family. The 'Strong feelings' items may also provide information

suggest would be present in a child who was part of a 'psychosomatic family'. The tests selected were: the *Rod and Frame Test*, the *F.R.T.* 'total-involvement-to-mother score', the *S.I.R.T.* 'implicit pole' score, and the 'Withdrawal' core syndrome score from the *B.S.A.G.*. The selection of these scores was entirely empirical, on the basis of their 'face-valid' relevance to the phenomenon of enmeshment. Some arguments for the inclusion of each of the measures are as follows.

A) The Rod and Frame Test.

Previously (6.6.0.0), it can be seen that the R.F.T. may well be a 'purer' measure of field-dependence than paper and pencil measures e.g. the C.E.F.T.. The idea that the child is making judgments regarding his/her bodily position and the external world, intuitively seems to link with Minuchin et al.'s (1978) concept of enmeshment. That is to say, the child who is indeed psychologically enmeshed in the family, or in a particular relationship within the family, may be thought of as over-dependent upon that part of his/her socio-emotional 'field', and therefore as likely to perform in a more field-dependent manner on the R.F.T.; and if it is the case that the 'ego' is "first and foremost a body-ego" (as Freud suggested), then the 'enmeshed' children may be less aware of the boundaries/independence of their own bodies, as compared to children who are not enmeshed in the family system.

B) F.R.T. Total involvement of mother score.

The inclusion of this measure needs little explanation as an indicator of enmeshment, Minuchin et al. (1978) suggesting that within a

psychosomatic family the child is closely enmeshed with the mother.

C) S.I.R.T. Implicit Pole score

The use of the S.I.R.T. 'implicit pole score' (see 5.4.0.0) as one of the independent variables which may contribute to the measurement of enmeshment, reflects the influence that being enmeshed within the family system would have on personal individuation. It would be expected that a child enmeshed in such a way would have a less individuated sense of self, as measured by the number of times the child placed him/herself on the implicit pole of a construct elicited by a Kelly 'triad'. Regarding the use of the S.I.R.T., the question of whether to 'age correct' the scores is problematical. It is accepted that levels of individuation change with increasing age, but obviously other factors are also involved.

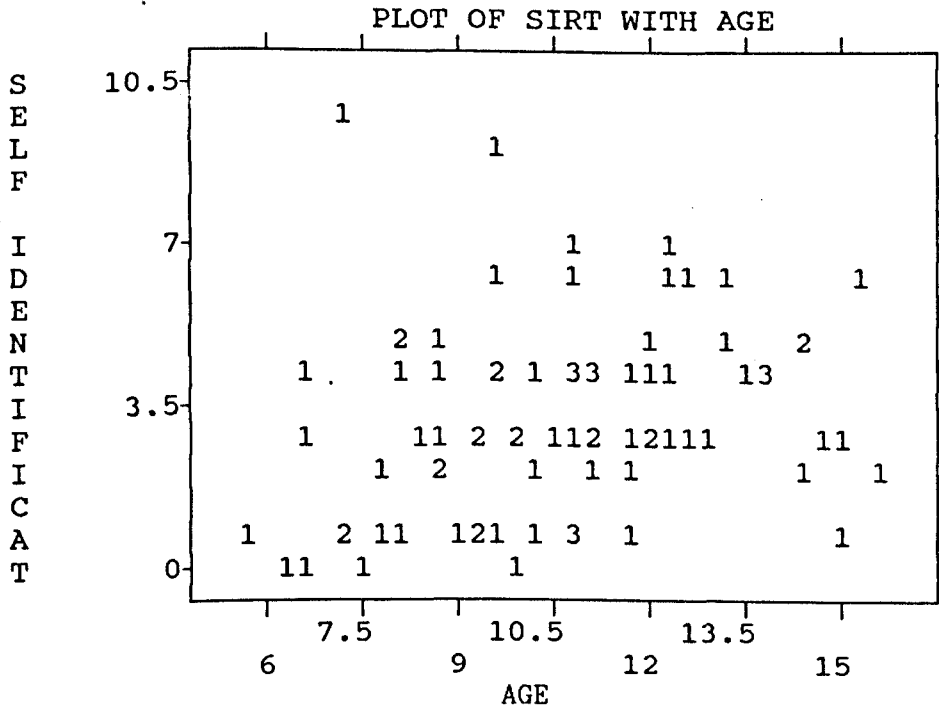


Fig.8.1 Graph showing plot of Age against S.I.R.T. 'Implicit pole' score.

psychosomatic family the child is closely enmeshed with the mother.

C) S.I.R.T. Implicit Pole score

The use of the S.I.R.T. 'implicit pole score' (see 5.4.0.0) as one of the independent variables which may contribute to the measurement of enmeshment, reflects the influence that being enmeshed within the family system would have on personal individuation. It would be expected that a child enmeshed in such a way would have a less individuated sense of self, as measured by the number of times the child placed him/herself on the implicit pole of a construct elicited by a Kelly 'triad'. Regarding the use of the S.I.R.T., the question of whether to 'age correct' the scores is problematical. It is accepted that levels of individuation change with increasing age, but obviously other factors are also involved.

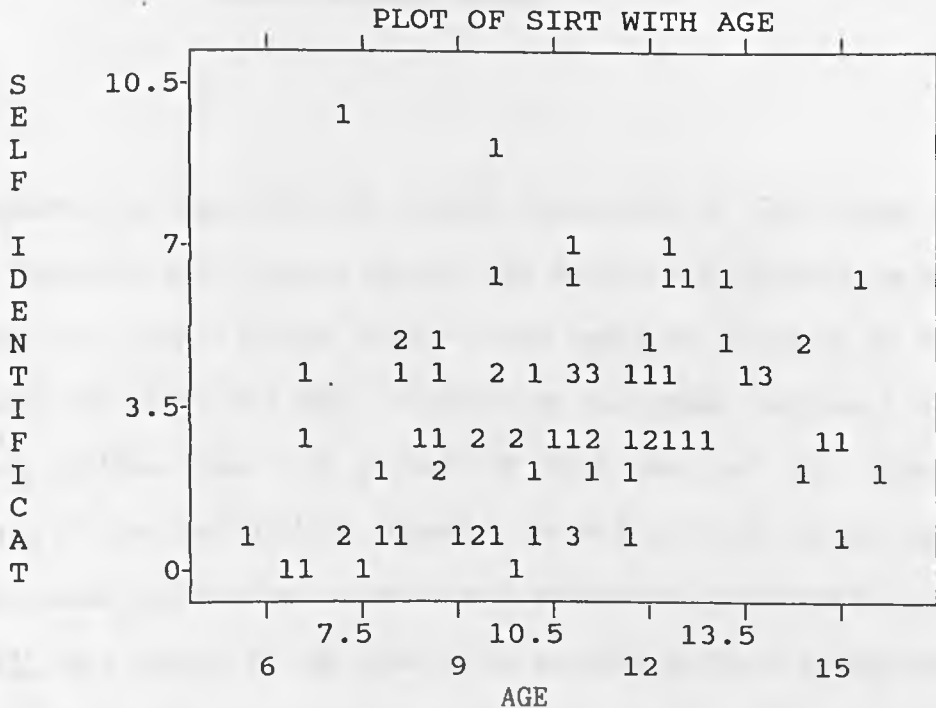


Fig.8.1 Graph showing plot of Age against S.I.R.T. 'Implicit pole' score.

Due to the nature of the S.I.R.T. and the absence of age norms, the only way to correct for age would be a simple division of the score by chronological age. However, this raises the question of possible 'over-correcting' for age by giving chronological age too much importance and thus introducing error into the analysis.

Correlations:	SIRT	AGE
SIRT	1.0000 (82) P= .	.2367 (82) P= .032
AGE	.2367 (82) P= .032	1.0000 (82) P= .

Table 8.1 Correlation between Age and S.I.R.T.
'Implicit pole' scores

This argument was supported by visual inspection of the graph of S.I.R.T. 'implicit pole' scores against age for all the children in the study (Fig.8.1); for a slight linear trend could be observed in the relationship of score and age. (Figures on the graph represent the number of children who are placed in that area of the plot). Computation of the correlation between age and S.I.R.T. score (see Table 8.1) shows there to be a significant relationship between the two ($p = 0.032$). As a result it was decided to include analyses using both the raw score and the age-corrected score from the S.I.R.T., in order to provide the fullest information.

D) The B.S.A.G. Withdrawal score.

Stott (1980) states that withdrawal "...consists in an indifference about human affiliations..." (p.11). He goes on to suggest that teachers may detect some failure of communication on the part of the child. The rationale for including this measure in the battery looking at 'enmeshment' is that the child is 'getting' all they need from the family, and the need to affiliate or communicate with peers is less, or their ability to do so is lessened, due to being enmeshed in the family.

The data produced from the F.R.T. are meant to complement the clinical interview, and because of its nature Knasel (1982) suggests that it is "... at least partly ideographic." The Manual describes case histories in which problems have been identified using the procedure, instead of setting out validity data. However the opportunity to replicate Knasel's work, and also examine the hypotheses put forward by Minuchin et al. (ibid.), were felt to be strong reasons for its inclusion in the test battery.

8.3.0.0 The Family Relations Test. (F.R.T.; Bene and Anthony, 1978)

This test has already been fully discussed (see 5.5.0.0) including an account of materials and its administration.

8.3.1.0 Scoring and Analysis.

The children's scores were calculated by emptying the boxes, and entering the posted card numbers in the appropriate spaces on the record form. The scores were then computed using discriminant function analysis.

A second discriminant function analysis was carried out on the R.F.T., F.R.T. total involvement to mother, S.I.R.T. and B.S.A.G. 'withdrawal' scores. As has been discussed, this analysis was carried out twice, the first used the raw data of the S.I.R.T. score, the second used an age corrected score.

8.4.0.0 Results.

8.4.1.0 Family Interaction

Discriminant function analysis using the F.R.T. scores which examined 'overinvolvement', 'rigidity' and 'lack of conflict resolution', did not produce a function which significantly discriminated between the two groups. Table 8.2 shows the results of the analysis.

