

AN INVESTIGATION OF  
PARENT-CHILD BEHAVIOR AND  
ADOLESCENT SOMATIZATION

by

Isabel Grant

B.Ed., The University of British Columbia, 1975

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES  
(Department of Counselling Psychology)

We accept this thesis as conforming  
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

March 1991

c. Isabel Grant, 1991

In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the head of my department or by his or her representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of Counselling Psychology  
The University of British Columbia  
Vancouver, Canada

Date March 27, 1991

## Abstract

The association between psychogenic knee pain in adolescent girls and parent-child behavior that involves (1) a high degree of control on the part of parents and (2) a high degree of submission on the part of adolescent daughters was investigated. The subjects, between the ages of 13 and 16 years, were patients of five doctors whom they were consulting about chronic knee pain. The doctors categorized each patient as either having "organic evidence" associated with their pain complaint (n=18) or "no organic evidence" (n=12). Each patient completed the Intrex Questionnaire: Short Forms B and C (Benjamin, 1988) which provided a set of data that described the daughters' perceptions of their mothers' and fathers' behavior in relation to them and also the daughters' own behavior in relation to both parents.

Similarity of the groups in terms of age, socioeconomic status and severity of pain was confirmed. Between-groups comparisons of the Intrex data yielded two significant differences. Daughters in the psychogenic pain group perceived their mothers as being both more controlling toward and more submissive to their daughters than did daughters in the organic group. Hypothesized differences between the groups regarding fathers' controlling behavior and daughters' submissive behavior were not supported.

## TABLE OF CONTENTS

Abstract	ii
Table of Contents	iii
List of Tables	v
List of Figures	vi
Acknowledgement	vii
Chapter One: Context of the Problem	1
Research Questions	4
Definition of Terms	6
Chapter Two: A Review of Related Literature	7
Functional Disorders and their Foundation in Psychosocial Stress	7
Critical life events	11
Psychosomatic personality type	13
Somatization as communication	17
Somatization as a systems problem	18
A multifactorial theory	18
Functional Disorders in Children and Adolescents	19
Personality types of psychosomatic children and their parents	19
Intra-family behavior and somatization in children	20
The Developmental Tasks of Adolescence	26
The SASB Paradigm	27
Hypotheses	30
Chapter Three: Methodology	31
Sample	31
Sampling procedure	31
Design	32

Instruments	32
The pain scale	33
The Intrex Questionnaire	33
Interpretation of Data	37
Chapter Four: Results	42
Characteristics of the Sample	42
Hypothesized Results	43
Other Post Hoc Findings	45
Chapter Five: Discussion	52
Summary of Results	52
Interpretation of Results	53
Implications of the Results to Previous Research	55
Limitations of the Study	57
Conclusions and Recommendations	58
References	61
Appendix A	
The Questionnaires	66
Appendix B	
Program FIG Output	73
Appendix C	
Glossary of SASB Terminology	80
Appendix D	
Raw Scores from Intrex Items	81

## LIST OF TABLES

Table I	Age, socioeconomic status, and pain ratings for "organic evidence" and "no organic evidence" groups	42
Table II	Between-groups comparisons of mean CONTROL values for mothers and fathers	43
Table III	Between-groups comparisons of mean SUBMIT values for daughters	45

## LIST OF FIGURES

Figure 1	Open systems model of psychosomatic disease (from Minuchin, Rosman and Baker, 1978)	24
Figure 2	Cluster version of the SASB model (from Benjamin.1988)	28
Figure 3	Intrex Questionnaire: Short Form items as they conform to the circumplex model	35
Figure 4	SASB Theoretical Curves	39
Figure 5	ATTACK, CONTROL and SUBMIT values for Organic and No Organic Evidence subjects	46
Figure 6	ATTACK, CONTROL and SUBMIT values for Organic and No Organic Evidence subjects	47
Figure 7	Pattern Coefficients derived from the mean item ratings of organic and non organic subjects (Daughters and mothers)	48
Figure 8	Pattern Coefficients derived from the mean item ratings of organic and non-organic subjects (Daughters and fathers)	49
Figure 9	Mother-daughter interactions in a psychogenic pain family	69

## Acknowledgement

I gratefully acknowledge the support and guidance of Dr. Richard Young, Dr. Elizabeth Huntsman and Dr. Larry Cochran in the preparation of this thesis. In addition, I thank Dr. Maureen Finnigan, Dr. Maureen Baxter, Dr. Richard Beauchamp, Dr. William Mackenzie, Dr. Jack Taunton and Dr. Larry Dallen for their support and involvement in this research.



## CHAPTER 1

### CONTEXT OF THE PROBLEM

Functional disorders create unique and challenging problems for mental health and medical professionals. For physicians, trained in the bioscientific model and accustomed to precise diagnoses for which concrete or quantifiable evidence can be gathered, the realm of psychosomatic medicine is particularly frustrating. For a patient whose condition is in whole or in part understood to be a functional disorder, the diagnostic procedures generally used in medical practice can only yield the results, "no evidence of organic finding," or lack of correspondence between organic finding and severity of pain or illness. Such conclusions are ambiguous and unsatisfying for both physician and patient and do not address the multifactorial etiology of many pain complaints involving both organic and psychosocial factors.

The illness or pain experienced in a functional disorder is no less real to the patient than that experienced by an individual with an organic disorder. Individuals with functional disorders will often pursue unending numbers of consultations with physicians and they will sometimes be joined by the physicians themselves in their determination to diagnose and cure an organic condition. Groen (1982) noted that among a large group of patients suffering from intractable pain, many had been treated by potent analgesics, irradiation, or injections to block pain pathways despite the fact that no evidence existed that could logically justify these treatments. When physicians do refuse to offer treatment, patients frequently react with anger and independently begin their expensive pursuit of an organic diagnosis for their elusive functional disorder.

The provision of medical care to those with functional disorders is a frustrating endeavour at the individual level, and at the societal level it is an extremely expensive process. It is estimated that among the non-psychiatric patient population in the USA at least 10% of medical care is for patients who display no evidence of organic disease (Ford, 1986). Typically, these patients have had numerous hospitalizations and operations. Assuming that this estimate, considered conservative by many, applies to the Canadian population and given that the British Columbian health care budget exceeds \$3 billion, the cost to one province alone in terms of health care dollars may be hundreds of millions of dollars. Such an estimate does not include the cost of time away from work, school or disability payments. Nor does it include the cost of functional disorders that do not reach the attention of a physician. Consequently, the identification of any indicators, whether they be personality traits or patterns of individual or family behavior that are reliably associated with functional disorders, would be of benefit to individual patients, physicians and the health care system as a whole. Patients could be more rapidly directed to appropriate treatment for problems of psychosocial origin and physicians would then be freed to focus on the organic problems for which their diagnostic and therapeutic techniques are designed. Observation of such factors may not always occur in the doctor's office. Instead, social workers, school and community counsellors and psychologists would also have opportunities to observe these behavioral indicators.

Psychosocial factors associated with somatic complaints reflect the developmental concerns of specific age groups. It has been noted in the literature (Minuchin, 1978; Srivastava & Singh, 1979) and in personal communication with physicians that among the adolescent patient population in particular a specific style of parent-child interaction seems to be associated with cases that

cannot be attributed to organic factors. The type of behavior observed is one in which the parent, usually the mother, acts in a very controlling manner toward the child. This control is exerted "in the child's best interest" and takes such forms as speaking for and making decisions for the adolescent. This behavior might be perceived as caring, supportive parenting were it not for the fact that during adolescence the individual's primary developmental tasks are individuation and separation from parents (Erikson, 1968; Neilson, 1983).

This positively motivated, controlling behavior is one of eight styles of interpersonal behavior that are conceptualized in Benjamin's (1979, 1984, 1988) circumplex model of interpersonal behavior. Benjamin's model, the Structural Assessment of Social Behavior (SASB), is an extension and refinement of Leary's (1957) interpersonal circle and the circumplex model of parent-child interaction of Schaefer (1965). The three dimensional SASB model conceptualizes the following three separate foci of behavior: (1) Other - behavior that is directed toward another person, (2) Self - behavior that is reactive or a response to another's behavior, and (3) Intrapsychic - behavior that results from a person's self concept, often an introjection of Other. A comprehensive description of Benjamin's model is presented in Chapter 2.

Two instruments, the Intrex Questionnaire - Long Form (Benjamin, 1979) and Short Form (Benjamin, 1988), based upon this conceptual model of behavior, have been developed. The Short Form, because of its "user friendliness" (32 items versus 128 in the Long Form), and impressive reliability and validity characteristics, was selected for use in this study. The purpose of this research was, through use of the Intrex Questionnaire: Short Form, to investigate the association between specific styles of parent-child behavior and functional disorders in adolescent girls.

Personal communication from several orthopaedic surgeons reported that among their adolescent patients there seemed to be a relationship between parenting style and non- organic diagnosis throughout the whole range of orthopaedic complaints. However, the relationship was most pronounced for adolescents complaining of knee pain. Thus the following research questions were developed regarding characteristics of this particular type of functional disorder, more specifically identified as psychogenic pain disorder.

#### Research Questions

(1) How do adolescents who are experiencing either an organic knee problem or psychogenic knee pain describe their own and their parents' behavior according to their Intrex Questionnaire responses?

(2) Does the Intrex Questionnaire reliably differentiate between adolescent patients complaining of knee pain for whom there is evidence of organic cause and those for whom there is no such evidence?

(3) When the type of interpersonal transactions known as "Watching and Managing" (SASB, Other Focus, Cluster 5) are characteristic of the parents' behavior toward the child, is the child more likely to have a functional disorder than if the parent-child style of behavior is of a different type?

In response to the questions above, a two-variable criterion-group study with a matched control group was designed. The goal of the study was the identification of the relationship between parent-child transactional patterns, categorized according to SASB and functional versus organic diagnoses in adolescent orthopaedic patients complaining of knee pain.

Etiological research on conditions believed to have a psychogenic component has included studies on childhood asthma and diabetes (Gustafson et al., 1985; Minuchin et al., 1978) and childhood allergies (Miller & Baruch, 1948) as well as studies focusing on children and adolescents with head and back pain, arthritis (Rimon & Laakso, 1985), irritable bowel syndrome, peptic ulcer disease (Ackerman et al., 1981), toddlers' diarrhoea (Furnell & Dutton, 1985), appendicitis (Ashley, 1967), enuresis and encopresis and eating disorders (Minuchin, 1978; Scheppe, 1984). That this study will focus on psychogenic pain as it is experienced by adolescents is a departure from most previous research.

The choice of a single pain complaint, knee pain, as the focus of this study was guided by the following two factors:

- 1) while it is always difficult for physicians to completely rule out an organic cause of pain in the absence of evidence, it was felt that this diagnosis could be made more reliably with knee pain than with other physical complaints such as back, head or abdominal pain, and

- 2) knee pain is a fairly common complaint among adolescent female patients.

The presence of psychosocial stressors, including such critical incidents as serious illness or death in the family, moves, parental separation or divorce, has been associated with functional disorders (Brown & Harris, 1978; Creed, 1985).

Research identifying specific personality patterns characteristic of psychosomatic children and their parents has been conducted (Singh & Srivastava, 1971, 1978; Stephanos, 1978). There is more speculation than research, however, on the effect of parent-child interactional style on the development of childhood functional disorders. Only since the development of the "systems" theory of family functioning have investigators given attention to the reciprocal effect of interpersonal behavior in the family and the incidence of psychosomatic disorders (Sheppy, 1984; Minuchin et al., 1978).

The development of a model of behavior such as the SASB and instruments derived from it has provided the opportunity to make quantitative measurements of parent-child behavior in the context of adolescent somatization. While the routine use of the Intrex Questionnaire would not be useful or feasible, the identification of specific behaviors, precisely defined by SASB theory and associated with the occurrence of psychogenic knee pain in adolescent girls, would be a useful tool in both diagnosis and associated individual or family therapy.

### Definition of Terms

The terms "psychogenic," "psychosomatic," "psychophysiological" and "functional" describe the same phenomenon, that is a disorder in which psychological factors demonstrably contribute to both its genesis and perpetuation.

The term "psychosomatic" meaning literally "mind - body" has been used less frequently in literature about recent investigations of the subject in part because of the pejorative sense that the word has acquired. Prior to 1980, "psychosomatic" was used almost exclusively and was, and in fact still is, used in the title of several journals dedicated to the topic, for example, the Journal of Psychosomatic Research and Psychotherapy and Psychosomatics.

During the 1980's, while some authors continued to use the term "psychosomatic," the majority of authors in both journal articles and texts used the terms "functional disorders" and "psychogenic disorders" to describe health problems for which emotional factors play a key etiological role.

Psychogenic pain is a disorder marked by severe and prolonged pain that is either inconsistent with the pathways of the nervous system or grossly in excess of what would be expected given the physical findings.

## CHAPTER 2

### REVIEW OF RELATED LITERATURE

An examination of the relationship between functional disorders in adolescents and parent-child behavior patterns requires an understanding of the following dimensions of the issue.

- A. Functional disorders and their foundation in psychosocial stress.
- B. Functional disorders in children and adolescents.
- C. The developmental tasks of adolescence.

It is useful first, to review the literature on functional disorders in adult or unspecified age group populations and secondly, to consider the theories and research that pertain specifically to children and adolescents. The latter understandably emphasizes factors existing in the family environment.

#### Functional Disorders and their Foundation in Psychosocial Stress

Observers of human behavior have long made a connection between intrapsychic tension and psychosomatic illness. Freud interpreted functional illness and pain as "conversion" and he described it as a psychobiological reaction to interpersonal conflict situations (Groen, 1982, p. 286). When individuals are unable to resolve such conflict by purposeful, conscious behavior and deny the reality of the conflict through repression, the conflict is manifested as an attention attracting symptom which often has a symbolic significance.

The most commonly acknowledged system of classification of psychosomatic disorders is that which is used in Diagnostic and Statistical Manual of Mental Disorders (DSM-III) (American Psychiatric Association, 1980). The categories,

grouped primarily according to symptoms rather than cause, are organized as follows:

#### Somatoform Disorders

- (a) Somatization disorder
- (b) Conversion disorder
- (c) Psychogenic pain disorder
- (d) Hypochondriasis

Somatoform disorders are said to occur when an individual's physical symptoms suggest an organic problem for which there are no demonstrable physical findings or physiological mechanisms and for which there is evidence that the symptoms are linked to psychological factors. The distinctions between some of the categories specified above are blurred. However, the disorders are generally characterized as follows:

Somatization Disorder, (DSM III) previously referred to as either Hysteria or Briquet's Syndrome, is a chronic condition that begins in early adolescence or early adulthood in which recurrent multiple somatic complaints are presented, usually in a vague but dramatic way. These individuals, almost always female, obtain medical care frequently and usually from a number of physicians. Their physical complaints often involve numerous organ systems, for example, neurological (paralysis or blindness), gastrointestinal (stomach pain), or cardiopulmonary (dizziness). Anxiety and depression are commonly associated with this disorder.

Conversion Disorder (DSM III) is diagnosed when the symptoms suggest involvement of the neurological system (for example, partial paralysis), and when the symptoms allow the individual to experience either "primary gain" (i.e., keeping a need or internal conflict out of awareness) or "secondary gain" (i.e., by enabling a person to avoid something that is noxious to him or her).



Typically, a conversion disorder will involve a single symptom during one period of time. Conversion disorder is diagnosed in all age groups but is most common among adolescents and young adults.

Psychogenic Pain Disorder (DSM III) is said to exist when the individual's primary complaint is of pain for which there are no physical findings along with evidence of predisposing psychological factors. It is also diagnosed when the degree of pain reported is grossly in excess of what organic symptoms would indicate. As with Conversion Disorder, the individual's symptoms often enable him or her to avoid some undesirable activity or are connected to the occurrence of psychological conflict. Again, adolescence and early adulthood is the most common age of onset. Psychogenic pain disorder is the type of somatoform disorder that is the focus of this investigation.