Wilks' Lambda	Chisquare	D.F.	Significance
0.8526	12.196	9	0.2025

Table 8.2 Result of the discriminant function analysis
examining functioning of 'the psychosomatic family'.

This result means that the present study has produced no evidence to suggest that the families of children with R.A.P. are exhibiting 'overinvolvement', 'rigidity' or 'lack of conflict resolution', in terms of family functioning as measured by the F.R.T.

Table 8.3 shows the standardized canonical discriminant function coefficients for the above discriminant function analysis. It will be remembered that these show the relative importance of each of the independent variables to the function.

	FUNCTION 1
Total involvement mother	0.68435
Maternal overprotection to self	-0.26094
Paternal overindulgence to self	-0.18460
Maternal overindulgence to self	-0.26711
Maternal overprotection to Nobody	-0.07825
Maternal overindulgence to Nobody	-0.04932
Strong feelings to nobody	0.35531
Strong feelings to self	-0.26463
Age	0.48109

Table 8.3 Standardized canonical discriminant function coefficients

It can be seen from Table 8.3 that the 'total involvement of mother' measure was the most important in contributing to the function, followed by 'age'. Relatively the least important measure contributing

to the function was 'maternal overindulgence to Nobody', followed by 'maternal overprotection to Nobody' (in practice these measures mean denial of over-indulgence/-protection respectively).

Table 8.4 shows the performance of the discriminant function analysis in terms of predicted and actual group membership.

Actual Group	No. of Cases	Predicted Group membership	
		1	2
Group 1	48	33 (68.8%)	15 (31.3%)
Group 2	35	13 (37.1%)	22 (62.9%)

Percent of 'grouped' cases correctly classified: 66.27%

Table 8.4 Classification Results

It can be seen from Table 8.4 that of the 48 children with R.A.P., 33 (68.8%) were correctly classified to belong to that group, and that 15 (31.3%) were misclassified to belong to the group which consisted of children with appendicitis (Group 2). Of the 35 children with appendicitis, 22 (62.9%) were correctly classified and 13 (37.1%) were misclassified into the R.A.P. group. Overall 66.27% of cases were correctly classified.

	Means	Range	S.D.
R.A.P. Group (n=48)	14.48	4-31	6.65
R.A.P. Males (n=26)	14.04	4-28	6.50
R.A.P. Females (n=22)	15.00	4-31	6.94
Organic Control Gp.(n=35)	16.85	6-29	6.18
Organic Control Males (=20)	18.30	7-29	5.59
Organic Control Females (n=15)	14.93	6-26	6.58

Table 8.5 Total Involvement of Mother: Means, Ranges and Standard Deviations of the Scores by Group and Gender.

No significant difference was found between the two groups on the measure of 'Total Involvement of Mother' ($z=-1.7774$, $p= >0.05$).

	Means	Ranges	S.D.
R.A.P. Gp. (n=48)	4.15	0-8	2.53
R.A.P. Males (n=26)	4.31	0-8	2.49
R.A.P. Females (n=22)	3.96	0-8	2.61
Organic Control Gp. (n=35)	3.31	0-8	2.43
Organic Control Males (n=20)	3.30	0-7	2.36
Organic Control Females (n=15)	3.33	0-8	2.61

Table 8.6 Maternal Overprotection to Self: Means, Ranges and Standard Deviations of scores by Group and Gender.

No significant difference was found between the two groups on the measure of 'Maternal Overprotection to Self' ($z=-1.6412$, $p= >0.05$).

	Means	Range	S.D.
R.A.P. Gp. (n=48)	1.35	0-5	1.73
R.A.P. Males (n=26)	1.39	0-5	1.84
R.A.P. Females (n=22)	1.32	0-5	1.64
Organic Control Gp. (n=35)	0.86	0-4	1.14
Organic Control Males (n=20)	1.05	0-3	1.05
Organic Control Females (n=15)	0.60	0-4	1.24

Table 8.7 Paternal Overindulgence to Self: Means, Ranges and Standard Deviations of scores By Group and Gender.

No significant difference was found between the two groups on the measure of 'Paternal Overindulgence to Self' ($z=-1.1533$, $p>0.05$).

	Means	Range	S.D.
R.A.P. Gp. (n=48)	0.9	0-5	1.56
R.A.P. Males (n=26)	1.23	0-5	1.84
R.A.P. Females (n=20)	0.50	0-4	1.06
Organic Control Gp. (n=35)	1.31	0-5	1.57
Organic Control Males (n=20)	1.05	0-5	1.43
Organic Control Females (n=15)	1.67	0-5	1.72

Table 8.8 Maternal Overindulgence to Self: Means, Ranges and Standard Deviations of the scores, by Group and Gender.

No significant difference was found between the two groups on the measure of 'Maternal Overindulgence to Self' ($z=-0.9380$, $p>0.05$).

	Mean	Range	S.D.
R.A.P. Gp. (n=48)	0.54	0-5	1.09
R.A.P. Males (n=26)	0.77	0-5	1.34
R.A.P. Females (n=22)	0.27	0-2	0.63
Organic Control Gp. (n=35)	0.69	0-5	1.41
Organic Control Males (n=20)	0.55	0-4	1.15
Organic Control Females (n=15)	0.88	0-5	1.73

Table 8.9 Maternal Overprotection to Nobody: Showing Means, Ranges and Standard Deviations for Scores, by Group and Gender.

No significant difference was found between the two groups on the measure of 'Maternal Overprotection to Nobody' ($z=-0.3270$, $p>0.05$).

	Mean	Range	S.D.
R.A.P. Gp (n=48)	1.48	0-5	1.43
R.A.P. Males (n=22)	1.58	0-5	1.45
R.A.P. Females (n=15)	1.36	0-4	1.43
Organic Control Gp. (n=35)	1.17	0-4	1.32
Organic Control Males (n=20)	1.50	0-4	1.57
Organic Control Females (n=15)	0.73	0-2	0.70

Table 8.10 Maternal Overindulgence to Nobody: Means, Ranges and Standard Deviations for the Scores, by Group and Gender.

A significant difference was found between the two groups on the measure of 'Maternal Overindulgence to Nobody' ($z=-2.0051$, $p=0.045$). This result, however, must be considered in the light of a high number of 'tied' values, and also the high number of children in both groups scoring zero (n=47).

	Mean	Range	S.D.
R.A.P. Gp. (n=48)	6.48	0-24	6.25
R.A.P. Males (n=26)	7.96	0-24	7.07
R.A.P. Females (n=22)	4.73	0-17	4.68
Organic Control Gp.(n=35)	8.63	0-26	6.95
Organic Control Males (n=20)	8.25	0-24	6.63
Organic Control Females (n=15)	9.13	0-26	7.57

Table 8.11 Positive and Negative Strong Feelings Combined to Mr. Nobody: Means, Ranges and Standard Deviations by Group and Gender.

	Mean	Range	S.D.
R.A.P. Gp. (n=48)	0.21	0-3	0.58
R.A.P. Males (n=26)	0.31	0-3	0.74
R.A.P. Females (n=22)	0.09	0-1	0.29
Organic Control Group (n=35)	0.09	0-1	0.28
Organic Control Males (n=20)	0.10	0-1	0.31
Organic Control Females (n=15)	0.07	0-1	0.26

Table 8.12 Positive and Negative strong Feelings to Self: Means, Ranges And Standard Deviations for scores by Group and Gender.

No significant difference was found between the two groups on the measure of 'Strong Feelings to Self' ($z=-0.8738$, $p>0.05$).

	Mean	Range	S.D.
R.A.P. Gp. (n=48)	10.15	5.58- 15.58	2.33
R.A.P. Males (n=26)	10.35	5.92- 14.50	2.26
R.A.P. Females (n=22)	9.92	5.58- 15.58	2.43
Organic Control Group (n=35)	11.19	6.67- 15.17	2.41
Organic Control Males (n=20)	10.88	6.67- 15.00	2.44
Organic Control Females (n=15)	11.59	7.08- 15.17	2.39

Table 8.13 Age: Means, Ranges and standard deviations by Group and Gender.

A significant difference was found between the Age of the two groups ($z=-1.9691$, $p= 0.0489$), hence the use of age corrected scores in the present study, when required.

8.4.2.0 Examining Enmeshment

8.4.2.1 Analysis A (without age correction)

The discriminant function analysis of these test results which were judged to measure 'enmeshment', when the S.I.R.T. was not age-corrected (analysis A), significantly discriminated between the two groups ($p=0.0367$). This result suggests that children with R.A.P. may well be 'enmeshed' within the family, compared to children with appendicitis. Table 8.14 shows the result of analysis A.

Wilks' Lambda	Chisquare	D.F.	Significance
0.8544	10.231	4	0.0367

Table 8.14 Results of discriminant function analysis A.

The standardized canonical discriminant function coefficients for analysis A are shown in Table 8.15.

	Function 1
Rod and Frame Test	-0.27145
F.R.T. Total involvement of mother	0.50455
S.I.R.T. Implicit Pole score	0.64621
B.S.A.G. Withdrawl	0.52820

Table 8.15 Standardized canonical discriminant function coefficients for analysis A

From Table 8.15 it can be seen that, relatively, F.R.T. total involvement of mother, S.I.R.T. implicit pole score and the B.S.A.G. withdrawl score were similarly important to the function. The R.F.T. can be seen to be less so. Table 8.16 shows the performance of analysis A in terms of predicted and actual group membership.

Actual Group	No. of cases	Predicted Group Membership	
		1	2
Group 1	39	30 (76.9%)	9 (23.1%)
Group 2	30	12 (40.0%)	18 (60.0%)

Percent of 'grouped' cases correctly classified : 69.57%

Table 8.16 Classification results - Analysis A

It can be seen from Table 8.16 that of the 39 children with R.A.P. (Group 1), 30 (76.9%) were correctly classified to belong to that group, and that 9 (23.1%) were misclassified to belong to the group which consisted of children with appendicitis (Group 2). Of the 30 children with appendicitis, 18 (60%) were correctly classified and 12 (40.0%) were misclassified into the R.A.P. group. Overall 69.57% of cases were correctly classified.

8.4.2.2 Analysis B (with age correction)

Analysis B consisted of using a discriminant function analysis on the same tests scores, with the exception that the S.I.R.T was age-corrected by dividing the raw scores by chronological age. The discriminant function analysis did not discriminate significantly between the two groups ($p=0.0606$). Table 8.17 shows the results of analysis B.

Wilks' Lambda	Chisquare	D.F.	Significance
0.8704	9.022	4	0.0606

Table 8.17 Results of discriminant function analysis B

The standardized canonical discriminant function coefficients for analysis B are shown in Table 8.18. It can be seen that the S.I.R.T, F.R.T. total involvement of mother and B.S.A.G. withdrawal variables, were similarly important in their contribution to the function. The R.F.T. being the least important in its contribution to the function. Not surprisingly, this is the same balance as was found in the analysis that was not age-corrected.

	Function 1
S.I.R.T implicit pole (age corrected)	0.58184
F.R.T. total involvement of mother	0.51073
B.S.A.G. withdrawal	0.56568
R.F.T.	-0.35075

Table 8.18 Standardized canonical discriminant function coefficients for analysis B

Table 8.19 shows the performance of discriminant function analysis B, in terms of predicted and actual group membership.

Actual Group	No. of cases	Predicted Group Membership	
		1	2
Group 1	39	30 (76.9%)	9 (23.1%)
Group 2	30	11 (36.7%)	19 (63.3%)

Percent of 'grouped' cases correctly classified: 71.01%

Table 8.19 Classification results for analysis B

It can be seen from Table 8.19 that the classification results are similar to those of analysis A, shown in Table 8.16. The only difference between the two analyses in terms of classification, is the re-classification of one individual in the appendicitis group, where in the previous analysis the case had been misclassified.

8.5.0.0 Discussion

The results from this section of the study do not provide any evidence to suggest that Minuchin et al.'s (1978) 'overinvolvement', 'rigidity' or 'lack of conflict resolution', as patterns of functioning within the psychosomatic family, are present in the families of children with R.A.P. However, the findings from the analysis of variables which it is suggested may measure what Minuchin et al. (1978) have termed 'enmeshment', suggest that the two groups of children may differ significantly on that dimension.

The question of whether to age correct the S.I.R.T. data or not, proved problematical. This issue seemed to be that dividing the score by

chronological age, may well have been 'overcorrecting' thus introducing error, so in the absence of age norms it was decided to present an analysis using both the raw score and the age-corrected score. The fact that a significant difference was found between the two groups when the raw score was used, and a non-significant result obtained when the age corrected score was used, suggests that 'enmeshment' may well be playing a role in R.A.P. of childhood. Unfortunately the present analysis can only suggest that the area of 'enmeshment' needs to be further investigated with this population of children.

The fact that some support was found for one of Minuchin et al.'s proposed 'types' of functioning within the psychosomatic family, using a profile of scores, raises two possibilities. Firstly, that the F.R.T. is not an appropriate tool to test for the types of family functioning being examined here, or secondly that Minuchin et al. are mistaken in suggesting that 'enmeshment' accompanies 'overinvolvement', 'rigidity' and 'lack of conflict resolution' within the functioning of the psychosomatic family. It may be important that the F.R.T. is a measure of the child's perception, or 'apperception', of family interactions/functioning, as opposed to clinical observation; and, given this, it is suggested that the results from the F.R.T. be treated with some caution as regards being measures of the functioning within the psychosomatic family.

As an aside, the results provide no evidence to suggest that the R.A.P. group was more alexithymic than the Organic Control Group, as indicated by the posting of more 'strong feelings' to Mr. Nobody, or that the children with R.A.P. used 'denial' as a defence against

'overinvolvement' and 'overprotection', significantly more often than children with appendicitis.

Chapter Nine Discussion

- 9.1.0 Overview of the Results of the Study
- 9.2.0 Methodological Difficulties
- 9.3.0 Psychological Picture of the Child with R.A.P.
- 9.4.0 Intervention
 - 9.4.1 Service Provision
 - 9.4.2 Medical Labels
 - 9.4.3 The Cost of Not Intervening
- 9.5.0 Follow Up

9.1.0 Overview of the Results of the Study.

With reference to the clinical descriptions of the 'personalities' of children suffering from R.A.P., the test results reported in Chapter 4 suggest there is no difference in the Social Maturity or Social Adjustment of children with R.A.P., and children with appendicitis. The independence of the schoolteacher's assessment lent weight to this finding.

Cognitive factors and their relationship to R.A.P. were examined in Chapter 6. Using a function derived from measures of general mental ability, field-dependence and alexithymia, it was not possible to discriminate significantly between the two groups.

Correlations between the S.P.M., C.E.F.T., and the R.F.T. suggested that the C.E.F.T. and R.F.T. may well be measuring different 'attributes', with the C.E.F.T. being strongly correlated with the S.P.M., with the correlation between the S.P.M. and the R.F.T. only just reaching significance ($p < 0.05$). The correlation between the R.F.T. and the C.E.F.T. suggested that they share little of the same variance.

The relationship of the Autonomic Conditioning Theory to R.A.P. of childhood, was examined in Chapter 7 using the J.E.P.Q.. No systematic significant differences were found on the measures of Eysenck's 'E', 'N' or 'P'. These results suggest that there is no constitutional difference, in terms of Eysenck's preferential conditionability of Introverts and Neurotics, between children with R.A.P. and those in the Organic Control group.

The child's perceptions of family relationships with regard to Minuchin *et al.*'s (1978) 'psychosomatic family' were examined in Chapter 8.

9.2.0 Methodological Difficulties.

The aim of the study was to examine the psychological make-up of children suffering from R.A.P. (see above). Originally the intention was to compare about 50 children with R.A.P. with an equal number of children in the Organic control group, and to match for sex and approximate age. Unfortunately due to drop outs, and clinically related problems of classification confounding the design after the 'running' stage had been completed (see chapter 3), the number of children in each group was uneven. However, certain components of the design, namely, the researcher working blind, the rigorous medical screening and the relevance of the tests used (and the consistency with which they were administered), has served to produce good quality information on the target clinical population.

9.3.0 Psychological Picture of the Child with R.A.P.

The differences which were found regarding the presence of 'enmeshment', is in agreement with early descriptions of R.A.P. of childhood. Moro (1913) suggested that R.A.P. was a product of the child's 'neuropathogenic domestic surroundings', and later Apley (1975) observed that many of the children with R.A.P. belonged to 'painful families'.

Knasel (1982) found two significant differences between children with R.A.P. and those with appendicitis in terms of 'self-other' perception. It was found, using the F.R.T., that the children with appendicitis were twice as likely to send items to themselves, than the children with R.A.P.. The second finding, which Knasel described as "essentially similar" (p.230) was that the children with R.A.P. were significantly more likely to assign themselves to the 'implied' pole of a construct on the S.I.R.T.. Knasel suggested that these findings represented an inability for the children with R.A.P. to "...construe themselves as a person amongst other people" (p.230). He went on to discuss these findings in terms of Piaget's notion of 'egocentricity', suggesting that children with R.A.P. were exhibiting a kind of 'pre-operational egocentricity'.

Given the lack of any significant difference between the two groups on the 'cognitive factors' examined in Chapter Six of present study, it seems unlikely that 'pre-operational egocentricity' is relevant to R.A.P. of childhood. While disagreeing with Knasel's conclusions, the findings of his study 'fit in' with the finding regarding 'enmeshment' in the present study. A child 'enmeshed' within the 'psychosomatic

family', would be expected to have difficulty seeing her/himself as an individual amongst other people, as Knasel (1982) found.

If the child with R.A.P. is indeed 'enmeshed' within the family system, it may be that 'self-report' investigations are of little value with this population. Alvarez (1983) examining children with R.A.P., used such self-report and found contradictory results. However, Alvarez (1983) did suggest, based on parental report, that children with R.A.P. have difficulties "...making relationships with peers" (p.179). This would again 'fit' the picture that would be expected from a child 'enmeshed' in a family, and was the component of 'enmeshment' measured by the B.S.A.G. 'withdrawal' core syndrome.

The 'phenotype' of the child who is 'enmeshed' within a family, is one who does not use much 'emotionally laden' language, has difficulty separating specific events from their surroundings, in all senses, and who does not see him/herself as an individual in their own right. The conflict avoidance of the family would engender low expression of 'emotionality'. The 'wholeness' of the family in their 'overconcern' and 'enmeshment', and the 'rigidity' of their beliefs, may encourage a type of functioning which does perceive events as 'whole', and not comprising discrete parts. The 'enmeshed' relationships within the 'psychosomatic family', would hinder the development of an individual sense of self in a child.

The writer is impressed with the thoroughness and exact measures taken by Minuchin et al. (1978) in their work with diabetic children and 'psychosomatic families'. The observation of the families 'interacting'

and the objective measurement of F.F.A. in the blood of the family members, make the results of the study quite compelling. It seems that Minuchin et al. (1978) were some way to following an 'ethological' approach to the study of 'psychosomatic disorders' in children, and it has been suggested that this approach (Hutt and Hutt 1970, p20-21):

"..may therefore provide a valuable adjunct to those of the psychologist and clinician in studying the behaviour of psychiatric patients."

It may be that the F.R.T. used in the present study, is not a sensitive enough technique to pick up the relationships that Minuchin et al. (1978) describe. Objective observation of intrafamilial relationships is very different from a child's perceptions of those relationships, from within the family.

One way forward may be to apply the same type of approach as that of Minuchin et al. (1978). For example, instead of F.F.A. levels, the technology now exists to allow 24 hour monitoring of colonic muscle activity, in the home setting. Measures of family interaction in the home may prove difficult although use could be made of audio and video tape. Initially, a direct replication of the methodology of the Minuchin et al study, that is, in a controlled setting, may be the appropriate first step.