Hypochondriasis (DSM III) occurs when an individual is preoccupied with the belief or fear of having a serious disease. Despite reassurance from health care professionals, the fear persists and impairs social or occupational functioning. A hypochondriac interprets either normal bodily functions such as sweating or heartbeat, or minor physical complaints, such as a cough or small sore as evidence of a serious disease. This chronic condition most commonly begins in adolescence.

A recent attempt to improve on the conceptualization and organization of psychosomatic disorders is that of Davison and Neale (1982). The authors retained the DSM III categories discussed previously and also proposed a category of psycho-physiological disorders such as ulcers and asthma, conditions with genuine physical symptoms that are caused or exacerbated by emotional factors. The authors emphasized that the somatoform disorders do not involve damage to the body, they merely affect the function of the voluntary musculature. However, people can actually die from such psychophysiological disorders as

psychogenic high blood pressure or ulcers just as readily as from infectious disease or physical trauma.

Ford (1986) attempted to bring more clarity to the conceptualization of functional disorders. He suggested that at least the following seven etiological explanations of somatization exist.

- 1) Overt gain such as avoidance of school, work or unpleasant tasks or eligibility for disability payments may cause people to seek the sick role.
- 2) A systems problem within a family may lead to somatization in one or more members. Typically a child may develop symptoms in order to divert attention from parental conflict.
- 3) Somatic symptoms are a part of many psychiatric disorders, dyspnea, diaphoresis and increased muscle tension are associated with anxiety states; sexual or gastrointestinal dysfunction are associated with major depression.
- 4) Alexithymics, people who are unable to acknowledge or describe their emotions, often use somatic symptoms to express their feeling states.
- 5) Many cultures, especially our "enlightened" western society, stigmatize mental illness while providing support for those with organic complaints. Ford observed, "It is far preferable to be hospitalized with a diagnosis of peptic ulcer disease than with one of depression" (Ford, 1986, p.328). He also notes that medical insurance benefits are usually more generous for organic than functional disorders. Another cultural factor is that "many fundamentalist religions continue to view psychiatric illness as the work of the devil or as a form of moral turpitude" (Ford, 1986, p. 328).
- 6) Many patients will not look beyond their somatic complaints simply because a physician has previously made a symptomatic diagnosis such as "nervous stomach" or spastic colitis.

7) Ford notes that there have recently been several "fad diagnoses" that physicians are more comfortable making than acknowledging psychological conflict or depression. Reactive hypoglycemia and multiple allergies were diagnoses preferred to anxious or depressed states.

Whatever the system of conceptualizing the subgroups of functional disorders, the common theme that runs through all of the groupings is that of psychosocial stress. Inquiry into the possible causes of the stress and the means by which the stress may give rise to somatoform disorders has been the focus of numerous investigations. Highlights of this line of research is summarized in the following sections.

#### Critical life events and functional disorders.

For some years psychological research has attempted to identify specific life events that trigger anxiety responses in individuals and to rate or rank the relative degrees of distress that these events produce in people. Such instruments as The Life Events and Difficulties Schedule (Brown & Harris, 1978) or the Life Experiencing Survey (Saronson et al., 1978) ask patients to identify stressful events that they have experienced. Numerous studies have established connections between the experiencing of such stressful events as death, separation, relocation, job loss and the onset of illness (Brown & Harris, 1978; Tottman et al., 1980). Creed (1985) noted that certain types of life events seem to be connected with specific organic problems. Specifically, "frustration events" are linked to peptic ulcers, "challenge events" are linked to amenorrhoea, and events involving a short-lived threat are linked to appendicitis.

Rimon and Laakso (1985) found that rheumatoid arthritis sufferers could be divided into two subgroups, the first group consisting of patients for whom the onset of the illness was preceded by a major crisis and the second group

consisting of patients for whom no crisis or conflict was associated with the onset of their illness. The course of the disease differed significantly for patients in the two groups. The onset of the disease was sudden for the first group, whereas for the second group, the onset was gradual. After fifteen years of observation it was apparent that for those patients in the first group, the disease worsened with succeeding stressful life events, whereas the experiencing of stressful life-events was not associated with worsening of the patients' condition for the second group. Thus it is clear that specific diseases cannot simply be categorized as functional or nonfunctional. Instead it would seem that there can be a psychological component that varies in significance from one individual to another in the development of many illnesses.

The association of chronic pain and depression was examined by Shafer and Shafer (1980) who observed that out of 20 chronic pain patients, 13 had no significant pathology and in this group all were experiencing depression, according to their MMPI scores. Unfortunately, no long term studies are reported that shed light on the obvious "chicken or the egg" dilemma - is depression transformed into pain or does the experiencing of pain result in depression? Blumer and Heilbronn (1981) suggested, on the basis of their review of the psychological theories of pain and depression and their clinical experience with patients they describe as "pain prone," that chronic pain proneness is, in fact, a form of depression.

The link between some illnesses and psychological factors has been supported by recent research in psychoneuroimmunology. Lindberg and Lindberg (1988) observed that

... it's becoming increasingly clearer that mental and psychological factors, acting via the nervous system, may at least influence the course of disease in which the immune system plays a decisive role. (1988, p. 157)

Lindberg and Lindberg (1988) described the treatment outcome of 27 adults with rheumatoid arthritis who received both psychotherapy and medical care. The precipitating negative life-events for these patients were believed to be associated with subconscious memories of early childhood psychic trauma. They also observed that the condition either initially presented or frequently worsened following an occasion in which the patient felt slighted and was not able to find words to express himself or herself. The authors described numerous cases in which secondary gain seemed to cause the autonomic nervous system to "steer psychosomatic symptoms to different parts of the body." (p.163) Long term psychotherapy with many of the patients was said to result in an elimination of pain, restoration of complete joint mobility and discontinuation of medication.

#### Psychosomatic personality type.

Igoin-Apfelbaum (1985) observed that bulimic women had a history of more frequent violent or total separations or threats of separations in the family as well as continual denial of these circumstances. This finding indicates that more than simple exposure to critical life events is involved in the development of psychosomatic illness. The individual's perception of and response to critical life events account in part for whether he or she can withstand the psychosocial stress experienced.

Groen theorized (Bastiaans & Groen, 1955) and later substantiated in research (Groen, 1982) that many asthmatics share a common core in their personality structure. These personality characteristics cause them to react to specific situations by partially conscious emotional conflict. Due to this emotional tension and also to particularly rigid behavior patterns, the tension is not discharged. "Instead, the asthmatic attack is an attempt of the organism to discharge the tension along an abnormal pathway" (Bastiaans & Groen, 1955; cited by Groen, 1982, p. 152).

In a subsequent study of twelve middle-aged women with intractable pain, Groen interviewed the subjects regarding life history and personality structure. Groen observed that the subjects had likely experienced inhibition of affective development at an early age which resulted in their poorly differentiated emotional lives. Most of the subjects' emotional attachments were limited to a small family circle. While in therapy, Groen noted that despite their pain and helplessness, "the patients could not or would not give up their compulsive tendency to dominating leadership" (Groen, 1982, p. 283).

The type of behavior that was typical of Groen's subjects is very similar to that which this study is investigating in the parents of adolescents with psychogenic pain disorder. Thus it seems possible that this dominant, controlling behavior may be associated with somatization in the individual himself or herself or in their children.

Julkunen, Hurri and Kankainen (1988) followed 175 back pain patients, one-half of whom attended a nine-hour back pain school. The good responders in the treatment group could be characterized as emotionally well-adjusted and controlled, showing relatively good cognitive capacity with undisturbed reality testing.

The ones showing spontaneous recovery in the control group are characterized by a more lively and less controlled way of expressing emotions and affect...In contrast to the above mentioned group, those who showed increasing disability during the one year follow up period are characterized by restricted expression of emotions and affect, which indicated alexythymia. (p. 183)

Also supporting the hypothesis that personality factors play a role in psychosomatic illness was Alexander, French and Pollack's (1968) study in which trained observers were provided with data from psychiatric interviews which

contained no clues to the patient's somatic complaints. From the data provided the observers successfully diagnosed certain bodily disorders including asthma and allergies.

Arnetz et al. (1985) with a view to further understanding of the physiological and psychological make-up of the psychosomatic personality type, investigated the relationship between stress and psoriasis. Blood pressure, pulse rate, plasma glucose, and urinary adrenaline levels were measured in a psoriatic group and a control group when exposed to challenging situations and in normally relaxed situations. It was observed that both groups had similar results during basal conditions but when stressed, the psoriatic group's physical strain indicators were significantly higher. The results fit the authors' hypothesis that psoriatic patients perceive challenging events as more stressful than do non-psoriatic people.

Hoornaert and Pierloot (1975) observed that both psychosomatic and neurotic patients projected expectations of paternal and maternal characteristics upon their doctor significantly more often than a control group. They found that psychosomatic patients had a greater need for a parental figure and that they differentiated significantly less than the control group between the paternal and maternal gestalts as conceived on the Semantic Differential, Parental (Osgood et al., 1957). In the SDP the paternal image is of the achiever and disciplinarian whereas the maternal image is of the nurturer. For the psychosomatic subjects there was significantly more correspondence between real paternal and maternal images and between ideal paternal and maternal images than between the real and ideal images. They also noted that psychosomatics tend to stress the active and self-giving aspects of the maternal image at the expense of receptivity, empathy and closeness. Thus the psychosomatic patients tended to view their

mothers as quite different from their conception of the "ideal" mother and as more controlling than supporting.

Forty-one women suffering from psychogenic pain were the focus of an extensive personality appraisal (Valdez, Tresarra, Garcia, de Pablo, & Flores, 1988) in which 16 behavioral styles were investigated. The subjects completed the Jenkins Activity Survey (Jenkins, Zyzanski & Rosenman, 1979), the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975) and the Buss-Durkee Inventory (Buss & Durkee, 1962) and were found to be emotionally hyperreactive, more hostile than aggressive ("anger-in" behavior) and were prone to defense mechanisms of denial.

Taylor and Doody (1985) examined the relationship between functional disorders and alexithymics, individuals who typically have a limited vocabulary for describing emotions, an inability to distinguish one emotion from another, an impoverished fantasy life, a high degree of social conformity, a "concretistic" technical style of thinking and a propensity for psychosomatic illness (Nemiah et al., 1976). Scores on the AVS (Affect Vocabulary Score) used by Taylor and Doody confirmed that psychosomatics had a more limited vocabulary for expressing feelings and were overall less verbally productive than a control group.

Given a predisposing personality type as well as exposure to a stressful event, Saronsonen et al. (1978) identified one factor that seemed to mitigate the impact of the stress. The authors found, in a large survey study, that negative life events were more likely to be associated with illness among subjects with low levels of social support.



### Somatization as communication.

Psychosomatic illness can serve as a form of communication which can be viewed as a product of the personality type of the individual or a product of the interpersonal milieu in which the individual operates.

Szasz (1982) demonstrated that pain reflects the affective states of individuals who are experiencing a loss or are in some way threatened or conflicted. Szasz also distinguished between pain "as a private sense of hurt" and pain as communication and observed that in any given instance of pain, either or both of these purposes may be significant. Bellissimo and Tunks (1984), authors of a comprehensive survey of psychotherapeutic treatment of chronic pain, observed that

Like tears of importunity, the verbal and nonverbal indications of pain are powerful interpersonal signals. When they occur, there is an implicit expectation that the meaning is mutually understood and that the actions of those present will mutually accommodate the problem. Perhaps the most important forum within which pain plays its role as communication is the family context. There is consensus in the literature that family function (or the absence of it) importantly influences morbidity and that family system intervention is an effective way to achieve therapeutic objectives. (p. 12)

The interpersonal milieu in which an individual operates may not allow the overt expression of specific types of communication. Reference has already been made to the use of pain in particular (Bellissimo & Tunks, 1984; Szasz, 1982) and other somatoform disorders (Ford, 1986) as a means of expressing such feelings as anger, anxiety or fear most frequently within the family.

### Somatization as a "systems problem."

Functional disorders frequently represent a problem broader in scope than simply the afflicted individual.

The patients' family, employer, physicians, insurance company, lawyers and others may all have a vested interest in the continuation of the symptoms. Somatizing patients cannot be treated in a vacuum, but instead we must continuously confront the entire socioenvironmental milieu in which they live. (Ford, 1986, p. 327)

This perspective on somatization will be discussed more fully in the following section on functional disorders in children and adolescents.

### A multifactorial theory.

As more research on functional disorders is reported, it is becoming clear that these disorders are not associated with a specific set of factors but instead have multiple and variable causes. Some sort of "organ vulnerability" or a susceptibility to breakdown in one of the body's organ systems, in combination with one or more of the previously described factors seem likely to account for the range of somatoform disorders. Such a view of the etiology of functional disorders is predominant in the current literature on the topic and is parallel to our understanding of the etiology of many organic disorders.

It is now known that most diseases have multiple causes. Heart disease, for example, is attributed to a complex intertwining of genetic factors, diet, cigarette smoking, lack of exercise and stress. (Davison & Neale, 1982)

Recognizing the multifactorial nature of the etiology of functional disorders is an acknowledgement of the enormous complexity of the human mind and body.

### Functional Disorders in Children and Adolescents

Most of the research on psychogenic disorders in children and adolescents acknowledges the powerful impact of family dynamics. Thus there is a emphasis in the literature on psychosomatic children on somatization as a result of disturbed parents, a "systems problem" or as a maladaptive form of communication. Reflecting on cultural differences in somatization, Groen (1982) observed:

In occidental cultures, conversion also occurs as a more or less normal pattern of behavior in children but usually disappears when, during adolescence, introspection and socially accepted ways of adapting to reality develop. (p. 206)

This prevalence of somatoform disorders in childhood is acknowledged in DSM III which contains the observation that children's fears often effect them physically. Stomach-aches, headaches and nausea are frequently the manifestations, according to DSM III etiology, of conscious or unconscious childhood fears.

### Personality types of psychosomatic children and their parents.

Singh, Nigam and Srivastava (1977) and Srivastava and Singh (1979) administered the High School Personality Questionnaire (Cattell, 1976) and the Standard Neurotic Scale Questionnaire (Sheier & Cattell, unpublished) to 150 children and their parents. Fifty children had been diagnosed as having an organic disorder, 50 as having a psychosomatic disorder and 50 were healthy. Significant findings were that (1) neurosis was more common among parents of psychosomatic children (44% of fathers and 76% of mothers), (2) parents of psychosomatic children were less cheerful and more anxious and protective than other parents, (3) mothers of psychosomatic children tended to have an underlying guilt proneness, insecurity and timidity, yet exhibited dominant,

assertive, tough and attention seeking behavior, and (4) fathers of psychosomatic children tended to be silent, introspective and depressed. Srivastava and Singh (1979) speculated that due to the behavior of their parents, psychosomatic children are unable to express themselves externally, resulting in the "internal" somatic expression. The authors concluded:

Our investigation suggests that the personality pattern of parents in general and mothers in particular is responsible to a great extent for the generation of psychological disturbance in children: . . . If a child has a stable and robust personality structure, he will withstand the persistent overprotection by parents and tide over the emotional stress with no reactive symptoms. On the other hand he may reflect parents' overanxiety in his own personality structure and react to overprotection with phobic symptoms or remain dependent, fearful and lacking in confidence. (p. 30)

A personality profile of a typical psychosomatic child was developed by Prugh (1951). He observed that children with ulcerative colitis tended to be rigid, passive, dependent on parents (especially the mother), emotionally immature and socially inhibited.

Aronson and Koivunen (1985) undertook research on the personality types of parents of asthmatics and non asthmatics. Their results indicated that parents of asthmatic children are more aggressive and less exhibitionistic than parents of non asthmatics.