It may be that the characteristics investigated in the present study which have been strongly associated in the literature (Witkin 1964; Sifneos, 1967) with psychosomatic disorders, namely 'field-dependence' and alexithymia, have not developed yet in the children with R.A.P.. A tentative explanation may be that the initial process, due to the functioning of the 'psychosomatic family', is one of enmeshment. As

this process becomes more consolidated over time and as the child matures, the different characteristics associated with psychosomatic disorders appear, i.e. field-dependence and alexithymia may well be the product of an individual who is or has been the member of a 'psychosomatic family' (Minuchin, 1978). This hypothesis is in line with recent work which suggests that alexithymia is a constant trait in an individuals 'make-up' as opposed to a transient 'state' (Salminen et al., 1994), and also with the finding by Cohen et al. (1994) that alexithymia is significantly related to "...the tendency to experience and report physical signs and symptoms" (p. 126), rather than the medical condition of the individual. Bach et al. (1994, p.537) suggest that:

"...studies are required addressing the temporal relationship between alexithymic characteristics and the development and maintenance of functional somatic symptoms in clinical samples."

The present study provides an opportunity to do so (See section 9.5.0)

One consequence of the proposed developmental formulation regarding 'psychosomatic characteristics', if it is accurate, is that studies which are solely investigating 'secondary alexithymia', i.e. that only present in previously healthy individuals with chronic medical problems, may be examining a different, although superficially similar entity.

9.4.0 Intervention.

Regarding pharmacological treatment, it may be that the role of drugs, in the case of R.A.P. of childhood, is at best palliative and at worst promotes the cycle of 'avoidance', and that of increased medical

attendance. A purely behavioural intervention regarding R.A.P. of childhood, focused on the symptom, is not supported from the results of the present study. An extreme approach of this kind is reported by Singh et al. (1986). The following is the summary of their report:

"Treated 10 children (aged 7-13yrs) presenting with abdominal pain, using a behavioural technique. Ss were asked to attend a child guidance clinic daily, to lie down on a bed, and to indicate the location of the pain. An electric prod was applied to the spot and 3 consecutive shocks administered. Ss were then dismissed and the parents were asked not to be solicitous after their children's pain. Eight cases were cured, and 2 did not show up after 1 or 2 sessions. One case required 18 sessions and another 36 sessions."

No long-term follow-up details were supplied for the Singh et al. (1986) study, the results of the present study suggest that it would be difficult for an intervention which did not involve the family in some process of change, to be successful.

Lask and Fosson (1989) review family therapy in relation to childhood 'psychosomatic disorders' and represent family dysfunctions as (p.105):

"..(1) parenting is lax, rigid or inconsistent; (2) There is an inability to make decisions, solve problems or resolve conflicts;(3) Communications are indirect and/or unclear;(4)There is an inability to express and respond appropriately to everyday needs and emotions; and (5) there is no respect for each persons individuality and the childrens need for increasing independence."

In addition they note that 'family medical myths' may play a part in the maintenance of the problems. An example of this may be ' We must not upset X because if you have stomach pains for a long time when a child, you could get stomach cancer when you grow up'. A family oriented intervention must as a first step, therefore, counter these myths with education regarding the symptoms of R.A.P..

The results of the present study suggest that the focus for therapeutic intervention should be (a) problem solving, (b) appropriate expression of and responses to emotions, and (c) the right to individuality and the child's need for independence.

It would be essential for any intervention in this area, that there was close cooperation between a Consultant Paediatrician, the family G.P., and an experienced 'family therapy team'. In the case of R.A.P., evaluation of outcome would involve measures of frequency and intensity of abdominal pain. However, the intervention discussed may well produce collateral changes in the family dynamics, and it would be important that professionals make the parents aware that such changes may occur, and that appropriate support be available.

As an adjunct to any 'family therapy' intervention, it may be that intervention at an individual level may be helpful. The aim would be to increase 'sense of self' in the child with R.A.P., using 'action techniques, for example role plays, social skills training, and an increase in activity in which the child themselves, and the family, may see them as independent.

No evidence was found in the present study to suggest that Alexithymia is present in children with R.A.P.. However, many studies (e.g. Sifneos 1967; Nemiah et al., 1976) have found alexithymia to be present in adults with psychosomatic disorders, and it may be that children with R.A.P. go on to develop alexithymia in later life. One may speculate as to the part that the family functioning plays in the development of alexithymia, it seeming possible that a family committed to

'maintaining the status quo' and 'avoiding conflict', may well produce individuals who have deficiencies in the expression of emotion. There has been speculation as to whether alexithymia is amenable to any intervention (Nemiah, 1975), and its exact nature is currently being debated (Taylor *et al.*, 1993, Rubino 1993). It has been suggested that 'modelling' of affective language in the clinical setting may be helpful.

9.4.1 Service Provision

Given the prevalence of 1 in 10 of all school-age children having R.A.P., the setting up of a standard referral system between departments of paediatrics and Child Psychology services, seems justified. This could be in addition to an education programme for both sets of professionals, many of whom may be unaware of the present 'state of play' in the area'. Given the inadequacy and inconsistency of 'treatment', this development of service provision seems warranted. It is realised that the financial cost of such changes may be prohibitive, but other financial costs need to be borne in mind (see section 9.4.3).

9.4.2 Medical Labels

The many medical labels in this area are unhelpful. There is a need for rationalization, which would help to improve communication between professionals, and to promote understanding in patients\clients. Some individuals may deem it inappropriate for a 'non-medic' to put forward some of the arguments in Chapter 4 of this thesis. The writer feels, however, that the problem with, for example the label of 'abdominal epilepsy', was not a medical but rather a logical one. That is, the conclusions (and hence the label), do not seem to follow from the

evidence.

9.4.3 The Cost of Not Intervening.

From the review of the literature in the area, it has become clear that children with R.A.P. do not simply 'grow out of it' (Christensen and Mortensen, 1975). 'Irritable Bowel Syndrome' in the adult population, accounts for between 50-70% of referrals to gastroenterology clinics (Fielding 1977), and has a prevalence in the general population of between 8-17% (Drossman et al., 1982). Brannon and Feist (1992) suggest that 29 million Americans suffer from disabling headaches, mainly migraine, and spend \$4 billion a year to alleviate it. (It is not known how much of this cost in the United Kingdom is met by the N.H.S.) Possibly, some adults with 'Irritable Bowel Syndrome' and migrainous headaches, did not suffer R.A.P. as children, but there does seem to be a connection (Apley 1975; Christensen and Mortensen, 1975). It may be that those adults who did suffer R.A.P. as children, set down the pattern for 'psychosomatic responding', in childhood. If interventions let children 'try another way' (Gold, 1972), then it may be that a difference could be made in responses to situations during adolescence and adulthood which would otherwise have produced a 'psychosomatic response'.

9.5.0 Follow-Up

The present study has examined a sample of children with R.A.P. who underwent strict medical screening, and detailed psychological testing. There is potential for long term follow-up of these children into early adulthood, subject to the usual ethical committee endorsement.

In addition, the tests in Chapter 8 measuring 'enmeshment', which produced a function which significantly discriminated between the children with R.A.P. and those with appendicitis, gave information regarding misclassifications. That is, the analysis provided the number of children who had appendicitis, whose test results categorized them as 'behaving' as children with R.A.P. ($n=12$). These children were able to have their subject number identified, and therefore there is the potential for a 'targeted' follow-up which would examine how many of the twelve children from the appendicitis group misclassified as belonging to the R.A.P. group, have gone on to exhibit psychosomatic symptoms in the ensuing years.

References

- Adler, A. (1928). *Understanding Human Nature*. (Translated by W.B. Wolfe.) London: Allen & Unwin.
- Adorno, T.W., Frenkel-Brunswik, E., Levinson, D.J., & Sanford, R.N. (1950). *The Authoritarian Personality*. New York: Harper & Row.
- Alexander, F. (1950). *Psychosomatic Medicine*. New York: Norton.
- Allen, R.E. (Ed.) (1990). *The Concise Oxford Dictionary*. Oxford: Clarendon Press.
- Alvarez, J.H. (1983). *Recurrent Abdominal Pain in Children: A Psychological Study*. Unpublished Ph.D. Thesis, University of Wales: Cardiff University College.
- Anastasi, A. (1988). *Psychological Testing*. New York: Macmillan.
- Apley, J. (1975). *The Child with Abdominal Pains*. 2nd, Ed. Oxford: Blackwell Scientific Publications.
- Apley, J. (1967). The child with Recurrent Abdominal Pain. *Pediatric Clinics of North America*, 14, 63-72.
- Apley, J. (1973). Which of you by taking thought can add one cubit unto his stature? Psychosomatic illness in children. *British Medical Journal*, 3, 7-9.
- Apley, J. & Hale, B. (1973). Children with recurrent abdominal pain: How do they grow up? *British Medical Journal*, 3, 7.
- Apley, J., Lloyd, J.K. & Turton, C. (1956). Electroencephalography in children with recurrent abdominal pain. *Lancet*, 1, 264.
- Apley, J. & MacKeith, R. (1962). *The child and his symptoms: A psychosomatic approach*. Philadelphia: Davis.
- Apley, J. & Naish, N. (1958). Recurrent abdominal pains: A field survey of 1000 school children. *Archives of Disorders of Childhood*, 33, 165.
- Apley, J., Haslam, D.R., & Grant Tulloh, C. (1971). Pupillary reaction in children in children with recurrent abdominal pain. *Archives of Disorders of Childhood*, 46, 337-340.
- Argov, Z. & Mastiglia, F.L. (1979). Drug induced disorders of neuromuscular transmission. *Adverse Drug Reaction Bulletin*, 74.
- Bach, M., Bach, D., Bohmer, F., & Nutzinger, D. (1994). Alexithymia and somatization: Relationship to DSM-III-R diagnoses. *Journal of Psychosomatic Research*, 38, 529-538.
- Bannister, D. & Agnew, J. (1976). The child's construing of self. In *Nebraska Symposium on Motivation*. Nebraska: University of Nebraska Press.

- Bannister, D. & Mair, J.M.M. (1968). *The Evaluation of Personal Constructs*. London: Academic Press.
- Barbero, G. J. (1987). The Irritable Bowel Syndrome. In R.E. Behrman, & V.L. Vaughan (Eds), *Nelson Textbook of Pediatrics*. Philadelphia: W.B. Saunders Company.
- Barbero, R.E. & McKay, R.J. (1983). The Irritable Bowel Syndrome. In R.E. Behrman, & V.L. Vaughan (Eds), *Textbook of Pediatrics*. Philadelphia: Nelson.
- Barlow, D.H. (1988). *Anxiety and its Disorders*. New York: Guildford Press.
- Behrman, R.E. & Vaughan, V.L. (1983). *Textbook of Pediatrics*. Philadelphia: Nelson.
- Bene, E. & Anthony, J. (1978). *The Family Relations Test*. Revised Edition. Windsor: N.F.E.R. Nelson.
- Biggar, J.J. & Hoffman, B.F. (1990). Antiarrhythmic drugs. In A.G. Gilman, T.W. Rall, A.S. Nies & P.Taylor (Eds), *The pharmacological basis of therapeutics*. London: Pergamon Press.
- Birleson, P. (1978). *A self rating scale for depressive disorder*. Unpublished Ph.D. Thesis: University of Edinburgh.
- Bloch, D.A. (1987). Family/Disease/Treatment systems: A coevolutionary model. *Family Systems Medicine*, 5, 277-292.
- Bowen, M.A. (1960). A family concept of schizophrenia. In D. Jackson (Ed), *The Etiology of Schizophrenia*. New York: Basic Books.
- Brady, J.P., & Reiger, W. (1975). Behavioral treatment in Anorexia Nervosa. In T. Thompson & W.S. Dockens (Eds), *Application of Behaviour Modification*, 3rd ed. New York: Academic Press.
- Brannon, L. & Feist, J. (1992). *Health Psychology: An introduction to behaviour and health*. London: Wadsworth Publishing Company.
- Bursten, B. (1965). Family dynamics, the sick role and medical hospital admissions. *Family Process*. 4, 206-216.
- Cannon, W.B. (1932). *The Wisdom of the Body*. New York: Norton.
- Cattell, R.B. (1959). *Personality and Motivation: Structure and Measurement*. New York: World Book Company.
- Cheshire, N.M., Knasel, E.G. & Davies, R.H. (1987). Self perception and individuation in children. In N.M. Cheshire & H. Thomae (Eds), *Self, Symptoms and Psychotherapy*. London: Wiley.

- Christenson, M.F. & Mortensen, O. (1975). Long term prognosis in children with recurrent abdominal pain. *Archives of Disease in Childhood*, 50, 110-114.
- Christie, M.J. (1981). Foundations of Psychosomatics. In M.J.Christie & P. Mellett (Eds), *Foundations of Psychosomatics*. Chichester: Wiley.
- Christie, M.J. & Mellett, P. (Eds.) (1981). *Foundations of Psychosomatics*. Chichester: Wiley.
- Claridge, G.S. & Chappa, H.K. (1973). Psychoticism: A study of its biological basis in normal subjects. *British Journal of Social and Clinical Psychology*. 12, 175-187.
- Cohen, K., Auld, F., & Brooker, H. (1994). Is alexithymia related to psychosomatic disorder and somatizing? *Journal of Psychosomatic Research*, 38, 119-127.
- Dahl, L. & Haar, J. (1969). Recidiverende Mavesmerter Barnealderer. *Ugeskr Laeger*. 131, 1509.
- Davidson, L.M. & Baum, A. (1986). Chronic stress and post-traumatic stress disorders. *Journal of Consulting and Clinical Psychology*. 54, 303-308.
- Davies, R.H. (1987). Personal communication.
- Davison, G.C. & Neale, J.M. (1990). *Abnormal Psychology*. 5th Ed. New York: Wiley.
- De la Torre, R., Navarro, J.L. & Aldrete, J.A. (1985). Comparision between phenytoin and conventional treatment for Irritable Bowel Syndrome. *Current Therapeutic Research*. 38, 661-669.
- Dixon, N.F. (1981). Psychosomatic Disorder: A special case of subliminal perception. In M.J. Christie & P.G. Mellett (Eds), *Foundations of Psychosomatics*. Chichester: Wiley.
- Doll, E.A. (1965). *Vineland Social Maturity Scale*. Minnesota: American Guidance Service Inc..
- Drossman, D.A., Sandler, R.S., McKee, D.C. & Lovitz, A.J. (1982). Bowel patterns among subjects not seeking health care: Use of a questionnaire to identify a population with bowel dysfunction. *Gastroenterology*. 83, 529-534.
- Dunbar, H.F. (1943). *Psychosomatic Diagnosis*. New York: Hoeber.
- Eaves, L.J., Eysenck, H.J. & Martin, N.G. (1989). *Genes, Culture and Personality: An Empirical Approach*. New York: Harcourt Brace Jovanovich.
- Eysenck, H.J. (1947). *Dimensions of Personality*. London: Routledge & Kegan Paul.

- Eysenck, H.J. (1959). *Manual of the M.P.I.*. London: University Press.
- Eysenck, H.J. (1960). The effects of psychotherapy. In H.J. Eysenck (Ed), *Handbook of Abnormal Psychology*. London: Pitman Medical.
- Eysenck, H.J. (1967). *The Biological Basis of Personality*. Springfield, Illinois: C.C. Thomas.
- Eysenck, H.J. (1970) The classification of depressive illness. *British Journal of Psychiatry*. 117, 241-250.
- Eysenck, H.J. (1972). Primaries or second order factors: A critical consideration of Cattell's 16PF. Battery. *British Journal of Social and Clinical Research*. 11, 265-269.
- Eysenck, H.J. (1975). *Manual for the E.P.Q.*. Sevenoakes: Hodder & Stoughton.
- Eysenck, H.J. & Eysenck, M.W. (1985). *Personality and Individual Differences*. New York: Plenum Press.
- Eysenck, H.J. & Eysenck, S.B.G. (1964) *Manual for the E.P.I.*. London: University Press.
- Eysenck, H.J. & Eysenck, S.B.G. (1969). *Personality Structure and Measurement*. London: Routledge & Kegan Paul.
- Eysenck, H.J. & Eysenck, S.B.G. (1969a). Scores on 3 personality variables as a function of age, sex and social class. *British Journal of Social and Clinical Psychology*. 8, 69-76.
- Eysenck, H.J. & Eysenck, S.B.G. (1975). *Manual of the Eysenck Personality Questionnaire (Junior & Adult)*. London: Hodder & Stoughton.
- Eysenck, H.J. & Levey, A.B. (1972). Conditioning, introversion, extraversion and the strength of the nervous system. In V.D. Neblitsyn & J.A. Gray (Eds), *Biological Basis of Individual Behaviour*. New York: Academic Press.
- Eysenck, S.B.G. (1965). *Manual for the Junior Eysenck Personality Inventory*. Reading: National Foundation for Educational Research.
- Fallis, J.C. & Shandling, B. (1983). Chronic Appendicitis. In R.E. Behrman & V.L. Vaughan (Eds), *Textbook of Pediatrics*. Philadelphia: Nelson.
- Farquhar, H.G. (1956). Abdominal migraine in children. *British Medical Journal*, 1, 1082-1085.
- Fenton, T. & Milla, P. (1988). The Irritable Bowel Syndrome. In J.T. Harries, P. Milla & D.P. Muller (Eds), *Harries Paediatric Gastroenterology*. Edinburgh: Churchill Livingstone.
- Fielding, J.F. (1977). A year in out-patients with the Irritable Bowel Syndrome. *Irish Journal of Medical Science*. 146, 162-166.

- Finney, J.W., Lemanek, K.L., Cataldo, M.F. *et al.* (1989). Pediatric psychology in primary health care: Brief targeted therapy for recurrent abdominal pain. *Behavior therapy*, 20, 283-291.
- Fisher, G.A. & Tessler, R.C. (1986). Family banding of the mentally ill: An analysis of family visits with residents of board and care homes. *Journal of Health and Social Behaviour*, 27, 236-249.
- Fisher, S. (1986). *Stress and Strategy*. New York: Lawrence Earlbaum Ass.
- Forfar, J. & Arneil, G.C. (Eds.) (1984). *Textbook of Paediatrics*. Edinburgh: Churchill Livingstone.
- Fransella, F. & Bannister, D. (1977). *A Manual for Repertory Grid Techniques*. London: Academic Press.
- Frenkel-Brunswik, E. (1942). Motivation and behaviour. *Genetic Psychology Monographs*, 26, 121-265.
- Freud, S. (1914). On Narcissism... *S.E.*, 14, 67-102.
- Freud, S. (1915). *The Unconscious*. *S.E.*, 14, 159-215.
- Freyburger, H. (1976). Psychosomatic aspects of an intensive care unit. In J.G. Howells (Ed), *Modern Perspectives in Psychiatric Surgery*. New York: Brunner Mazel.
- Galler, J.R., Neustein, S. & Walker, W.A. (1980). Clinical aspects of recurrent abdominal pain in children. *Advances in Paediatrics*, 27, 31-53.
- Garner, A.M., & Wenar, G. (1959). *The Mother-Child Interaction in Psychosomatic Disorders*. Urbana: University of Illinois Press.
- Goetzinger, C.P. *et al.* (1967). Factors associated with counselling the hearing impaired adult. *Journal of Rehabilitation of the Deaf*, 1, 32-48.
- Gold, M.W. (1972). Stimulus factors in skill training of retarded adolescents on a complex assembly task: Acquisition, Transfer and Retention. *American Journal of Mental Deficiency*, 76, 517-526.
- Goldstein, K.M., & Blackman, S. (1978). *Cognitive Style*. New York: Wiley.
- Goodenough, D.R. & Eagle, C.J. (1963). A modification of the embedded figures test for use with young children. *Journal of Genetic Psychology*, 103, 67-74.
- Goodman, A.G., Goodman, L.S. & Gilman, A. (1975). *The Pharmacological Basis of Therapeutics*. 6th Ed. London: Macmillan.
- Gray, J.A. (1982). *The Neuropsychology of Anxiety*. New York: University Press.
- Gray, J.A. (1985). Issues in the neuropsychology of anxiety. In A.H. Tuma & J.D. Maser (Eds), *Anxiety and Anxiety Disorders*. Hillsdale, New Jersey: Erlbaum.
- Haggerty, J.J. (1983). The psychosomatic family in overview. *Psychosomatics*, 24, 615-623.