#### Intra-family behavior and somatization in children.

Studies examining the influence on childhood somatization of parental behavior and of reciprocal parent-child interactions are reported in this section. Writing from a psychoanalytic perspective and based on experience with patients with a broad range of psychosomatic illness, Gaddini (1977) described mother-infant relations that were either facilitating, borderline or pathogenic. She

suggested that it is the borderline mother-infant interpersonal behavior that is likely to result in psychosomatic behavior in the child. Gaddini also studied the styles of play of children and differentiated between "the child capable of creative play" and "the child whose play consists of pure physical activity." The latter style of play is frequently observed in young psychosomatic children who tend to be highly dependent on their mothers and have a continuous need of her in order to exist.

Early research on childhood asthma, such as that of Miller and Baruch (1948) and French and Alexander (1941), identified themes of maternal rejection and children's separation anxiety in asthmatic families. Subsequent studies, including those of Rees (1963) and Pinkerton (1967), observed that the conflicting behavior patterns of parental overprotection and perfectionism frequently accompanied parental rejection.

In a review article on childhood asthma, Aronsson and Koivunen (1985) concluded that "The results, so far, indicate a complicated picture involving anxiety, rejection and difficulty in communication" (p. 178). On the basis of clinical experience, Gustafson et al. (1985) observed that children with severe asthma benefit significantly from family therapy. Typically, their families are enmeshed and rigid; the children detour parental conflict or distract parents from conflict by developing symptoms.

Purcell et al. (1969) reported an experiment in which children experiencing severe asthma and for whom psychosocial rather than allergic or infective factors seemed to trigger their asthma attacks, continued to live in their homes. Their parents, however, were moved elsewhere for two weeks. During this two week period, 70% of the children predicted to do better in the absence of their parents, made significant and dramatic improvements on all factors measured.

Ikemi (1974) discovered that among 157 asthmatic children, there were a disproportionate number of eldest sons and daughters, children who in Japanese society have exceedingly high expectations and responsibilities imposed upon them. The children and parents completed a battery of psychological tests and the results indicated that these families were

... characterized by markedly neurotic mothers who were overly protective or nervous and narcissistic in the care of children and also by extremely authoritarian fathers who were often reticent. (p. 23)

Ikemi also looked at the role of air pollution as a predictor of allergic asthmatic reactions. He found that the greater the air pollution, the greater the asthma among adults. Among children, however, psychological factors were a better predictor of asthma. Ikemi cited the asthma therapy research of Kyutoko (in progress). Kyutoko was using "parentectomy" as a treatment for severe cases of child asthma and reported that after seven days of being separated from their parents, asthma attacks disappeared in 70% of the cases. Both Ikemi and Kyutoko suggested that allergic responses generally account for mild cases of asthma whereas psychosocial factors generally account for the very severe cases.

Davison and Neale (1983) make an important cautionary observation in the interpretation of such family influence studies. They state that

... we cannot always tell whether various familial variables are causal agents or maintaining agents. Although certain emotional factors in the home may be important in eliciting early asthmatic attacks in some children, in others the illness may originally develop for nonfamilial reasons, and then the children's parents may unwittingly reward various symptoms of the syndrome. (p. 222)

Adolescents experiencing chronic pain were investigated by Dunn-Geir, McGrath, Rourke, Latter and D'Astous (1986). In this study the adolescents were

grouped as either "copers" or "noncopers." Noncopers, despite experiencing the same amount of pain as did the "copers" had a school attendance problem. They had missed three or more days of school each month because of pain whereas copers did not have a school attendance problem. The authors observed the adolescents and one parent during a session in which the adolescent completed a series of physical exercises. The mothers of the noncoping adolescents tended to make more comments discouraging of coping behavior than did the mothers of copers. The noncoping adolescents themselves tended to express more pain and were on task less often than the copers. The authors concluded that pain behaviors appear to be susceptible to instrumental conditioning and are more prevalent in families in which there is maternal overinvolvement.

Minuchin, Rosman and Baker (1978) formulated a theory about the nature of psychosomatic families on the basis of their observations of the families of adolescents with asthma, uncontrolled diabetes and anorexia. Their conceptualization employs the "family systems" theoretical framework and acknowledges reciprocity of behavior.

Instead of viewing functional disorders as being responses to factors in the environment, Minuchin et al. suggested that the patient's disorder is both caused and causative.

The systems model postulates that certain types of family organization are closely related to the development and maintenance of psychosomatic syndromes in children and that the child's psychosomatic symptoms in turn play an important role in maintaining the family homeostasis. (p. 20)

Figure 1 illustrates Minuchin's conceptualization of the circular causality in a psychosomatic family.

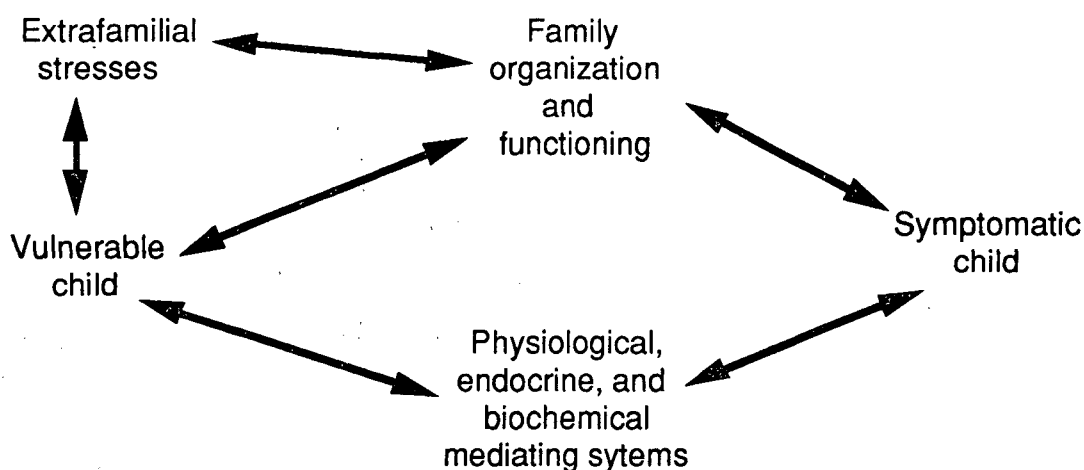


Figure 1. Open systems model of psychosomatic disease. From Minuchin, Rosman and Baker (1978, p. 21)

Based on clinical observations of the adolescents with asthma, uncontrolled diabetes and anorexia, Minuchin et al. (1978) identified the following factors as involved in the development of functional disorders:

Four characteristics of family functioning emerged from our observations: No one of these characteristics alone seemed sufficient to spark and reinforce psychosomatic symptoms. But the cluster of transactional patterns was felt to be characteristic of a family process that encourages somatization. The four family characteristics are enmeshment, overprotectiveness, rigidity and lack of conflict resolution. (p. 30)

Minuchin et al. later identified a fifth factor in the development of functional disorders, that is the child's involvement in parental conflict.

Minuchin's anecdotal observation, in his discussion of a sixteen-year-old anorexic is of particular significance to the research described in this paper



because of its strong similarity to the informal observations of physicians that prompted this study.

I am triggered by the parents' persistence in replying to questions posed to Loretta. I know from experience that Loretta's symptoms may be expected to improve as she begins to gain the autonomy proper to a sixteen year old (Minuchin, 1981, p. 93).

There is repeated evidence in the preceding review of the literature on childhood functional disorders that dysfunction within the family is associated with the disorders and can establish a pattern of behavior in the child that involves psychogenic disorders throughout adolescence and adulthood. The dysfunction within the family can be as simple as the inadvertant rewarding of the child's, or any family member's "sick role" or can involve enmeshment, parental overinvolvement, rigidity or ineffective communication.

Observations made in studies on functional disorders of childhood and adolescence exhibit clear links to the findings recorded in literature on functional disorders as experienced by adults. In all age groups, psychosocial stress generated by critical life events or the inter- personal environment is associated with somatization. It is also suggested in research on all age groups that some possibly innate personality and physiological factors, specifically vulnerability to stress and to pathology within a particular organ system contribute to the genesis of functional disorders. Significant links between the research on childhood and adult somatization include the similarity of the behavior of adult female ppsychosomatics and the separately reported behavior of mothers of psychosomatic children. There are also interesting connections between the child psychosomatic, reportedly incapable of creative play, and some adult psychosomatics, capable only of concrete, mechanistic thought.

The focus of this study is the interpersonal milieu of adolescents with functional disorders. The possible association between psychogenic pain in adolescents and parents' denial of or resistance to their children's developmental needs, those of separation and individuation, is the concept under investigation. Thus to fully introduce all factors involved in the research topic, a review of some aspects of adolescent development is necessary.

### The Developmental Tasks of Adolescence

There is much written about the physical, cognitive, moral and identity development of adolescents. The processes are interconnected and the aspects of relevance to this study are those that involve parent-child interaction around the separation and individuation of the adolescent.

The separation and individuation processes are said to begin in the latter half of the first year of life when the infant moves beyond its symbiotic relationship with its mother and reaches some degree of resolution around age three. It is thought that adolescence brings a resumption of the separation and individuation processes (Blos, 1979, Nielsen, 1983) and one of the primary tasks of adolescence is the final resolution of these processes. According to Nielsen (1983), individuation involves the evolution of intrapsychic autonomy, development of perception, memory, cognition and reality testing. Separation involves "differentiation, distancing, boundary formation and disengagement from mother" (Nielsen, 1983, p. 118). The culmination of this process is the adolescent's internalized self-image, no longer internalized representations of others' images.

During early and mid-adolescence, the individual passes through the "shared activity" and "shared identity" phase (Hartup, 1983) during which the peer group is of paramount importance. Kegan (1982) described this phenomenon as

occurring when the individual's culture of embeddedness is the peer group. This shift in social allegiance is one factor of many, including maturing physical and cognitive skills that enables the adolescent to separate from his or her parents. When this process is thwarted, behavioral and/or emotional problems likely will occur (Nielson, 1983).

Erikson (1963, 1968) characterized adolescence as the time during which the individual must establish a sense of personal identity. He suggested that adolescence is the most critical phase of psychosocial development, the pivot point between child and adult development. Successful identity development enables the individual to "answer for himself where he came from, who he is and what he wants to become" (Muus, 1982, p. 69).

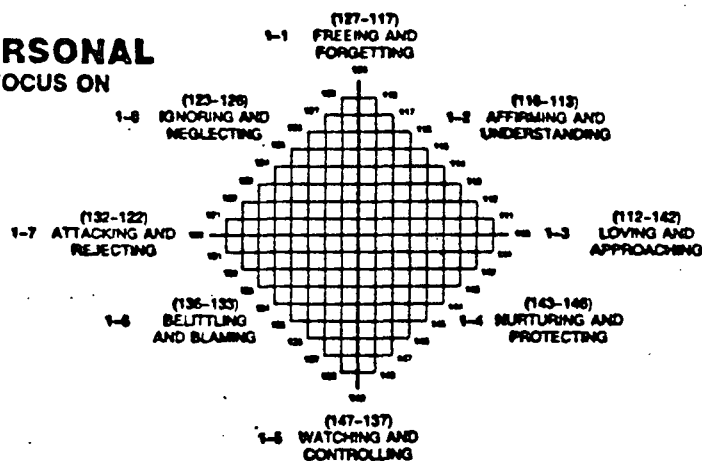
Whatever developmental model is considered, whether that of Blos, Erikson, Kegan, a common theme is that when the developmental process is impeded, as it may be by parental over-control of adolescents, psychosocial stress and dysfunction result. Affective, behavioral or somatoform disorders may all be the observable forms that this stress takes.

### The SASB Paradigm

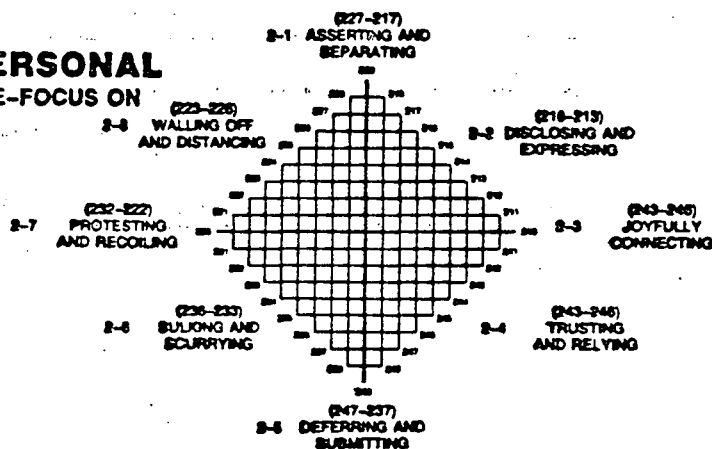
The measurement of behavior in this study was accomplished through use of the Intrex Questionnaire, an instrument that is based on Benjamin's Structural Assessment of Social Behavior. Thus it is important to have a clear understanding of the SASB conceptualization of behavior.

Benjamin's model of behavior is represented on three separate planes, each of which is a circumplex (see Figure 2). The first plane, identified as "Other" describes behavior that is transitive, that is directed toward another person. The second plane, the "Self" surface, describes behavior that is a response to another person's behavior. The third plane, the "Intrapsychic" surface, describes

# **INTERPERSONAL TRANSITIVE-FOCUS ON OTHER**



# **INTERPERSONAL INTRANSITIVE-FOCUS ON SELF**



# **INTRAPSYCHIC INTROJECTION**

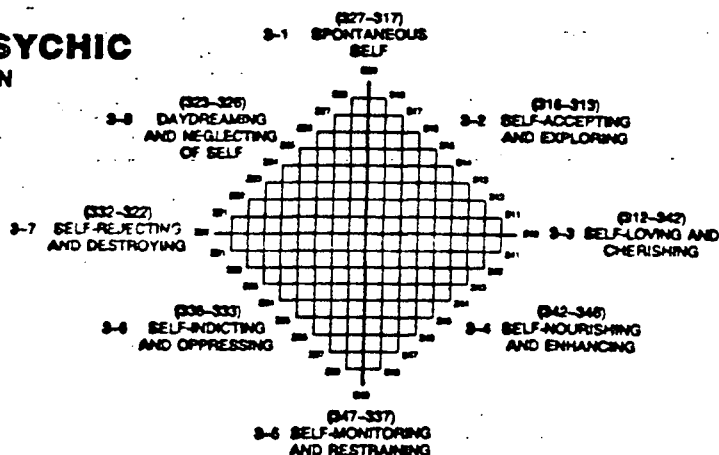


Figure 2. Cluster version of SASB model. (from Benjamin, 1986, p. 112)

behavior that stems from an individual's self-concept, thus is an introjection of behavior that "Others" (Surface 1 behavior) have directed toward the individual.

The first two surfaces are complementary and constructed in such a way that behavior defined at a given point on the "Other" surface ( eg Surface 1, Cluster 7, "Attacking and Rejecting") is, in a complementary relationship, responded to by behavior defined at the same location on the "Self" surface (Surface 2, Cluster 7, "Protesting and Withdrawing). These particular interpersonal behaviors result in the corresponding Intrapsychic behavior (Surface 3, Cluster 7, "Self-rejecting and Destroying").

This correspondence of behaviors on the three planes is achieved through the use of the same horizontal and vertical axes in all three planes. The horizontal axis in the SASB model is affiliation and ranges from hostile behavior on the left to friendly behavior on the right. The vertical axis represents degree of autonomy and ranges from independence at the top of the axis to interdependence at the bottom. Benjamin's model clearly illustrates the logic in defining behaviors that are psychological opposites. Such behaviors are located at positions 180 degrees apart on the same plane.

Information regarding the development of the Intrex questionnaire based on this model and its statistically substantiated soundness will be presented in the following chapter.

Use of the SASB model in understanding parent-child interactions seems especially promising since both the parent's and child's, active and reactive behavior can be isolated and examined. The model also makes possible the understanding of interactions as complementary or opposite, phenomena that may illuminate interesting links to the existence of psychosocial stress experienced by the adolescent within the relationship.

### Hypotheses

Given the application of the SASB paradigm to the phenomenon of psychogenic pain disorders in adolescence, the following hypotheses and predictions were formulated.