- Hamilton, J. (1992). The Irritable bowel Syndrome. In R.E. Behrman (Ed), *Nelson Textbook of Paediatrics*. 14th. Ed. Philadelphia: Nelson.
- Handel, A. (1972). Perception of verticality of a modified portable Rod-and-Frame Test. *Perceptual and Motor Skills*, 34, 459-468.
- Hargreaves, I.R. (1985). *Dimension and Hierarchy in the Description of Psychological Disorder*. Unpublished Ph.D. Thesis, University of Wales: U.C.N.W. Bangor.
- Harter, S. (1982). A cognitive developmental approach to children's understanding of affect and trait labels. In F.C. Serifica (Ed), *Social and Cognitive Development in Context*. London: Methuen.
- Harvey, O.J. (1963). Authoritarianism and conceptual functioning in varied conditions. *Journal of Personality*, 31, 462-470.
- Hathaway, S.R., & McKinley, J.C. (1943). *The Minnesota Multiphasic Personality Inventory*. Minneapolis: University of Minnesota Press.
- Hull, D. & Johnstone, D. (1981). *Essential Paediatrics*. Edinburgh: Churchill Livingstone.
- Hutt, S.J. & Hutt, C. (Eds.) (1970). *Behaviour studies in Psychiatry*. Oxford: Pergamon Press.
- Hutt, S.J. & Hutt, C. (1970). *Direct Observation and Measurement of Behavior*. First impression. Springfield, Illinois: Charles Thomas.
- Hurst, A.F. (1924). Migraine and its treatment. *British Medical Journal*.
- Illingworth, R.S. (1983). *The Normal Child-Some problems of the early years and their treatment*. 8th. Ed. New York: Churchill Livingstone.
- Jones, P.G. (Ed.) (1976). *Clinical Paediatric Surgery*. 2nd. Ed. Oxford: Blackwell.
- Karp, S.A. & Konstadt, N. (1971). *The Childrens Embedded Figures Test*. Windsor: N.F.E.R. Nelson.
- Kellner, R. (1963). *Family Ill Health: An Investigation in General Practice*. Springfield, Illinois: Charles Thomas.
- Kelly, G.A. (1955). *The Psychology of Personal Constructs*. 1st. Ed. New York: Norton.
- Kiloh, L.G., McComas, A.J., Osselton, J.W. & Upton, A.R.M. (1981). *Clinical Electroencephalography*. 4th. Ed. London: Butterworths.
- Klecka, W.R. (1980). *Discriminant Analysis*. Sage University Paper series Quantitative Applications in the Social sciences, series no.07-001. Beverly Hills and London: Sage Publications.

- Kline, P. (1979). *Psychometrics and Psychology*. London: Academic Press.
- Knasel, E. G. (1982). *Towards a Science of Human Action*. Unpublished Ph.D. Thesis, University of Wales: U.C.N.W. Bangor.
- Konstadt, N. & Foreman, E. (1965). Field dependence and external directedness. *Journal of Personality and Social Psychology*, 1, 490-493.
- Krupp, G.R. & Friedman, H.P. (1953). Migraine in childhood: A review of fifty cases. *American Journal of the Disorders of Childhood*, 85, 146.
- Lachman, S.J. (1972). *Psychosomatic Disorders: A Behaviouristic Interpretation*. New York: Wiley.
- Lask, B. & Fosson, A. (1989). *Childhood Illness: The Psychosomatic Approach*. Chichester: Wiley.
- Lazarus, R.S. & Folkman, S. (1984). *Stress, Appraisal and Coping*. New York: Springer.
- Levey, A. & Martin, I. (1981). The relevance of classical conditioning to psychosomatic disorder. In M.J. Christie & P. Mellett (Eds), *Foundations of Psychosomatics*. Chichester: Wiley.
- Lipowski, Z.J. (1976). Psychosomatic medicine: An overview. In O.W. Hill (Ed), *Modern Trends in Psychosomatic Medicine*. Vol.III. London: Butterworths.
- Lishman, W.A. (1978). *Organic Psychiatry: The psychological consequences of cerebral disorder*. Oxford: Blackwell.
- Livesley, W.J. & Bromley, D.B. (1973). *Person Perception in Childhood and Adolescence*. London: Wiley.
- Livingstone, S. (1951). Abdominal pain as a manifestation of epilepsy. *Journal of Paediatrics*, 38, 687-695.
- Locke, H.J. & Wallace, K.M. (1959). Short marital adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living*, 21, 251-255.
- Looff, D. (1970). Psychological and conversion reactions in children: Selective incidence in verbal and non-verbal families. *Journal of the American Academy of Child Psychiatry*, 9, 318-331.
- McDougall, J. (1974). The psychosoma and the psychoanalytic process. *International Review of Psychoanalysis*, 1, 437-459.
- McGrath, P.J., Goodman, J.T., Firestone, P., Shipman, R. & Peters, S. (1983). Recurrent abdominal pain: A psychogenic disorder? *Archives of Disease in Childhood*, 58, 888-890.

- MacKeith, R. & O'Neil, D. (1951). Recurrent abdominal pain in children. *Lancet*, 2, 278-282.
- McKenna, F.P. (1984). Measures of field dependence: Cognitive style or cognitive ability? *Journal of Personality and Social Psychology*, 47, 593-603.
- Marty, P. & M'Uzan, M de. (1963). La pensée opératoire. *Revue Française de Psychoanalyse*, 27, (Suppl.) 345-356.
- Mechanic, D. (1964). The influence of mothers on their children's health attitudes and behaviour. *Pediatrics*, 33, 444-453.
- Mechanic, D. (1979). Development of psychological distress among young adults. *Archives of General Psychiatry*, 36, 1233-1239.
- Meissner, W.W. (1974). Family process in psychosomatic disease. *International Journal of Psychiatry in Medicine*, 5, 411-430.
- Meissner, W.W. (1977). Family process and psychosomatic disease. In Z.J. Lipowski, D.R. Lipsett & P.C. Whybrow (Eds), *Psychosomatic Medicine: Current Trends*. New York: Oxford University Press.
- Mesick, S. & Damarin, F. (1964). Cognitive styles and memory for faces. *Journal of Abnormal and Social Psychology*, 69, 313-318.
- Minuchin, S., Rosman, B.L. & Baker, L. (1978). *Psychosomatic Families: Anorexia Nervosa in Context*. Cambridge, Massachusetts: Harvard University Press.
- Mirsky, I.A. (1960). Physiological, psychologic and social determinants of psychosomatic disorders. *Diseases of the Nervous System*, 21, 950-956.
- Moore, M.T. (1945). Paroxysmal abdominal pain. *Journal of the American Medical Association*, 129, 1233-1240.
- Moore, M.T. (1950). Abdominal epilepsy: A clinical entity. *American Journal of Medical Science*, 220, 87-90.
- Moro, M.P. (1913) Recurrent abdominal colics in children. *Munich Weekly Medical Journal*.
- Naditch, S.F. (1976). Sex differences in field dependence: The role of social influence. In American Psychological Association Symposium, *Determinants of Gender Differences in Cognitive Functioning*. Washington D.C.: American Psychological Association.
- Nemiah, J.C. (1975). Denial revisited: Reflections on psychosomatic theory. *Psychotherapy and Psychosomatics*, 26, 140-147.
- Nemiah, J.C., Freyberger, H. & Sifneos, P.E. (1976). Alexithymia: A review. In O.W. Hill (Ed), *Modern Trends in Psychosomatic Medicine*. Vol.III. London: Butterworths.

- Nemiah, J.C., & Sifneos, P.E. (1970). Psychosomatic illness: A problem in communication. *Psychotherapy and Psychosomatics*, 18, 154-160.
- Norris, H. & Makhoul-Norris, F. (1976). The measurement of self-identification. In P. Slater (Ed), *Explorations of Intrapersonal Space*. London: Wiley.
- Nixon, H. & O'Donnell, B. (1976). *The Essentials of Paediatric Surgery*. London: Heinemann.
- O'Donnell, B. (1985). *Abdominal Pain in Children*. Oxford: Blackwell.
- Oltman, P. (1968). A portable rod-and-frame apparatus. *Perceptual and Motor skills*, 26, 503-506.
- Onyett, S. (1992). *Case Management in Mental Health*. London: Chapman Hall.
- Oster, J. (1972). Recurrent abdominal pain, headaches and limb pains in children and adolescence. *Paediatrics*, 50, 429-435.
- Papathoeophilou, R., Jeavons, P.M. & Disney, M.E. (1972). Recurrent abdominal pain : A clinical and electroencephalographic study. *Developments in Medical Child Neurology*, 14, 31-34.
- Patten, J.P. (1982). *Neurological Differential Diagnosis*. London: Harold Starke Ltd.
- Pounder, R. (Ed). (1983). *Doctor there's something wrong with my guts*. London: Smith, Kline and French.
- Poznanski, E.O., Cook, S.C. & Carroll, B.J. (1979). A depression rating scale for children. *Pediatrics*, 64, 442-450.
- Pringle, M.L.K., Butler, N.R., & Davie, R. (1966). 11,000 seven year olds. *First Report of the National Child Development study*. Harlow: Longmans.
- Quay, H.C. & Peterson, D.R. (1979). *Manual for the Behavior Problem Checklist*. Denver: City Publishing.
- Rall, T.W. & Schleifer, L.S. (1990). Drugs effective in the therapy of the epilepsies. In A.G. Gilman, T.W. Rall, A.S. Nies & P. Taylor (Eds), *The Pharmacological Basis of Therapeutics*. 8th. Ed. Oxford: Pergamon Press.
- Raven, J.C., Court, J.H., & Raven, J. (1983). *Standard Progressive Matrices*. London: H.K. Lewis & Co.
- Rokeach, M. (1960). *The Open and Closed Mind*. New York: Basic Books.
- Rubin, L.S., Barbero, G.J., & Sibinga, M.S. (1967). Pupillary reactivity in children with recurrent abdominal pain. *Psychosomatic Medicine*, 29, 111-120.

- Rubino, A.I. (1993). Is alexithymia a non-neurotic personality dimension?: A counter-response to Taylor, Bagby and Parker. *British Journal of Medical Psychology*, 66, 289-294.
- Ruesch, J. (1957). *Disturbed Communication: The Clinical Assessment of Normal and Pathological Communication Behaviour*. New York: Norton.
- Rutter, M. & Cox, A. (1985). Other family influences. In M.Rutter & L. Hersov (Eds), *Child and Adolescent Psychiatry: Modern Approaches*. Oxford: Blackwell.
- Rutter, M. & Hersov, L. (Eds). (1985) *Child and Adolescent Psychiatry: Modern Approaches*. Oxford: Blackwell.
- Rycroft, C. (1968). *A Critical Dictionary of Psychoanalysis*. London: Nelson.
- Salminen, J.K., Saarijarvi, S., Aairela, E., & Tamminen, T. (1994). Alexithymia- state or trait? One-year follo-up study of General Hospital psychiatric consultation out-patients. *Journal of Psychosomatic Research*, 38, 681-685.
- Selye, H. (1956). *The Stress of Life*. New York: McGraw-Hill.
- Selye, H. (1976). *Stress Without Distress*. Philadelphia: Lippincott.
- Sifneos, P.E. (1967). Clinical observations on some patients suffering from a variety of psychosomatic diseases. *Proceedings of the 7th. European Conference of Psychosomatic Research*. Basle: Karger.
- Sifneos, P.E. (1973). The prevalence of alexithymic characteristics in psychosomatic patients. *Psychotherapy and Psychosomatics*, 22, 255-262.
- Sifneos, P.E., Apel-Savitz, R. & Frankel, F.H. (1977) The phenomenon of alexithymia. *Psychotherapy and Psychosomatics*, 28, 47-57.
- Singh, S.B., Nigham, A. & Srivastava, J.R. (1986). Treating abdominal pain through behavioural approach *Indian Journal of Clinical Psychology*, March 13 (1), 107-110.
- Sparrow, S.S., Balla, D.A. & Cicchetti, D.V. (1981). *Vineland Adaptive Behaviour Scales*. Windsor: N.F.E.R. Nelson.
- Spiro, H.M. (1977). *Clinical Gastroenterology*. 2nd. Ed. London: Macmillan.
- Still, G.F. (1909) *Common Disorders and Diseases of Childhood*. 1st. Ed. London: Frowde.
- Stott, D.H. & Marston, N.C. (1980). *Bristol Social Adjustment Guides: The Child in School*. 5th. Ed. London: Hodder & Stoughton.

- Sydiaha, D. (1967). Prediction of W.A.I.S. I.Q. for psychiatric patients using the Ammons F.R.P.V. and Ravens Progressive Matrices. *Psychological Reports*, 20, 823-826.
- Taylor, S.E., (1986). *Health Psychology*. New York: McGraw-Hill.
- Taylor, G.J., Bagby, R.M. & Parker, J.D.A. (1993). Is alexithymia a non-neurotic personality disorder?: A response to Rubino, Grasso, Sonnino & Pezzarossa. *British Journal of Medical Psychology*, 66, 281-288.
- Ullman, L.P. (1971). The major concepts taught to behaviour therapy trainees. In A.M. Grazzino (Ed), *Behaviour Therapy with Children*. Chicago: Aldine.
- Veith, I. (1970). *Hysteria: The History of a Disease*. London: University of Chicago Press.
- Walton, J. (1985). *Brain's Diseases of the Nervous System*. 9th. Ed. Oxford: University Press.
- Wakefield, J.A., Yam, B.H.L, Bradley, P.E., Doughtie, E.D. & Cox, J.A. (1974). Eysenck's personality dimensions: A model for the M.M.P.I.. *British Journal of Social and Clinical Psychology*, 13, 413-420.
- Weiner, H. (1981). Brain, behaviour and bodily disease: A summary. In H. Weiner, M.A. Hofer & A.J. Stunkard (Eds), *Brain, Behaviour and Bodily Disease*. New York: Raven Press.
- Witkin, H.A. (1950). Individual differences in ease of perception of embedded figure. *Journal of Personality*, 19, 1-15.
- Witkin, H.A. (1964). Origins of cognitive style. In C. Sheerer (Ed), *Cognition: Theory, Research, Promise*. New York: Harper.
- Witkin, H.A. (1965). Psychological differentiation and forms of pathology. *Journal of Abnormal Psychology*, 70, 317-336.
- Witkin, H.A., Cox, P.W., Freidman, F. Hrishikesan, A.G. & Seigel, K.N. (1974). *Field Dependence-Independence and Psychological Differentiation*. Suppl. 1. Princeton Educational Testing Service.
- Witkin, H.A., Dyke, R.B., Faterson, H.F., Goodenough, D.R. & Karp, S.A. (1962). *Psychological Differentiation*. New York: Wiley.
- Witkin, H.A. & Goodenough, D.R. (1981). *Cognitive Styles*. New York: University Press.
- Witkin, H.A., Lewis, H.B., Hertzman, M., Machover, K., Meissner, P.B. & Warpner, S. (1954). *Personality Through Perception*. New York: Harper.
- Witkin, H.A., Oltman, P.K., Raskin, E. & Karp, S.A. (1971). *A Manual for the Embedded Figures Tests*. Palo Alto: Consulting Psychologists Press.

Wolf , S. & Wolff, H.G. (1947). *Human Gastric Function: An experimental study of a man and his stomach*. New York: Oxford University Press.

APPENDIX 1

LETTERS TO HEADTEACHERS.



Eich Cyl/y

Annwyl

mewn yr
gennyf
a Sais
y plant
a bydd



ADRAN PEDIATREG, YSBYTY GWYNEDD, BANGOR.

Eich Cyl/Your Ref :

Ein Cyl/Our Ref :

Ffôn/Tel :

Golyynnwch am/Ask for :

RHD/MH

Annwyl Athro,

Y mae'r holiadu'r amguedig wedi'ei baratoi i'n cynorthwyo mewn ymchwil gyda phlant sy'n cwyno gan boen yn eu bol. Mae'n ddrwg gennyf mai holiadur Saesneg ydyw ond cafodd ei lunio ym Mhrifysgol Bryste, a Sais yw Mr. Martin Tighe yr ymchwiliwr. Wrth gwrs, yn y ward, os bydd y plant neu eu rhieni yn dymuno siarad Cymraeg bydd Nyrs yn helpu Mr. Tighe a bydd yr ymchwiliad yn cael ei gynnal yn yr iaith Gymraeg.

Diolch am eich cymorth.

DR. R.H. DAVIES,
PEDIATRYDD YMGHYNHOROL.

APPENDIX 2

RAW SCORES- ALL TESTS

Case Numbers 1-26 inclusive MALE R.A.P.

Case Numbers 27-48 inclusive FEMALE R.A.P.

Case Numbers 49-68 inclusive MALE CONTROL

Case Numbers 69-83 inclusive FEMALE CONTROL.

			F R T T I	F R T O P		
\$CASENUM	AGE	M	S	FRTPOIS	FRTMOIS	
1	8.667	24	5	0	0	
2	9.333	14	8	3	0	
3	9.583	10	2	1	2	
4	9.667	26	6	0	3	
5	6.333	25	5	0	2	
6	8.833	16	5	0	2	
7	7.583	28	4	0	1	
8	10.250	18	0	0	0	
9	11.667	8	5	0	1	
10	12.167	6	4	1	0	
11	7.917	10	5	2	2	
12	11.667	17	3	1	1	
13	12.083	11	7	3	4	
14	10.250	5	4	1	2	
15	11.917	16	8	0	0	
16	13.667	18	5	5	5	
17	5.917	8	2	1	1	
18	14.500	12	1	0	0	
19	10.750	4	0	0	0	
20	10.250	14	2	0	0	
21	12.333	17	6	5	3	
22	11.000	10	5	0	3	
23	13.583	12	4	5	2	
24	6.667	16	8	4	4	
25	11.917	13	0	0	1	
26	10.667	7	8	4	2	
27	8.667	16	5	1	1	
28	7.160	23	2	5	0	
29	8.000	11	4	1	3	
30	14.833	12	3	0	1	
31	8.333	11	2	0	0	
32	12.000	21	1	0	0	
33	9.000	14	5	0	0	
34	8.750	4	7	1	4	
35	5.583	19	8	3	2	
36	9.250	16	1	0	4	
37	10.917	18	7	1	1	
38	9.750	31	5	1	3	
39	11.833	8	0	3	0	
40	6.667	11	7	0	0	
41	9.417	10	1	1	0	
42	15.583	7	1	1	1	
43	10.583	21	4	5	0	
44	10.833	19	7	4	3	
45	12.250	27	7	0	3	
46	10.000	7	0	0	2	
47	10.750	8	5	0	0	
48	8.000	16	5	2	2	
49	11.250	7	0	1	0	
50	8.083	16	4	0	0	
51	9.417	20	0	2	1	

C S E N M	AGE	F R E T I M	F R T P O S	FRTPOIS	FRTMOIS
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52	10.833	23	3	1	2
53	14.917	12	4	1	4
54	15.000	15	1	0	0
55	13.250	17	1	0	1
56	8.083	25	3	0	4
57	14.417	29	6	0	4
58	13.833	24	0	0	1
59	11.833	13	5	3	4
60	10.000	20	4	1	1
61	9.750	24	8	3	1
62	8.583	22	4	2	1
63	11.167	23	6	2	0
64	10.750	11	3	2	0
65	6.667	18	1	1	0
66	7.833	15	7	0	3
67	10.833	13	4	2	0
68	11.083	19	2	0	3
69	9.500	13	0	0	0
70	13.000	6	0	0	0
71	11.167	7	7	3	1
72	11.167	9	4	0	2
73	13.750	9	3	1	1
74	13.250	24	1	0	0
75	12.583	22	8	1	1
76	14.333	16	4	0	0
77	9.833	13	2	0	1
78	7.083	20	5	0	1
79	12.667	19	4	0	1
80	7.333	17	7	4	1
81	10.667	26	3	0	2
82	15.167	6	0	0	0
83	12.417	17	2	0	0