1. Parents of adolescent daughters with psychogenic knee pain are perceived by their daughters as behaving differently toward them than are parents of adolescent daughters with organic knee pain.

1a. SASB data analysis will assign a higher CONTROL value to the descriptions of parental behavior made by daughters with psychogenic knee pain than to the descriptions of parental behavior made by daughters with organic knee pain.

2. Adolescent daughters with psychogenic knee pain react differently to their parents than do those with organic knee pain.

2a. SASB data analysis will assign a higher SUBMIT value to the descriptions of their own behavior made by daughters with psychogenic knee pain than to the descriptions of their own behavior made by daughters with organic knee pain.

## CHAPTER 3

### METHODOLOGY

#### Population

The population for this study was defined as adolescent female medical patients complaining of knee pain. The behavior of these patients and their parents was investigated.

#### Sample

The sample for this study consisted of 30 female patients of five participating physicians whose primary medical complaint was of pain in one or both knees. One parent of each of these patients also provided data. The patients, who were between 13 and 16 years of age, were categorized by their doctors as having either an "organic" basis for the pain ( $n=18$ ) or as having "no organic evidence" to associate with their experience of pain ( $n=12$ ). The doctors assigned the subjects to these groups after at least one office consultation and the examination of x-ray and other test results. Excluded were any patients with systemic connective tissue disease.

#### Sampling Procedure

During a routine office visit, the physicians described the study to patients who met the criteria described above and the parent that was accompanying them. Written consent to participate in the study was then obtained from the parent. The patients and their families were assured that participation was not obligatory. They were informed that to encourage involvement in the study and to compensate them for their time, each participating family would receive \$10. Subsequently, a set of questionnaires was taken to each family's home by the researcher and the families were paid once the questionnaires were complete.

Some families that initially agreed to be involved in the study later chose not to participate. Four patients from the "organic" group and one from the "no organic evidence" group declined to participate in an indirect manner. They simply didn't respond to several telephone messages regarding receiving the questionnaires. The remaining 30 subjects formed the sample.

Socioeconomic status data were collected by asking the parents to report the occupations of both parents with whom their daughter lives. This information was then rated according to the 1981 Socioeconomic Index for Occupations in Canada (Blishen, Carroll, & Moore, 1987).

### Design

A "criterion-group" or "ex post facto" design, that is one in which "the treatment is included by selection rather than manipulation" (Tuckman, 1978, p. 147) was used for this study. The independent variable in this study is the patient's medical diagnosis, either an "organic" basis for knee pain or "no organic evidence" associated with the knee pain. The dependent variable is the parent - child interactional style as understood and measured by SASB theory and methodology.

### Instruments

The following types of data were collected from each family:

a) Data obtained from the parent:

- 1) demographic information (occupations of both parents)
- 2) pain scale rating - the parent's estimation of the intensity of the knee pain experienced by their daughter

b) Data obtained from the daughter

- 1) pain scale rating - the daughter's estimation of the intensity of her knee pain
- 2) Intrex Questionnaire-Short Form, Forms B and C



See Appendix 1 for samples of the questionnaire packages given to both the patients and parents.

#### The Pain Scale.

Pain is difficult to measure, partly because it is usually accompanied by other sensations, and partly because the reaction component affects the judgement of pain, regardless of the intensity of the stimulus. (Revill, Robinson, Rosen and Hogg, 1976 p. 1191)

Nonetheless, a very simple instrument called a "linear analogue for evaluating pain" has been developed and shown to be reliable (Revill et al., 1976). It consists of a 10, 15 or 20 centimeter line which represents a continuum from one end labelled "no pain at all" to the other end labelled "the worst pain that you can possibly imagine." Revill et al. (1976) demonstrated impressive test-retest reliability regarding subjects' ratings of both current and remembered pain.

In this study a 10 centimeter line was used.

The daughter and one parent each indicated on separate copies of the scale their estimation of the intensity of the daughter's knee pain. To compare the mean difference between parent and daughter ratings, the absolute value of each difference (in centimeters) was calculated, then averaged.

#### The Intrex Questionnaire

Information regarding the parent-child behavior within the families was gathered by use of the Intrex Questionnaire-Short Forms B and C. Form B of the questionnaire is constructed with male pronouns, Form C with female pronouns. Thus each daughter used Form B to respond to statements about her relationship with her father and Form C to describe her relationship with her mother.

Forms B and C each contain 32 statements to which the subject responds on a 10 point scale ranging from 0 = Never to 10 = Always. The 32 statements are presented in random order and each represent one cluster position of Benjamin's circumplex model. Of the total of 64 statements that each subject responded to, they can be grouped in the following manner:

- 8 statements about the daughter's behavior that is directed toward or focused on her mother (Benjamin terms this "transitive behavior")

- 8 statements about the daughter's behavior in relation to her mother that is focused on herself (intransitive behavior)

- 8 statements about the mother's behavior that is focused on her daughter (transitive behavior)

- 8 statements about the mother's behavior in relation to her daughter that is focused on herself (intransitive behavior)

- 8 statements about the daughter's behavior that is focused on her father (transitive behavior)

- 8 statements about the daughter's behavior in relation to her father that is focused on herself (intransitive behavior)

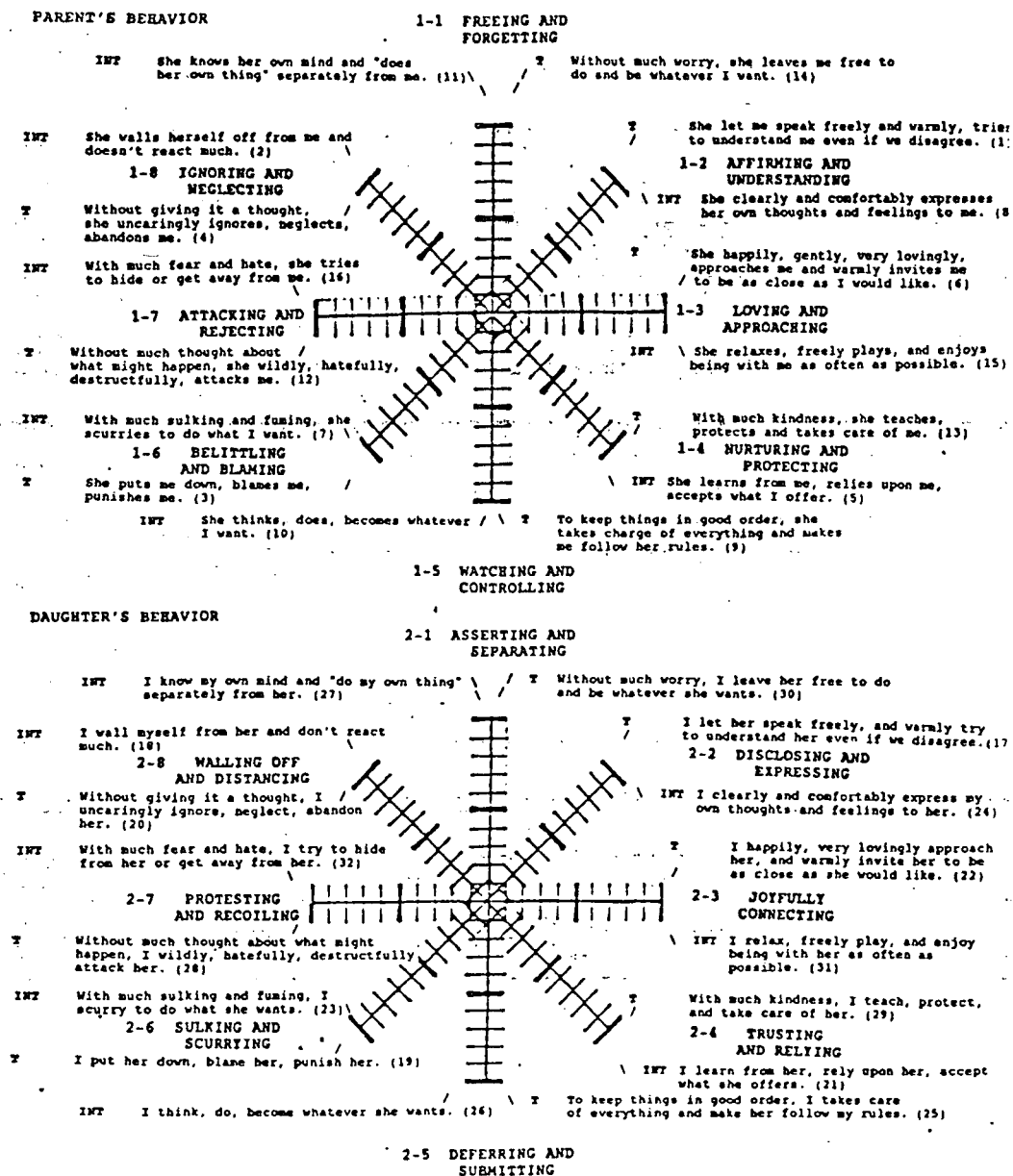
- 8 statements about the father's behavior that is focused on his daughter (transitive behavior)

- 8 statements about the father's behavior in relation to his daughter that is focused on himself (intransitive behavior)

The 32 items per relationship conform to the circumplex model of SASB as illustrated in Figure 3.

Since the Intrex Questionnaire-Short Form is derived from the Intrex Questionnaire-Long Form, it is useful to understand some aspects of the development of the original Long Form. The Intrex Questionnaire-Long Form

FIGURE 3: Intrex Questionnaire: Short Form Items



T = Transitive

INT = Intransitive

has undergone repeated refinement and revision since 1972 when it was first published. Benjamin (1985) specified that

Noise in SASB items was removed by six major revisions based on iteration between theory and data from factor analyses, and from judges' dimensional ratings. (p. 2)

Benjamin acknowledged that Intrex is a "good faith test." In other words, the data reflect a subject's perceptions of his or her own or other's behavior to whatever degree subjects are willing to respond honestly. No part of the Intrex Questionnaires is constructed "to do battle with response sets or the unconscious or the malingering rater" (Benjamin, 1985, p. 30).

Factor analysis conducted on Intrex-Long Form data confirmed the existence of two dimensions, those of autonomy and affiliation. Internal consistency of Intrex: Long Form items is high (that is similarity of scores for items from the same cluster), ranging from .7 to .95 (Benjamin, 1985) thus providing evidence of construct validity.

Content validity of Intrex-Long Form has been confirmed by the process of "naive judges" rating the items in terms of the two dimensions of affiliation and autonomy. This procedure has been completed three times, 1978, 1980 and 1983 and with the 1983 version of the items resulting in the raters (psychology students) placing the items in a near perfect diamond shape, thus closely corresponding to the theorized model. (Benjamin, 1984)

Information regarding the reliability and validity of the Intrex-Short Form is, to date, less extensive than such data on the Long Form. Test-Retest and Equivalent-Forms comparisons have been made but with generally small sample sizes (eg.,  $n=12$  and  $16$ ). These comparisons (Benjamin, 1988, p. 46) involved subjects making ratings of themselves and a "significant other" both "at best" and "at worst" as well as ratings of their mothers and fathers as they remembered

them as a child of 5 to 10 years of age. The correlations ranged from a low of .667 for an "at worst" perception to .898 for an "at best" perception.

The discrepancy between "at best" and "at worst" correlations is not surprising given that "an important attribute of relationships at worst is that they are not as well integrated according to the circumplex theory as are relationships at best" (Benjamin, 1988, p. 51). Generally, unpredictable relationships are not valued as highly as those which demonstrate consistency of behavior.

Since the current study did not specify to the subjects that they view the relationships that they were reporting on in "at best" or "at worst" circumstances, the reliability of the data generated by this study is likely to fall somewhere between the values of .7 and .9. Given that virtually all of the subjects reported their relationships with their parents as being very warm and loving, it seems more likely that the reliability values for "at best" relationships are more applicable to the data from this study.

Benjamin reported recent factor analytic tests of the construct validity of the Intrex-Short Form (Benjamin, 1988, p. 59) that again confirmed the existence of the horizontal and vertical axes as conceptualized in SASB theory. With sample sizes ranging from 11 to 102, the percent of variance accounted for by the two factors ranged from 59% to 64%.

### Interpretation of Data

Data from the questionnaires were analyzed initially by Program FIG (Benjamin, 1988), one of several computer programs developed by Benjamin for interpreting the Intrex Questionnaires. FIG is primarily used in research whereas other SASB programs such as INTERP or COMP are more appropriate for clinical use. The subject's responses to a total of 64 questionnaire items regarding her own and her parents' behavior yield 8 graphs, 8 pattern

coefficients that describe the behavior in general terms and 24 values specifically rating ATTACK, CONTROL, SUBMIT and CONFLICT.

The variables pertaining to Hypothesis One of this study are the CONTROL values assigned to the mothers' and fathers' behavior. The variables pertaining to Hypothesis Two are the SUBMIT values assigned to the daughters' behavior in relation to both their mothers and fathers. The remaining values and coefficients were used in a "post hoc" analysis of results.

The "attack value" (ATK) is derived from the scores on the items that load heavily on the horizontal, affiliation measuring SASB axis. Benjamin (1988) stated that this value

summarizes the extent to which the endorsements center on the horizontal axis of the SASB model with positive ATK indicating hostility and negative ATK indicating friendliness. (p.73)

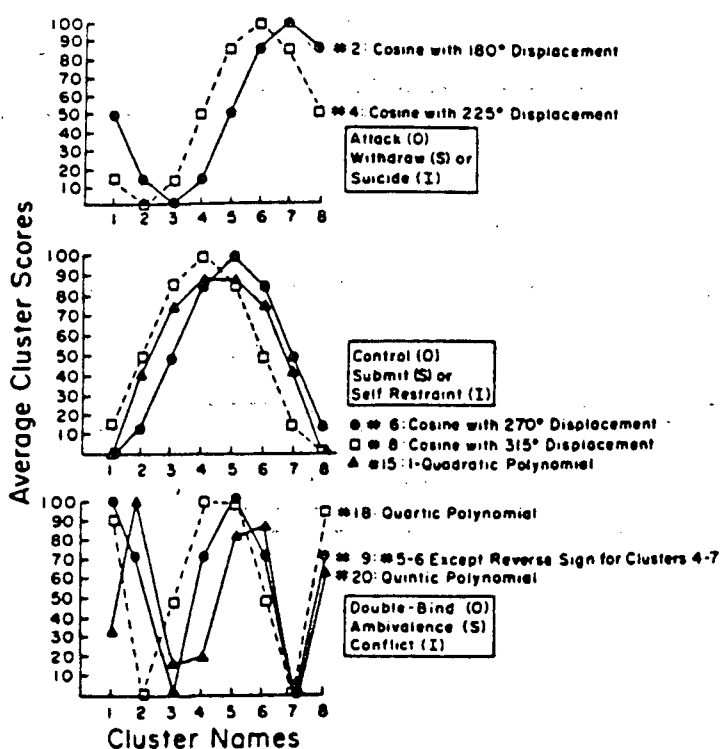
The "control value" (CON) is derived in the same manner except that it is based on item loadings on the vertical autonomy-interdependence axis. Positive CON values indicate control if the behavior is transitive or submission (SUB) if the behavior is intransitive. Negative CON values represent autonomy giving and taking behavior.

The "conflict value" (CFL) indicates the degree to which there are conflicting strong ratings. Benjamin (1988) stated:

..positive CFL indicates contradictory strong endorsements on the vertical axis (conflict between control and autonomy giving or between submission and autonomy taking...) Negative CFL indicates contradictory strong endorsements aligned on the horizontal axis (basically conflict between love and hate). (p. 73)

The ATT, CON and CFL values may also be understood as the coefficients for the correlation between the subjects' ratings when plotted as a linear graph and

the three curves illustrated in Figure 4. Although Benjamin has identified 21 theoretical curves that may result when plotting a subject's Intrex ratings, she has identified three patterns in particular that represent extremes of behavior as it is understood in the SASB paradigm and thus are useful in recognizing psychopathology. If, for example, an individual's responses include high ratings for Cluster 4 and 5 transitive items and the remaining items generally correspond to the ATTACK curve in Figure 4, the result would be a high correlation between the individual's ratings and the ATTACK curve. The resulting ATT value would be close to +1. (Further explanation of the interpretation of Program FIG data is provided in Appendix 2.)