CASE NUM	FRTMOPN	FRTMOIN	F R T S F N	F R T S F S	F R T S F M	C E F T	RFT	RAVENS
1	0	0	4	0	11	16	3.063	33
2	0	0	1	0	9	16	5.250	22
3	3	1	13	0	6	17	9.000	18
4	0	0	2	0	11	16	-9.000	-9
5	2	0	0	0	12	15	7.188	25
6	0	3	3	0	8	20	2.813	38
7	0	0	0	0	15	15	5.983	20
8	3	5	12	0	10	24	7.438	36
9	0	0	0	0	3	22	10.500	31
10	0	2	1	1	3	22	.750	49
11	0	0	5	0	4	10	28.750	14
12	0	0	6	0	8	20	3.188	43
13	0	0	19	1	4	24	4.500	53
14	2	3	12	0	1	20	14.938	35
15	0	5	12	0	6	13	-9.000	-9
16	2	0	16	0	12	20	2.250	45
17	2	0	11	0	3	16	10.625	26
18	0	4	19	0	0	24	2.500	42
19	5	5	24	0	2	24	4.875	29
20	0	0	0	2	10	21	5.000	22
21	0	0	4	3	5	21	2.750	29
22	0	0	6	0	6	20	7.000	47
23	1	1	4	0	8	20	1.875	49
24	0	0	6	1	10	7	-9.000	-9
25	0	3	19	0	3	22	6.500	44
26	0	0	8	0	1	21	5.313	43
27	0	0	0	0	4	16	6.313	22
28	0	0	0	0	13	13	-9.000	-9
29	0	0	0	0	7	21	20.625	23
30	0	2	6	0	5	23	10.875	32
31	0	0	6	0	5	17	13.125	32
32	2	4	17	0	7	22	-9.000	-9
33	0	2	1	0	8	20	11.688	39
34	0	0	2	0	1	14	6.500	42
35	0	0	3	0	7	-9	-9.000	19
36	0	0	4	0	7	16	8.563	42
37	1	0	3	0	11	17	21.625	44
38	0	1	2	0	13	19	3.875	44
39	0	2	6	0	1	23	12.875	36
40	0	0	0	0	8	16	8.563	37
41	0	0	4	0	4	14	7.500	30
42	1	0	7	1	2	19	5.436	36
43	2	0	9	0	7	14	7.563	32
44	0	0	16	1	7	22	4.563	47
45	0	0	0	0	13	16	29.375	21
46	0	0	5	0	3	20	9.250	21
47	0	0	7	0	3	16	5.188	37
48	0	0	6	0	5	10	7.125	18
49	4	5	8	0	0	15	5.875	44
50	3	3	8	0	9	19	7.250	41
51	0	0	0	0	11	18	5.813	33

CASE
NUM

SIRTEIAG JEPQPZ JEPQEZ JEPQNZ JEPQLZ

1	8	-1.20	1.53	.06	.95
2	9	-.46	.91	-.79	.56
3	1	-1.31	-.98	-1.08	.32
4	10	-9.00	-9.00	-9.00	-9.00
5	8	-.54	-.58	.03	.21
6	11	-1.20	.91	1.35	-.62
7	0	-.55	-2.28	1.92	-.63
8	4	-.28	-.37	-.43	-.33
9	1	1.02	-.14	-.90	-.21
10	2	.71	.93	1.06	.04
11	8	-1.24	-.89	-.38	1.42
12	8	-.84	.39	1.64	1.79
13	4	.09	.66	.08	-.96
14	3	.06	-.06	.43	.97
15	10	-9.00	-9.00	-9.00	-9.00
16	5	-.54	.09	.77	-1.96
17	-9	-.54	.09	.77	-1.96
18	5	-1.19	-.75	-1.39	.65
19	5	.07	.15	-.06	.15
20	6	-.97	-1.29	.87	.97
21	5	-.84	-1.21	.27	2.04
22	2	-.64	-2.13	1.13	.15
23	9	-.67	.99	.56	-.45
24	4	1.00	1.71	.27	-.76
25	9	-1.15	-2.02	.86	1.54
26	7	.07	-1.85	.33	.38
27	7	.57	-.16	1.65	-.84
28	3	-9.00	-9.00	-9.00	-9.00
29	4	-.62	-1.15	.67	-.28
30	6	.56	.94	-.67	.44
31	13	-1.08	.63	-1.37	1.27
32	3	-9.00	-9.00	-9.00	-9.00
33	3	-.97	-.98	-.43	.55
34	10	-.97	.12	-.63	.95
35	11	-.29	.61	-1.72	.93
36	0	-.46	-.16	.61	-.25
37	5	2.47	.12	1.50	-.81
38	3	-.51	.41	-.50	-.62
39	7	-.14	-.33	1.28	-.31
40	5	.55	-1.66	.82	1.20
41	15	.57	-2.35	-.22	-.05
42	6	-.78	-.78	.19	.44
43	7	.64	-.42	.89	.56
44	6	-1.19	.65	-.94	-.13
45	8	-.14	-.06	-1.16	1.83
46	7	-1.05	-.48	-.50	1.32
47	0	-1.19	.65	-.96	-.36
48	10	-.15	.03	.22	.50
49	8	.07	-2.13	1.73	-.52
50	10	.13	1.34	-.89	.28

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M. SIRTEIAG JEPQPZ JEPQEZ JEPQNZ JEPQLZ

51	7	-.46	-.63	.71	1.15
52	10	-1.35	-.13	-.06	-.07
53	5	-.58	-.24	1.29	1.54
54	4	.04	1.29	-.36	-.24
55	2	-1.57	1.02	-1.21	1.39
56	11	.47	1.66	.13	-.17
57	7	-1.29	.99	-1.03	.43
58	3	-9.00	-9.00	-9.00	-9.00
59	6	.09	.39	.28	.54
60	6	-.28	.86	-.43	.54
61	3	1.77	-.98	1.95	-1.42
62	2	-1.20	-.32	-.36	.76
63	8	.42	.15	.53	-1.41
64	7	2.55	-1.56	.73	-1.86
65	9	.61	-.89	1.26	.92
66	3	-1.24	1.06	-1.91	.97
67	6	-.29	-1.85	1.13	1.05
68	8	-1.00	1.30	-1.86	-.30
69	9	-1.05	-1.36	.37	.03
70	6	-1.09	-.76	-1.93	2.76
71	4	1.86	-2.02	.89	-.36
72	6	-9.00	-9.00	-9.00	-9.00
73	6	-.39	.25	-2.18	-.29
74	11	-9.00	-9.00	-9.00	-9.00
75	9	.20	-1.62	.72	-.38
76	4	-.01	-.58	-.94	1.52
77	13	.03	-1.95	.80	-.83
78	6	-1.13	.29	.13	.39
79	3	-.23	.67	-1.53	.67
80	10	-.71	-.04	-.56	.66
81	14	1.25	.92	-.12	.10
82	7	-.33	.10	-.24	-.61
83	9	-.65	.22	-1.77	-.07

00000000

SQ FRTTIS BSAGTUR BSAGTOR

SIRT	BSAGW					
1	3	0	98.073	0	0	0
2	1	0	94.289	2	3	3
3	1	0	101.221	2	1	0
4	4	0	139.650	2	1	6
5	0	0	102.637	5	0	1
6	2	0	123.400	3	0	0
7	0	0	73.849	1	2	0
8	2	-9	106.341	4	-9	-9
9	3	0	83.140	0	0	14
10	3	0	91.037	2	0	8
11	2	0	88.417	3	0	0
12	2	0	89.140	0	9	2
13	5	1	109.244	2	1	0
14	4	0	100.488	0	0	1
15	4	2	87.270	0	8	7
16	4	1	79.754	2	5	1
17	-9	0	114.923	3	5	0
18	5	0	75.172	0	0	0
19	3	0	96.744	0	14	1
20	1	1	102.292	2	2	9
21	7	0	100.408	6	7	1
22	4	0	101.818	7	0	11
23	4	0	97.180	2	0	0
24	0	0	89.996	10	0	10
25	3	0	88.949	4	8	2
26	4	-9	89.060	3	-9	-9
27	2	0	107.304	2	0	0
28	10	0	109.612	0	2	1
29	5	0	110.000	1	1	3
30	3	0	97.081	1	1	0
31	3	0	100.804	8	1	0
32	3	0	90.833	1	0	0
33	1	0	88.889	0	6	0
34	4	0	97.143	0	0	3
35	1	0	107.469	4	6	0
36	3	0	95.135	0	0	0
37	1	0	91.600	0	1	2
38	6	0	129.231	6	0	0
39	1	0	92.960	2	7	0
40	4	0	94.495	1	0	5
41	1	0	100.881	1	6	1
42	2	0	115.510	1	1	0
43	3	0	103.340	4	4	5
44	1	0	73.848	4	0	0
45	6	0	101.427	0	6	2
46	0	0	104.000	0	0	1
47	4	0	91.163	0	1	5
48	1	0	106.250	2	0	2
49	3	6	80.000	5	25	3
50	4	-9	108.871	2	-9	-9

SIRT BSAGW

SQ FRTTIS BSAGTUR BSAGTOR

51	3	0	84.953	3	0	0
52	1	0	110.773	1	0	0
53	1	0	92.512	1	4	0
54	3	2	92.000	1	12	0
55	6	0	79.245	0	4	1
56	5	-9	115.056	2	-9	-9
57	2	0	75.605	2	1	0
58	4	0	75.905	0	4	0
59	4	1	88.735	1	16	0
60	3	0	98.000	3	6	15
61	9	0	95.385	1	0	0
62	5	0	90.877	1	9	1
63	4	0	94.923	2	5	14
64	4	0	96.744	2	0	0
65	3	0	119.994	2	1	3
66	1	1	102.132	2	3	0
67	7	0	77.541	1	2	1
68	3	0	101.958	1	0	0
69	4	0	106.316	2	1	0
70	3	0	84.615	1	0	0
71	4	0	94.027	8	1	0
72	2	1	97.609	0	6	6
73	4	0	74.909	2	0	0
74	5	2	108.679	0	4	25
75	6	0	82.651	2	8	1
76	5	0	90.002	0	17	0
77	3	0	84.410	2	0	0
78	1	0	100.240	2	1	2
79	3	0	106.576	0	2	0
80	1	0	109.096	7	1	0
81	6	1	80.622	5	5	0
82	6	0	120.675	0	1	0
83	4	0	99.058	0	0	0