Key examples of theoretical curves; these can be fitted to actual curves by FIG. O denotes "other," S denotes "self," and I denotes "introjection." Correlations between various theoretical curves and actual curves yield the "best-fit" curve. If  $r > .71$ , the best fit characterizes the actual curve at the .05 level. Such fits permit the naming of specific relationships as "controlling," "attacking," "submissive," "withdrawn," and so on.

(Benjamin, 1988, p. 77)

Figure 4. SASB Theoretical Curves

Of the 24 ATT, CON and CFL values generated by program FIG for each family, only four relate directly to the hypotheses of this study. The following predictions stated in terms of CON and SUB values were made:

1. Mothers and fathers of "no organic evidence" daughters would be perceived by their daughters as more controlling and thus have higher CON values than mothers and fathers of daughters with an organic basis for their knee pain
2. "No organic evidence" daughters would perceive themselves as being more submissive to their parents and thus have a higher SUB value than daughters in the organic group

The statistical analysis of the data generated by Program FIG involved the use of the "Student's t-test for Independent Groups" to determine if significant differences existed between the "organic" and "no organic evidence" groups. The t-test was an appropriate statistical test for this analysis because the three conditions required for use of a t-test were met in this study. The three conditions are (1) that the sample is randomly selected, (2) that the distribution of scores conform to a normal curve, and (3) that the sample size be less than 30. The t-test enables one to determine the probability of the difference between the ratings in the two groups being a result of sampling error or due to the fact that the samples come from different populations.

The final phase of the statistical analysis involved the use of Bonferroni's Correction Factor. According to Collyer and Enns (1987), the process involved in the application of this correction factor is to

adjust the level of significance according to the number of pairwise tests performed, so that the overall significance level (probability of a Type 1 error) for the experiment does not exceed a preset level. (p. 266)



In this study, four t-tests were completed to compare the CONTROL and SUBMIT values that pertained to the hypotheses. Thus it was necessary to divide by four the routinely used cut-off value for statistical significance of  $p < .05$ . In order to demonstrate statistically significant differences between groups, it became necessary to achieve a value of  $p < .0125$ .

## CHAPTER 4

## RESULTS

Characteristics of the Sample

Similarity of the "organic evidence" and "no organic evidence" groups in terms of age, socioeconomic status, severity of pain and discrepancy between each daughter's and parent's pain scale rating was confirmed by use of t-tests (see Table I).

Table I. Age, socioeconomic status, and pain rating data for the "organic evidence" and "no organic evidence" groups

	Organic Evidence	No Organic Evidence	p value
Mean age (years)	14.78	14.33	.27
Standard deviation	1.06	1.07	
Mean SES.	55.47	54.27	.82
Standard deviation	17.42	11.0	
Mean pain scale rating by parents (cm).	5.26	4.93	.61
Standard deviation	1.48	2.04	
Mean pain scale rating by daughters (cm).	5.34	5.77	.56
Standard deviation	1.92	1.96	
Mean difference between parent and daughter pain scale ratings.	1.27	1.24	.95
Standard deviation	1.19	1.35	

### Hypothesized Results

The parent-child behavior data analysis was based on the output for each subject from Program FIG. An example of the entire output for one subject is provided in Appendix 2.

#### Hypothesis One.

SASB data analysis will assign a higher CONTROL value to the descriptions of parental behavior made by daughters with psychogenic knee pain than by daughters with organic knee pain.

Between-groups comparisons of the daughters' perceptions of their mothers' and fathers' CONTROL behavior were made using the "Student t-test for Independent Groups" and the Bonferroni Correction Factor (see Table II). The data supported Hypothesis One only with respect to the daughters' perceptions of their mothers' behavior. The hypothesis was not supported with respect to the daughters' perceptions of their fathers' behavior.

Table II. Between-groups comparisons of CONTROL values for mothers and fathers.

	Organic Evidence	No Organic Evidence	p value
CONTROL - mean value for mothers	.622	.829	.009*
Standard deviation	.286	.087	
CONTROL - mean value for fathers	.405	.538	.392
Standard deviation	.43	.379	
p value	.107	.039	

Upon inspection of the data pertaining to Hypothesis One, it was apparent that the daughters in both groups generally perceived their mothers as more controlling than their fathers. Consequently, a post facto comparison of mothers' and fathers' CONTROL values was done, also by means of the Student t-test and the Bonferroni Correction Factor. To demonstrate significance, a cut-off value of  $p > .025$  was used. Significant differences did not exist between the mothers and fathers within each group, a finding heavily weighted by the large variances that existed in the fathers' CONTROL values.

In addition to considering the presence of statistically significant differences between groups, it is important to also acknowledge the literal meaning of the mean CONTROL values. Given a scale in which -1 and 1 represent the extreme positions on the autonomy-giving and autonomy-withholding continuum, the "no organic evidence" group's mean value of .829 relative to the "organic" group's mean value of .622 is a strong endorsement of the first group's perception of their mothers' behavior as highly controlling.

SASB data analysis will assign a higher SUBMIT value to the descriptions of their own behavior made by daughters with psychogenic knee pain than to the descriptions of their own behavior made by daughters with organic knee pain.

Analysis, by means of the Student t-test, of between-groups differences of the SUBMIT variable confirmed that the data did not support Hypothesis Two (see Table III). Both groups described their autonomy-taking behavior in very similar terms. The mean SUBMIT values for both groups in relation to their mothers were close to zero indicating a midpoint position on the submission-autonomy-taking continuum. In relation to their fathers, both groups described their

behavior as being just slightly more submissive than they are with their mothers.

Table III. Between-groups comparisons of SUBMIT values assigned to the daughters' reported behavior.

	Organic Evidence	No Organic Evidence	p value
SUBMIT - mean value for daughters in relation to their mothers	-.054	.030	.643
Standard deviation	.518	.419	
SUBMIT - mean value for daughters in relation to their fathers	.109	.199	.65
Standard deviation	.501	.563	
p value	.368	.429	

These ratings are interesting in light of the fact that the daughters reported their fathers to be generally, although not significantly, less controlling than their mothers.

#### Other Post Hoc Findings

The remaining 20 ATT, CON and CFL values generated by Program FIG which did not pertain directly to the hypotheses of this study also yielded some interesting results. Figures 4 and 5 summarize all possible comparisons made by means of the Student t-test, of ATT, CON and CFL data. For example, unexpected differences between the groups were found in the mothers' and

Figure 5. ATTACK, CONTROL, SUBMIT and CONFLICT values for Organic and No Organic Evidence subjects (Mean  $\pm$  SD).

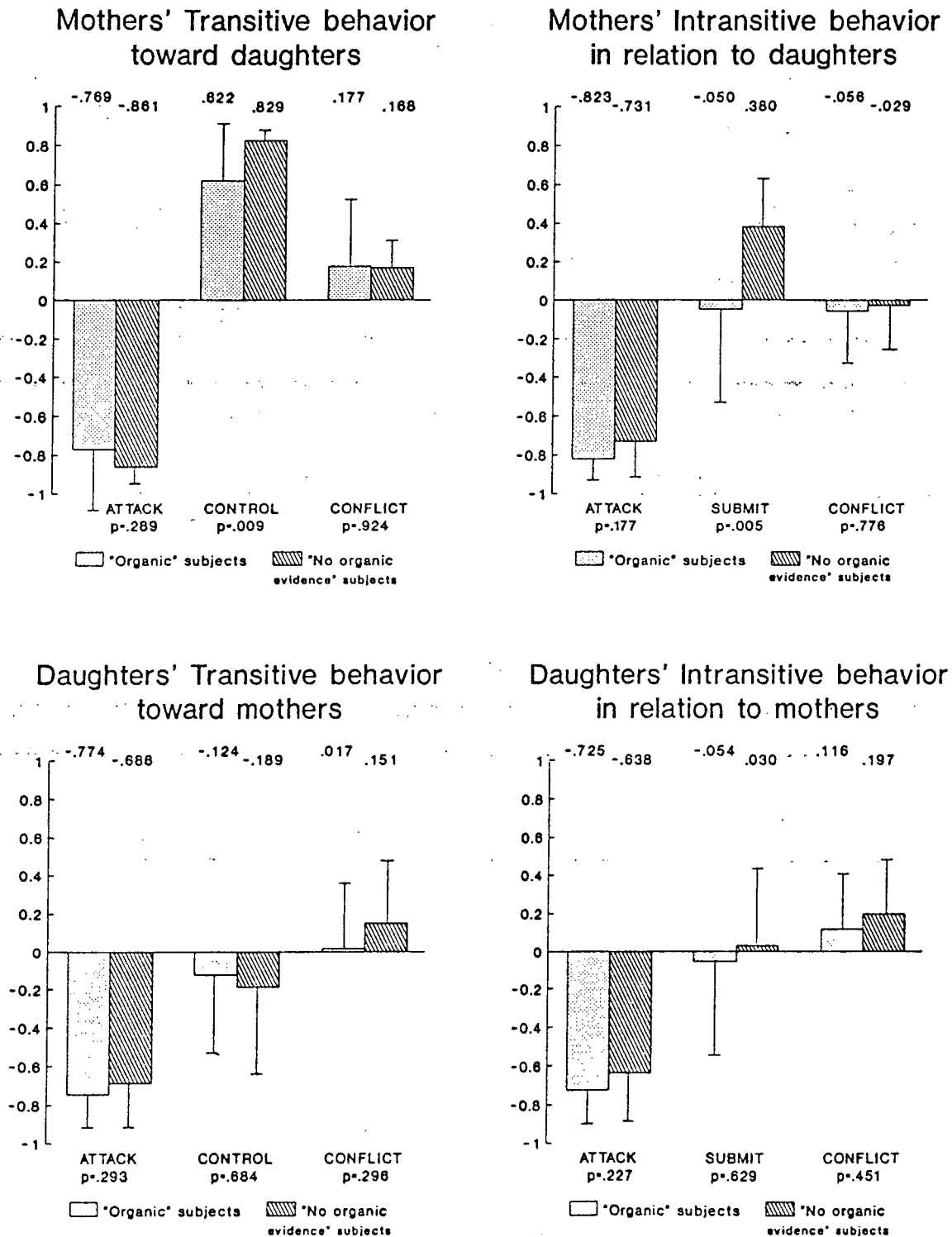


Figure 6. ATTACK, CONTROL, SUBMIT and CONFLICT values for Organic and No Organic Evidence subjects (Mean  $\pm$  SD).

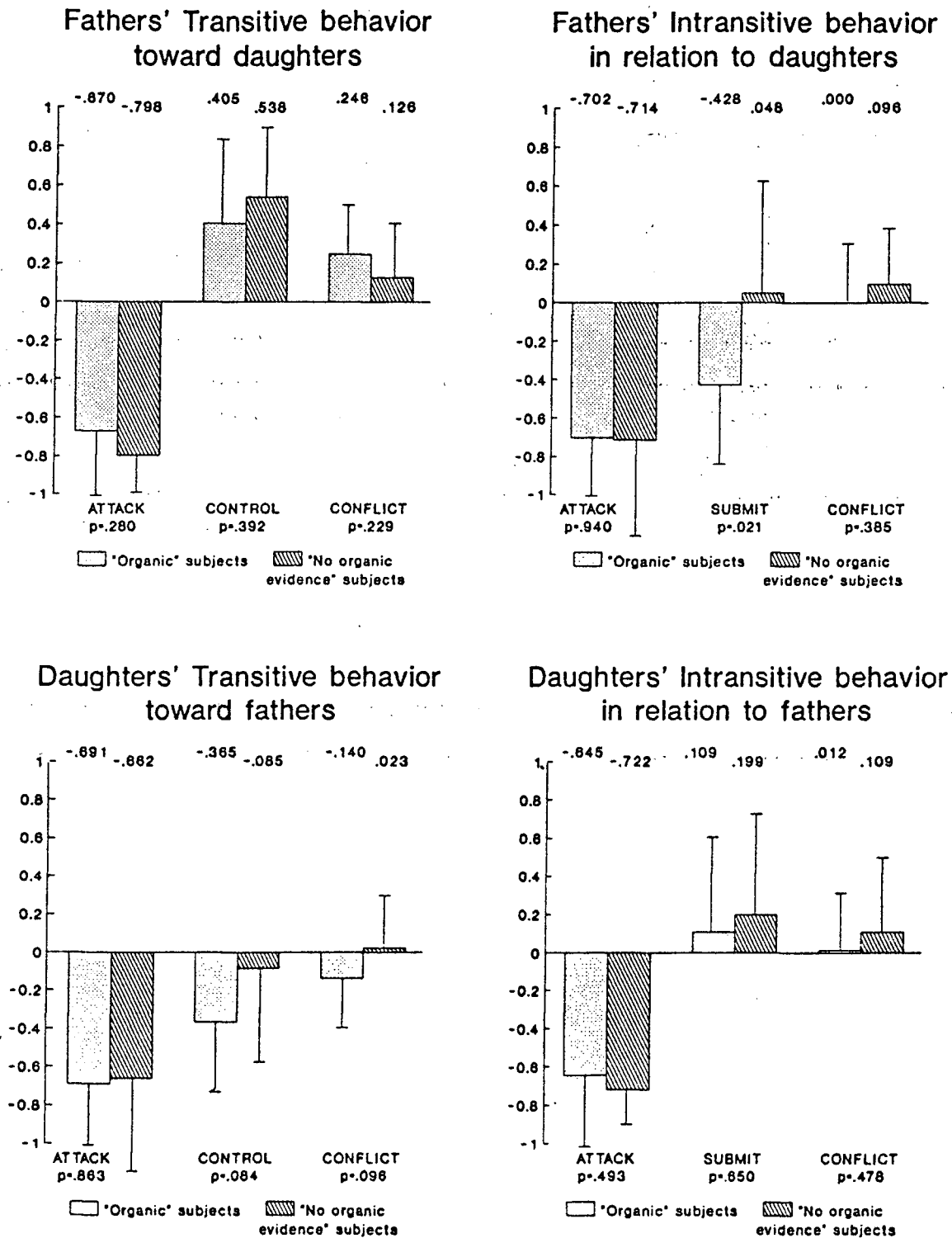


Figure 7. Pattern Coefficients derived from mean item ratings of Organic and No Organic Evidence subjects.

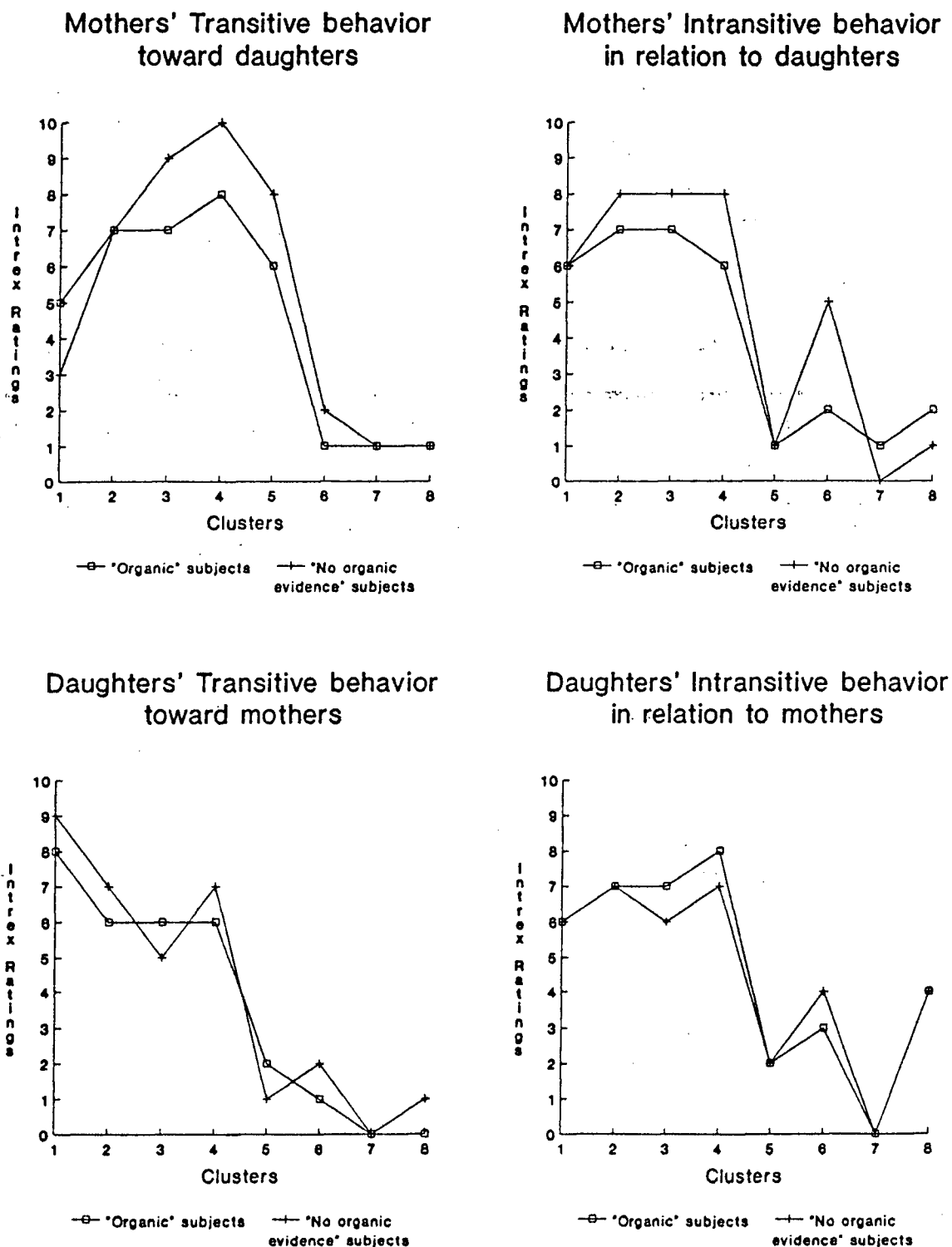
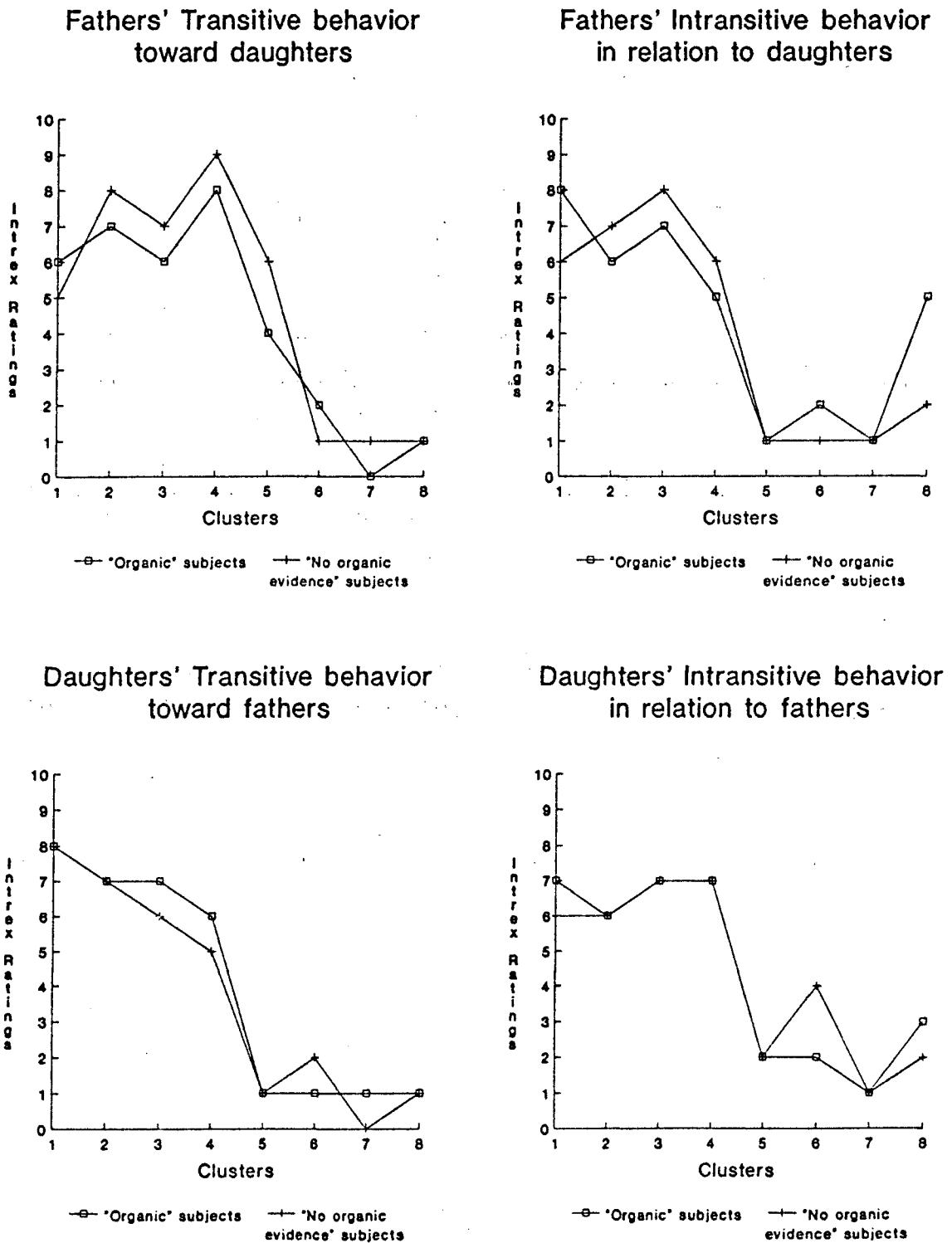




Figure 8. Pattern Coefficients derived from mean item ratings of Organic and No Organic Evidence subjects.



fathers' SUB values. Specifically, the "no organic evidence" daughters perceived their mothers especially ( $p=.0045^*$ ) and their fathers to a lesser extent ( $p=.0207$ ) as more submissive in relation to their daughters than did the "organic" daughters perceive their parents. A fourth between groups difference that was discernible but not statistically significant ( $p= .0849$ ) involved the daughters' perception of their own control over their fathers. The "no organic evidence" daughters reported greater control over their fathers than did the "organic evidence" daughters.

The ATT values, those which relate to the horizontal axis of the SASB paradigm and measure the degree of affiliation in a relationship were consistently highly negative. In other words, daughters in both groups gave high ratings to their parents and themselves in terms of such Cluster 2,3 and 4 behaviors as "loving and approaching", "affirming and understanding," "nurturing and protecting," and "disclosing and expressing."

The CFL ratings were consistently low in value and similar between groups. The implication of such values is that subjects rarely had conflicting scores among their vertical axis and horizontal axis items.

SASB Pattern Coefficients which yield curvilinear graphs representing any given relationship, were used to further illustrate between-groups differences. Figures 6 and 7 contrast the curves created using the mean scores on each questionnaire item within each of the two groups studied. It is possible to see in each of the graphs where the variation between groups occurs in relation to points on the SASB circumplex model. This manner of comparison does not yield any statistical information. Rather, it simply serves to highlight the variations in responses to items that were observed between the "organic" and "no organic evidence" groups.

### Case Study

In Appendix 2 is an example of the descriptive output from Program FIG for one subject in the psychogenic pain group. It describes a 14 year old girl named Barb, the second of three daughters of a homemaker and a teacher. Barb explained that she had had several problems with chronic pain of both the leg and abdomen in the past two years. It was difficult to arrange a time to bring the questionnaires to Barb and her mother since the daughters all had such busy schedules of activities. Her mother laughingly commented that the busy lifestyle was because she liked "to keep her daughters on a short string." After Barb completed the questionnaires she commented that the process had interested her because "it made me think about what was going on between my parents and me and how it's quite a bit different in most of my friends' families." She added that her friends' mothers trusted their daughters more and gave them more freedom. Barb was looking forward to the fact that in about five months time she anticipated that her mother would be employed outside the home and presumably less focused on her children. When asked if she had ever sought help from a counsellor or teacher about her relationship with her mother, Barb commented that the situation really wasn't so bad because there was always a way to get what she wanted. Barb's perception of her mother as quite highly controlling ( $CON = .846$ ) yet also quite highly submissive ( $SUB = .677$ ) suggests enmeshment in the relationship. In a brief conversation with both mother and daughter together, Barb's mother exhibited the predicted behaviors of interrupting and speaking for her daughter, Barb interjected and spoke for her mother on two occasions as well.

## CHAPTER 5

## DISCUSSION

Summary of Results

In response to repeated statements about the need for further investigation of parent-child behavior in relation to child and adolescent somatization (Dunn-Geir et al., 1986; Minuchin et al., 1978; Srivastava & Singh, 1979), the objective of this study was to provide further understanding of the nature of the interactions between adolescent girls experiencing psychogenic pain and their parents.

The data supported only one of the four predictions about parent-child behavior made in this study, that the daughters in the psychogenic knee pain group would perceive their mothers as behaving in a more controlling manner toward them than would daughters with organic knee pain perceive their mothers. The results did not support the three remaining predictions that were (1) the fathers of adolescent girls in the psychogenic knee pain group would be perceived by their daughters as more controlling than fathers of daughters in the organic group; and (2) that the daughters in the psychogenic pain group would report their own behavior as more submissive both in relation to their mothers and (3) in relation to their fathers.

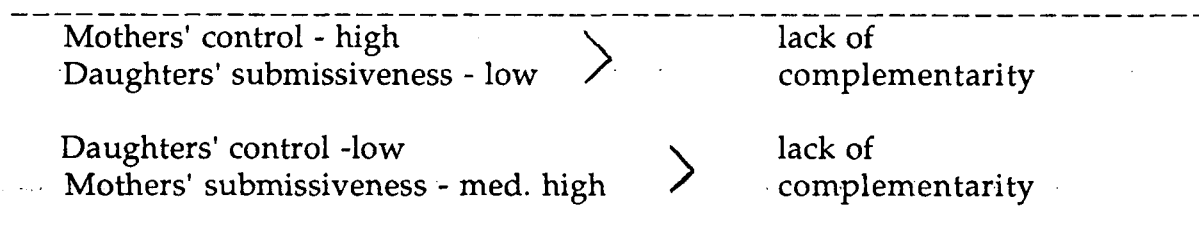
Some unexpected between-groups differences became apparent in the post hoc analysis of the remaining Program FIG data. Of particular importance is the fact that the two significant differences (the mothers' CONTROL and SUBMIT values) and the two differences indicating non-significant trends (the fathers' SUBMIT value and the daughters' CONTROL value in relation to their fathers) all describe SASB vertical axis behavior. The daughters' perceptions of their mothers' control over them, their mothers' submissiveness to their daughters

and to a lesser extent their fathers' submissiveness to their daughters were all greater in the psychogenic pain group. Thus it is possible to conclude that issues of control and autonomy were central to differences from the comparison group in parent-child behavior in families in which the adolescent daughter was experiencing psychogenic pain. These differences were more pronounced in the interpersonal behavior of mothers and daughters than fathers and daughters.

### Interpretation of the Results

It seems likely that a connection exists between the ratings in the psychogenic pain group of higher maternal control and higher maternal submissiveness than in the organic pain group. It is useful to use the "circular causality model" of behavior and, in particular, the notion of complementarity to explore this matter. In fact, there are four parts to this puzzle as it is illustrated in Figure 8.

Figure 9. Mother-daughter interactions in psychogenic pain families



In the initial pair of behaviors a lack of complementarity exists and a state of disequilibrium develops in the relationship. The disequilibrium is balanced by the lack of complementarity that exists in the second pair of behaviors. The mother-daughter relationship thus consists of two somewhat symmetrical sets of behavior rather than the complementary behavior of a normal parent-child relationship. Minuchin's (1978) model of family behavior suggests that if the mothers in the psychogenic group reduced the controlling component of their

behavior, the other three behaviors would adjust to new levels as well. This interpretation provides a theoretical basis for decisions about the type of therapeutic intervention that would be most effective with these families.

The between-groups differences in the mothers' SUB values may, in fact, be one of the clearest indicators of the nature of these mother-daughter relationships. The psychogenic pain group's assignment to their mothers of a mean SUB value of .380 relative to the organic group's mean rating of -.05 suggests a blending of parent and child roles and thus a degree of enmeshment as it is conceptualized by Minuchin (Minuchin & Fishman, 1981) in the mother-daughter relationships. This enmeshment, the product of diffuse parent-child boundaries, promotes "mutual support but at the expense of independence and autonomy" (Nichols, 1984, p. 475). The dysfunction of such a family structure will be particularly evident "when the family or one of its members faces external stress or when transitional points of growth are reached" (Nichols, 1984, p. 479).

Relationships in which the interpersonal behavior is not complementary and yet show little evidence of overt conflict, are an ideal environment for the development of psychosocial stress. It is not known how this stress may be manifested in the mothers but it seems likely that this stress can be linked with the occurrence of psychogenic pain in the daughters.

The interpretation of psychogenic pain as a form of communication also guides the direction of therapeutic intervention. Given the characteristics of the relationship summarized above, a goal of therapy would be for the family to discover what message the psychogenic pain is conveying and how it relates to the system disequilibrium. Techniques such as family sculpting or mapping, centering on the pain experience might quite effectively lead to insight and behavior change.

Further understanding of the tension between the daughters and parents in the psychogenic pain group requires clarification of what aspects of the daughters' lives are the focus of parental control. Minuchin and Fishman (1981) suggest that a family therapist essentially provoke a crisis regarding one of the contentious factors so that the therapist and family can experience and explore the dimensions of the conflict.

### Implications of the Results to Previous Research

The apparent differences in autonomy-taking and autonomy-giving behavior between the psychogenic pain and the organic pain groups support the findings of Srivastava and Singh (1979) who concluded that parental overprotection and dominance are factors associated with the development of functional disorders in children. The nature of the Intrex Questionnaire is such that the other behaviors that Srivastava and Singh identified such as underlying guilt proneness, insecurity and timidity on the part of the mothers could not be identified and thus not supported by these results.

The results of this research provide partial support for the findings of Hoorneart and Pierloot (1975) who concluded that somatizing adults perceived their mothers as more controlling than supporting and that the mothers' behavior involved active self-giving at the expense of empathy, receptivity and closeness. While the results of this research supported the notion that the mothers of somatizing adolescents are perceived as more controlling than the mothers in the comparison group, the mothers in both groups were given very similar ratings on questionnaire items that related to empathy and closeness (eg., Item 1. She lets me speak freely and warmly, tries to understand me even if we disagree. Mean score of the psychogenic group - 7.4; mean score of the organic group - 7.1)

Although the research of Groen (1982) focused on adult females with chronic psychogenic pain, some significant connections exist between Groen's work and this study. Groen's subjects displayed "dominating leadership" (p. 283) a description which could also be applied to the mothers of the psychogenic pain patients in this study. Consequently, there is a greater likelihood that the mothers of the psychogenic pain subjects in this study were themselves experiencing psychogenic pain than the mothers in the comparison group. This modeling of a maladaptive response to psychosocial stress might be a factor in the development of such a response in the adolescent daughters.

The results of this research provide support for the first three of five factors that Minuchin et al.(1978) linked to "psychosomatic families" - (1) enmeshment, (2) rigidity, (3) overprotectiveness, (4) lack of conflict resolution, and (5) parental conflict. Item 25 of the Intrex Questionnaire; "To keep things in good order she takes charge of everything and makes me follow her rules," the item that as the primary determinant of the CONTROL value, provides a reading of the degree of overprotectiveness and rigidity in the parent-child relationship. The psychogenic pain group's mean score on this item of 7.7 relative to the organic pain group's mean score of 6.2 as well as the significant differences in the CONTROL values, suggests rigidity and overprotectiveness are more likely to characterize the psychogenic pain patients in this sample. Evidence of the existence of enmeshment in the families of the psychogenic pain group is provided by the higher SUBMIT values for the parents in this group.

There are numerous findings from the "somatizing personality type" line of research that could not be corroborated by this study due to the nature of the Intrex Questionnaire. None of the following previously correlated factors could be supported: "anger-in" behavior (Valdez et al., 1988), passivity and emotional immaturity (Prugh, 1951), and alexythymia (Taylor & Doody, 1985). In addition,



the Intrex items do not probe deeply enough to provide evidence to support the assertions that maternal rejection underlies the overinvolvement and overprotection (Gadinni, 1977; Pinkerton, 1967).

### Limitations of the Study

The design employed in this study has yielded data that, within the limitations of small sample size, validly represent the two groups of subjects. The completion rate in this study of more than 80% of the questionnaires in each group is considered satisfactory.

The subjects' general response to the Intrex Questionnaire was positive. With no assistance beyond the written instructions that precede the items, they were able to complete the questionnaires. When asked how they found the questionnaire to be, most replied in a vaguely positive manner. However, many of the subjects displayed some degree of discomfort about responding to the items, particularly when a parent was near at hand.

The constraints imposed by Intrex being a "good faith" test are significant. Additionally, assuming that the data do accurately reflect the adolescents' perceptions, a further tempering factor relates to adolescents' strong peer orientation. Did these adolescents describe their relationships with their parents in realistic terms or were the descriptions filtered by their views of how teenagers ought to behave particularly regarding the critical issue of their emerging independence from their parents? Clearly, our understanding of these families would have been enhanced had the SASB data included the parents' perceptions of the parent-child relationships as well.

We are also left to speculate on the matters of primary and secondary gain for subjects in the psychogenic pain group. It is certainly possible that for some of

the subjects at least, the suppression of an internal conflict or the avoidance of a particular experience is associated with their experience of pain.

A variable that was not considered in the design of this study was the duration of the patients' knee pain. Understandably, both the parents' and daughters' behavior might be influenced by whether the pain was relatively new or if it had been a longterm, unresolved problem. Parental Cluster 4 behavior, "nurturing and protecting," might be expected to intensify as the duration of unresolved pain increases.

A further limitation on interpretation of data gathered in this study is due to the fact that relevant population norms for the Intrex: Short Form do not yet exist. While comparison of the psychogenic pain and organic pain groups is a sound methodological approach, interpretation with a broader perspective would have been possible had norms for this population been available.

No attempt was made in this study to control for ethnicity, a factor which certainly has some bearing on such family values as the appropriate degree of parental control and authority. While there was some representation of visible minorities in the samples, it was not achieved systematically and therefore should be directly addressed in future investigations of this topic.

### Conclusions and Recommendations

The Intrex Questionnaire and the underlying SASB paradigm are useful in the analysis of adolescent somatization. They have permitted the investigation of dimensions of parent-child behavior that are difficult to define and extremely challenging to measure. While there are limitations to the interpretation of the findings of this study, the data do provide insight into the perceptions of adolescent girls about their relationships with their parents. The results of this study indicate that psychogenic knee pain in adolescent girls is associated with

their perceiving their mothers differently in terms of control and autonomy issues than do adolescent daughters experiencing knee pain related to an organic problem. These daughters are likely to perceive their mothers as more controlling toward their daughters yet also more submissive to their daughters than do daughters not experiencing psychogenic knee pain.

Subsequent research might profitably involve a broader investigation of the intra-familial milieu of psychogenic pain patients. This line of research would include examination of the relationships within all family subsystems and their methods of communication. Beyond the family, other factors to be investigated include secondary gain, peer relationships and the impact of variations in cultural values on family behavior.

The most promising approach to this line of research, to date, is that of Minuchin et al. (1978). Their involvement of "psychosomatic families" in the accomplishment of a family task while researchers observed their interactions eliminates the reporting bias that exists in all questionnaire studies. Such an approach would permit the observation and assessment of a wide variety of behaviors such as those conceptualized in SASB as well as parental encouragement of coping and noncoping behaviors, dependence, passivity, assertiveness, maturity etc.

Clarification of the links between the developmental needs of the individual and somatization might be accomplished by survey research encompassing a broader age range and a variety of types of somatization.

The results of this study reinforce the need for a close working relationship between health and mental health practitioners in the care of individuals for whom psychosocial factors are indicated. Therapists and physicians should be alert to the manifestation of functional disorders in their clients and patients and

understand the implications of the etiology of the condition to the selection of appropriate interventions for these individuals.

## REFERENCES

- Ackerman, S., Manaker, S., & Cohen M. (1981). Recent separation and the onset of peptic ulcer disease in children and adolescents. Psychosomatic Medicine, 43, 305-310.
- Alexander, F., French, T., & Pollock, G. (1968). Psychosomatic specificity. Chicago: Chicago University Press.
- American Psychiatric Association (1980). Diagnostic and statistical manual (3rd ed.). Washington D.C.: Author.
- Arnetz, B., Fjellner, B., Eneroth, D., & Kallner, A. (1985). Stress and psoriasis. Psychosomatic Medicine, 6, 28-32.
- Aronsson, G., & Koivunen, E., (1985). Differences in personality between parents of asthmatic children and parents of nonasthmatic children. Journal of Psychosomatic Research, 29(2), 177-182.
- Ashley, D. (1967). Observations on the epidemiology of appendicitis. Gut, 8, 533-538.
- Bastiaans, J., & Groen, J. (1955). In D. O'Neill (Ed.), Modern trends in psychosomatic medicine. (pp. 253-262) London: Butterworths.
- Bellissimo, A., & Tunks, E. (1984). Chronic pain; The psychotherapeutic spectrum. New York: Praeger.
- Benjamin, L. S. (1979). A manual for using SASB questionnaires to measure correspondance among family history, self concept, and current relations with significant others. U.S. Department of Health, Education and Welfare.
- Benjamin, L.S. (1984). Principles of prediction using structural analysis of social behavior. In R.A. Zucker, J. Aronoff & A.J. Rabin (Eds.), Personality and the prediction of behavior. New York: Academic Press.
- Benjamin, L.S. (1986). Operational definition and measurement of dynamics shown in the stream of free associations. Psychiatry, 49(2), 104-129
- Benjamin, L.S. (1987). Use of the SASB dimensional model to develop treatment plans for personality disorders. Journal of Personality Disorders, 1 (1), 43-70.

- Benjamin, L.S. (1988). SASB short form user's manual. Madison, Wisconsin: Intrex Interpersonal Institute, Inc.
- Blishen, B., Carroll, W., & Moore, C. (1987). The 1981 socioeconomic index for occupations in Canada. Canadian Review of Sociology and Anthropology, 24(4), 465-484.
- Blos, B. (1979). The adolescent passage: Developmental issues. New York: International Universities Press.
- Blumer, D., & Heilbronn, M. (1981). The pain-prone disorder: A clinical and psychological profile. Psychiatry Annals, 14, 796-800.
- Brown, G. W., & Harris, T. (1978). The social origins of depression: A study of psychiatric disorders in women. London: Tavistock Press.
- Buss, A. & Durkee, A. (1962). An inventory for assessing different kinds of hostility. Journal of Consulting and Clinical Psychology, 26, 84-89.
- Cattell, R. (1976). Handbook for the High School Personality Questionnaire. IL: IPAY.
- Collyer, C.E. & Enns, J.T. (1987). Analysis of variance. Chicago: Nelson Hall Publishers.
- Creed, F. (1985). Life events and physical illness. Journal of Psychosomatic Research, 29 (2), 113-124.
- Davison, G. & Neale, J. (1982). Abnormal psychology. New York: John Wiley and Sons.
- Dunn-Geir, J., Mcgrath, P., Rourke, B., Latter, J. & D'Astous, J. (1986). Adolescent chronic pain and the ability to cope. Pain, 26, 23-32.
- Erikson, E. (1968). Identity, youth and crisis. New York: W. W. Norton.
- Eysenck, H. & Eysenck, S.B. (1975). Manual of Eysenck personality questionnaire. London: Hodder and Stroughton.
- Ford, C. (1986). The somatizing disorders. Psychosomatics, 27(5), 327-338.
- French, T., & Alexander, F., (1941). Psychological factors in bronchial asthma. Journal of Psychosomatic Research, Monograph 4.

- Furnell, S & Dutton L. (1985). Alleviation of toddlers' diarrhoea by environmental management. Journal of Psychosomatic Research, 30 (3), 283-286.
- Gaddini, R. (1977). The pathology of the self as a basis of psychosomatic disorders. Psychotherapy and Psychosomatics, 28, 260-271.
- Garraalda, M.E. & Bailey, D. (1986). Psychological deviance in children attending general practice. Psychological Medicine, 1(16), 423-429.
- Groen, J., (1982) Clinical research in psychosomatic medicine. The Netherlands: Van Gorcum Assen.
- Gustafson, P.A., Monga, T.N., Shanks, G.L., & McGhie, A., (1985). Family therapy in the treatment of severe childhood asthma. Journal of Psychosomatic Research, 30(3), 369-374.
- Hartup, W., (1983). In E.T Higgins, D. Ruble & W. Hartup, (Eds.), Social cognition and social development: A sociocultural perspective (pp. 415-432). Cambridge, MA: Cambridge University Press.
- Hoornaert, F., & Pierloot, R. (1976). Transference aspects of doctor-patient relationship in psychosomatic patients. British Journal of Medical Psychology, 49, 261-266.
- Hoornaert, F. & Pierloot, R. (1976). Paternal and maternal symbolism in the parental images of psychosomatic and neurotic patients. Journal of Psychosomatic Research, 20, 237-246.
- Humphrey, L. L., & Benjamin, L. S. (1987). Using structural analysis of social behavior to assess critical but elusive family processes: A new solution to an old problem. American Psychologist, 41, 979-989.
- Igoin-Apfelbaum, L. (1985). Characteristics of family background in bulimia. Psychotherapy and Psychosomatics, 43, 161-167.
- Ikemi, Y., Ago, Y., Nakagawa, Mori, S., Takahashi, N., Suematsu, H., Sugita, M., & Matsubara, H. (1974). Psychosomatic mechanism under social changes in Japan. Journal of Psychosomatic Research, 18, 15-24.
- Jenkins, C.D., Zyzanski, L. & Rosenman, R.H. (1970). Jenkins Activity Survey Manual. New York: Psychological Corporation.

- Julkunen, J., Hurri, H. & Kankainen, J. (1988). Psychotherapy and Psychosomatics, 50, 173-181.
- Kegan, R. (1982). The evolving self. Cambridge, MA: Harvard University Press.
- Leary, T. (1957). Interpersonal diagnosis of personality. New York: Ronald Press.
- Lindberg, N. & Lindberg, E. (1988). Experience in the psychotherapy of rheumatoid arthritis. Psychotherapy and Psychosomatics, 50, 157-163.
- Miller, H., & Baruch, D., (1948). Psychosomatic studies of children with allergic manifestation, maternal rejection. Psychosomatic Medicine, 10, 275-278.
- Minuchin, S. & Fishman, H. (1981). Family therapy techniques. Cambridge MA: Harvard University Press.
- Minuchin, S., Rosman, B. & Baker, L. (1978). Psychosomatic families. Cambridge, MA: Harvard University Press.
- Muus, R. (1982). Theories of adolescence. New York: Random House.
- Nichols, M. (1984). Family therapy. New York: Gardner Press.
- Nielson, G. (1983). Borderline and acting-out adolescents; A developmental approach. New York: Human Sciences Press.
- Osgood, C., Suci, G., & Tannenbaum, P., (1957). The measurement of meaning. Urbana: University of Illinois Press.
- Pinkerton, P., (1967). Correlating psychological with psychodynamic data in the study and management of childhood asthma. Journal of Psychosomatic Research, 11, 11-25.
- Prugh, D.G. (1981). Influence of emotional factors on clinical courses of ulcerative colitis in children. Gastroenterology, 18, 339-346.
- Purcell, K., Brady, K., Chai, H., Muser, J., Molk, L., Gordon, N. & Means, J. (1969). The effect on asthma in children of experimental separation from family. Psychosomatic Medicine, 31, 144-164.
- Rees, L., (1963). The significance of parental attitudes in childhood asthma. Journal of Psychosomatic Research, 7, 181-190.
- Revill, S.T., Robinson, J.O., Rosen, M. & Hogg, M. (1976). The reliability of a linear analogue for evaluating pain. Anaesthesia, 31, 1191-1198.



Rimon, R., & Laakso, R. (1985). Life stress and rheumatoid arthritis. Psychotherapy and Psychosomatics, 43, (1), 38-43.

Rutter, M., Tizard, J. & Whitmore, K. (1970). Attainment and adjustment in two geographical areas. British Journal of Psychiatry, 126, 493-509.

Saronson, I., Saronson, R., Potter, E., & Antoni, M. (1985). Life events, social support and illness. Psychosomatic Medicine, 47, 151-163.

Schaefer, F.S. (1965). A configurational analysis of children's reports of parents' behavior. Journal of Consulting Psychology, 129, 552-557.

Shafer, N. & Shafer, R (1980). Factitious diseases including Munchausen's syndrome. New York State Journal of Medicine, 80, 594-604.

Singh, S., Nigam, A. & Srivastava, J. (1977). A study of the personality patterns of the parents and their problem children with internal and external manifestation. Child Psychiatry Quarterly, 10 (2), 1-12.

Sheppy, M. (1984). An ecological systems analysis of anorexia nervosa. Unpublished doctoral dissertation, University of British Columbia.

Stephanos, S. (1978). Pathological primary identifications and their effects on the psychosomatic economy of the individual. Psychotherapy and Psychosomatics, 30, 56-67.

Srivastava, J. & Singh, S. (1979). The basis of psychosomatic disorders in children. Child Psychiatry Quarterly, 12(2), 25-32.

Szasz, T. S., (1982). Pain as a career and as a strategy. In H. J. Wain and D. P. Devaris (Eds). The treatment of pain ( pp. 27-38). New York: Jason Aronson

Taylor, G., & Doody, K., (1985). Verbal measures of alexythymia. Psychotherapy and Psychosomatics, 43(1), 32-37.

Tottman, R., Kiff, J., Reed, S., & Craig, W. (1980). Predicting experimental colds in volunteers from different measures of life stress. Journal of Psychosomatic Research, 24, 155-163.

Valdez, M., Treserre, J., Garcia, I., de Pablo, J. & Flores, T. (1988). Psychogenic pain and psychological variables: a psychometric study. Psychotherapy and Psychosomatics, 50, 15-21.

January, 1990

Dear patients and families,

Thank you for your interest in the ADOLESCENT PAIN AND BEHAVIOR research project. My name is Isabel Grant and I am responsible for this study which is being conducted in conjunction with the Department of Counselling Psychology at the University of British Columbia, the Children's Hospitals of Eastern Ontario and British Columbia and the University Hospital at U.B.C.

We are studying the relationship between pain and family interactions. Chronic pain in teenagers has been a perplexing problem and in order to further understand some aspects of the problem we are investigating parent-child interactions in patients with knee pain. A comparison group of patients with athletic-related injuries will be formed.

This study involves patients and one parent completing a set of questionnaires and this task generally takes 10 to 15 minutes. BECAUSE YOUR ASSISTANCE IN FILLING OUT THESE QUESTIONNAIRES IS SO IMPORTANT TO THIS PROJECT, WE ARE OFFERING THE ADDED INCENTIVE OF \$10 PER SET OF COMPLETED QUESTIONNAIRES.

If you are willing to participate in this study, a researcher will phone in the near future to determine a time that is convenient for you (the patient and one parent) to complete the questionnaires.

Yours truly,

Isabel Grant

We are WILLING / NOT WILLING to participate in this study.

---

(parent's signature)

---

(phone number)

FOR THE PATIENT

Your age: \_\_\_\_\_ years.

How old were you when the pain for  
which you are being treated first began? \_\_\_\_\_ years old.

Please place a mark on the scale below to indicate the  
severity of the pain for which you are presently seeing  
your doctor.

the worst pain you can imagine



no pain

## Appendix A

These questionnaires ask you to describe your interactions with your parents. Please work on your own to complete your questionnaires and answer the questions for how you really think and feel. You may leave out any questions that don't apply to you and your family. THERE ARE NO RIGHT OR WRONG ANSWERS. On the scale provided indicate (circle the number) how well each statement describes

68

### YOUR MOTHER AND YOU.

	NEVER NOT AT ALL	ALWAYS PERFECTLY
1. She lets me speak freely, and warmly tries to understand me even if we disagree.	↓ 0 1 2 3 4 5 6 7 8 9 10 ↓	
2. She walls herself off from me and doesn't react much.	0 1 2 3 4 5 6 7 8 9 10	
3. She puts me down, blames me, punishes me.	0 1 2 3 4 5 6 7 8 9 10	
4. Without giving it a thought, she uncaringly ignores, neglects, abandons me.	0 1 2 3 4 5 6 7 8 9 10	
5. She learns from me, relies upon me, accepts what I offer.	0 1 2 3 4 5 6 7 8 9 10	
6. She happily, gently, very lovingly approaches me, and warmly invites me to be as close as I would like.	0 1 2 3 4 5 6 7 8 9 10	
7. With much sulking and fuming, she scurries to do what I want.	0 1 2 3 4 5 6 7 8 9 10	
8. She clearly and comfortably expresses her own thoughts and feelings to me.	0 1 2 3 4 5 6 7 8 9 10	
9. To keep things in good order, she takes charge of everything and makes me follow her rules.	0 1 2 3 4 5 6 7 8 9 10	
10. She thinks, does, becomes whatever I want.	0 1 2 3 4 5 6 7 8 9 10	
11. She knows her own mind and "does her own thing" separately from me.	0 1 2 3 4 5 6 7 8 9 10	
12. Without thought about what might happen, she wildly, hatefully, destructively attacks me.	0 1 2 3 4 5 6 7 8 9 10	
13. With much kindness, she teaches, protects, and takes care of me.	0 1 2 3 4 5 6 7 8 9 10	
14. Without much worry, she leaves me free to do and be whatever I want.	0 1 2 3 4 5 6 7 8 9 10	
15. She relaxes, freely plays, and enjoys being with me as often as possible.	0 1 2 3 4 5 6 7 8 9 10	
16. With much fear and hate, she tries to hide or get away from me.	0 1 2 3 4 5 6 7 8 9 10	

### For questions 17 through 32 change from rating her to rating YOURSELF IN THIS RELATIONSHIP.

17. I let her speak freely, and warmly try to understand her even if we disagree.	0 1 2 3 4 5 6 7 8 9 10
18. I wall myself from her and don't react much.	0 1 2 3 4 5 6 7 8 9 10
19. I put her down, blame her, punish her.	0 1 2 3 4 5 6 7 8 9 10
20. Without giving it a thought, I uncaringly ignore, neglect, abandon her.	0 1 2 3 4 5 6 7 8 9 10
21. I learn from her, rely upon her, accept what she offers.	0 1 2 3 4 5 6 7 8 9 10
22. I happily, gently, very lovingly approach her, and warmly invite her to be as close as she would like.	0 1 2 3 4 5 6 7 8 9 10
23. With much sulking and fuming, I scurry to do what she wants.	0 1 2 3 4 5 6 7 8 9 10
24. I clearly and comfortably express my own thoughts and feelings to her.	0 1 2 3 4 5 6 7 8 9 10
25. To keep things in good order, I take care of everything and make her follow my rules.	0 1 2 3 4 5 6 7 8 9 10
26. I think, do, become whatever she wants.	0 1 2 3 4 5 6 7 8 9 10
27. I know my own mind and "do my own thing" separately from her.	0 1 2 3 4 5 6 7 8 9 10
28. Without thought about what might happen, I wildly, hatefully, destructively attack her.	0 1 2 3 4 5 6 7 8 9 10
29. With much kindness, I teach, protect, and take care of her.	0 1 2 3 4 5 6 7 8 9 10
30. Without much worry, I leave her free to do and be whatever she wants.	0 1 2 3 4 5 6 7 8 9 10
31. I relax, freely play, and enjoy being with her as often as possible.	0 1 2 3 4 5 6 7 8 9 10
32. With much fear and hate, I try to hide from or get away from her.	0 1 2 3 4 5 6 7 8 9 10

Now indicate how well each statement describes  
**YOUR FATHER AND YOU.**

	NEVER NOT AT ALL	ALWAYS PERFECTLY
	↓	↓
1. He lets me speak freely, and warmly tries to understand me even if we disagree.	0 1 2 3 4	5 6 7 8 9 10
2. He walls himself off from me and doesn't react much.	0 1 2 3 4	5 6 7 8 9 10
3. He puts me down, blames me, punishes me.	0 1 2 3 4	5 6 7 8 9 10
4. Without giving it a thought, he uncaringly ignores, neglects, abandons me.	0 1 2 3 4	5 6 7 8 9 10
5. He learns from me, relays upon me, accepts what I offer.	0 1 2 3 4	5 6 7 8 9 10
6. He happily, gently, very lovingly approaches me, and warmly invites me to be as close as I would like.	0 1 2 3 4	5 6 7 8 9 10
7. With much sulking and fuming, he scurries to do what I want.	0 1 2 3 4	5 6 7 8 9 10
8. He clearly and comfortably expresses his own thoughts and feelings to me.	0 1 2 3 4	5 6 7 8 9 10
9. To keep things in good order, he takes charge of everything and makes me follow his rules.	0 1 2 3 4	5 6 7 8 9 10
10. He thinks, does, becomes whatever I want.	0 1 2 3 4	5 6 7 8 9 10
11. He knows his own mind and "does his own thing" separately from me.	0 1 2 3 4	5 6 7 8 9 10
12. Without thought about what might happen, he wildly, hatefully, destructively, attacks me.	0 1 2 3 4	5 6 7 8 9 10
13. With much kindness, he teaches, protects, and takes care of me.	0 1 2 3 4	5 6 7 8 9 10
14. Without much worry, he leaves me free to do and be whatever I want.	0 1 2 3 4	5 6 7 8 9 10
15. He relaxes, freely plays, and enjoys being with me as often as possible.	0 1 2 3 4	5 6 7 8 9 10
16. With much fear and hate, he tries to hide from or get away from me.	0 1 2 3 4	5 6 7 8 9 10

For questions 17 through 32, change from rating him to rating  
**YOURSELF IN THIS RELATIONSHIP.**

17. I let him speak freely, and warmly try to understand him even if we disagree.	0 1 2 3 4	5 6 7 8 9 10
18. I wall myself off from him and don't react much.	0 1 2 3 4	5 6 7 8 9 10
19. I put him down, blame him, punish him.	0 1 2 3 4	5 6 7 8 9 10
20. Without giving it a thought, I uncaringly ignore, neglect, abandon him.	0 1 2 3 4	5 6 7 8 9 10
21. I learn from him, rely upon him, accept what he offers.	0 1 2 3 4	5 6 7 8 9 10
22. I happily, gently, very lovingly approach him, and warmly invite him to be as close as he would like.	0 1 2 3 4	5 6 7 8 9 10
23. With much sulking and fuming, I scurry to do what he wants.	0 1 2 3 4	5 6 7 8 9 10
24. I clearly and comfortably express my own thoughts and feelings to him.	0 1 2 3 4	5 6 7 8 9 10
25. To keep things in good order, I take charge of everything and make him follow my rules.	0 1 2 3 4	5 6 7 8 9 10
26. I think, do, become whatever he wants.	0 1 2 3 4	5 6 7 8 9 10
27. I know my own mind and "do my own thing" separately from him.	0 1 2 3 4	5 6 7 8 9 10
28. Without much thought about what might happen, I wildly, hatefully, destructfully attack him.	0 1 2 3 4	5 6 7 8 9 10
29. With much kindness, I teach, protect, and take care of him.	0 1 2 3 4	5 6 7 8 9 10
30. Without much worry, I leave him free to do and be whatever he wants.	0 1 2 3 4	5 6 7 8 9 10
31. I relax, freely play, and enjoy being with him as often as possible.	0 1 2 3 4	5 6 7 8 9 10
32. With much fear and hate, I try to hide from or get away from him.	0 1 2 3 4	5 6 7 8 9 10

FOR THE PARENT

PLEASE COMPLETE AND RETURN WITH QUESTIONNAIRES.

I permit/do not permit my son/daughter to participate in  
this study on Adolescent Pain and Behavior.

\_\_\_\_\_ (parent's signature) \_\_\_\_\_ (date)

I would like to receive a summary of the results of the  
study. \_\_\_\_\_ (yes/no)

If yes:

Name: \_\_\_\_\_

Mailing address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

FOR THE PARENT:

How old was your daughter when the pain  
for which she is being treated first began? \_\_\_\_\_ years old.

Please place a mark on the scale below to indicate the severity  
of the pain for which your daughter is presently seeing the  
doctor.

the worst pain you can imagine

•

•

no pain

## FOR THE PARENT:

It is important in research to have a general idea of the educational and economic nature of the participating families. Please fill in the spaces below, or check as appropriate to describe the parent's occupations.

MOTHER

Work Title: \_\_\_\_\_

Presently not employed: \_\_\_\_\_

Living at home: \_\_\_\_\_

FATHER

Work Title: \_\_\_\_\_

Presently not employed: \_\_\_\_\_

Living at home: \_\_\_\_\_



Pattern Coefficients for SASB Short Form Questionnaires  
Copyright 1987, Lorna Smith Benjamin

You rated yourself and important others on the SASB short form. This output summarizes the highlights of those relationships as you see them. Please remember this is a report of your views, and not necessarily of "reality".

For each pattern, the best description appears immediately after the line "THE MAXIMUM CORRELATION WAS = .XXX WITH PROFILE YY". If the number .XXX is greater than or equal to .810, the pattern name may be accepted as nonrandom.

Each pattern also is described in terms of attack (ATK), control (CON) and conflict (CFL). +ATK indicates that the relationship is hostile, and -ATK indicates that it is friendly. +CON suggests the relationship is controlling or submissive, and -CON shows independence rather than dominance/submission. +CFL describes conflict on the dimension ranging from enmeshment or independence. -CFL suggests conflict between love and hate.

In the graphs which follow, circles show your actual ratings while asterisks mark the theoretical points for the best fitting pattern. If both data and theory have the same values, only one is printed.

Values of ATK, CON and CFL may be used to compare relationships on the dimensions of hostility, interdependence and conflict. Again, the value .810 the boundary for statistical significance.

More detail on the Pattern Coefficients, ATK, CON and CFL can be found in: Benjamin, L.S.(1985). Principles of prediction using structural analysis of Social Behavior (SASB). In R.A. Zucker, J. Aronoff, and A.J. Rabin (Eds.), "Personality and the Prediction of Behavior". Academic Press.

These questionnaires and this output must always be used under the direct and supervision of a qualified health care provider. The only exception is research use when there has been institutional review by a human subjects committee and there is informed consent.

Provider subject 17 14 years  
Mother and daughter

	100			0	0				
	90		0		*				
S	80								
C	70								
D	60								
R	50	*			0				
E	40								
S	30								
	20					0		*	
	10								
	0	0					0	0	
<hr/>									
		1	2	3	4	5	6	7	8
CLUSTERS									

THE MAXIMUM CORRELATION WAS = .905 WITH PROFILE 1  
FRIENDLY TRANSITIVE ACTION OR INITIATIVE

ATTACK PATTERN = -.905 PROFILE 2  
CONTROL PATTERN = .846 PROFILE 8  
CONFLICT PATTERN = -.144 PROFILE 9

	100			0	0				
	90		*		*				
S	80								
C	70	0	0						
D	60								
R	50	*			0				
E	40								
S	30								
	20					*		*	
	10								
	0					0	0	0	
<hr/>									
		1	2	3	4	5	6	7	8
CLUSTERS									

THE MAXIMUM CORRELATION WAS = .955 WITH PROFILE 1  
FRIENDLY INTRANSITIVE STATE OR REACTION

ATTACK PATTERN = -.955 PROFILE 2  
SUBMIT PATTERN = .677 PROFILE 8  
CONFLICT PATTERN = -.243 PROFILE 20

Provider subject 17 14 years  
daughter and mother

	100	0	*						
	90	*		*					
S	80								
C	70		0	0					
D	60				0				
R	50				*			*	
E	40								
S	30								
	20				*		*	0	
	10				0				
	0					0	0		
<hr/>									
		1	2	3	4	5	6	7	8
CLUSTERS									

THE MAXIMUM CORRELATION WAS = .905 WITH PROFILE 3  
FRIENDLY TRANSITIVE ACTION OR INITIATIVE

ATTACK PATTERN = -.905 PROFILE 14  
CONTROL PATTERN = -.546 PROFILE 6  
CONFLICT PATTERN = -.197 PROFILE 20

	100	*	0						
	90	0	*		0				
S	80			*					
C	70			0					
C	60				*				
R	50				*	0			
E	40								
S	30				0	*			
	20						*	0	
	10								
	0						0	*	
<hr/>									
		1	2	3	4	5	6	7	8
CLUSTERS									

THE MAXIMUM CORRELATION WAS = .874 WITH PROFILE 13  
NO NAME (LINEAR DESCENT)

ATTACK PATTERN = -.791 PROFILE 2  
SUBMIT PATTERN = .395 PROFILE 8  
CONFLICT PATTERN = .317 PROFILE 9

( provider subject 17 14 years  
father and daughter

	100			0	0				
	90		*		*				
S	80	0				0			
C	70								
D	60		0						
R	50	*				*			
E	40								
S	30								
	20						*		*
	10								
	0						0	0	0
		1	2	3	4	5	6	7	8
		CLUSTERS							

THE MAXIMUM CORRELATION WAS = .888 WITH PROFILE 1  
FRIENDLY TRANSITIVE ACTION OR INITIATIVE

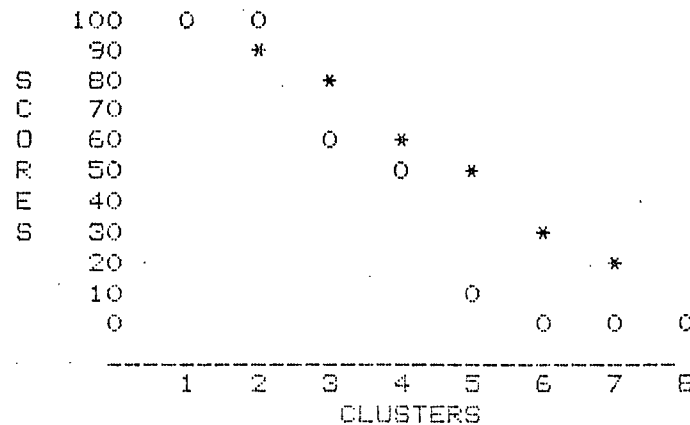
ATTACK PATTERN = -.888 PROFILE 2  
CONTROL PATTERN = .710 PROFILE 8  
CONFLICT PATTERN = .369 PROFILE 18

	100		*						
	90	0		*					
S	80		0	0					
C	70				0				0
D	60								
R	50				*				*
E	40								
S	30								
	20				*			*	
	10								
	0				0	0	0		
		1	2	3	4	5	6	7	8
		CLUSTERS							

THE MAXIMUM CORRELATION WAS = .926 WITH PROFILE 3  
FRIENDLY INTRANSITIVE STATE OR REACTION

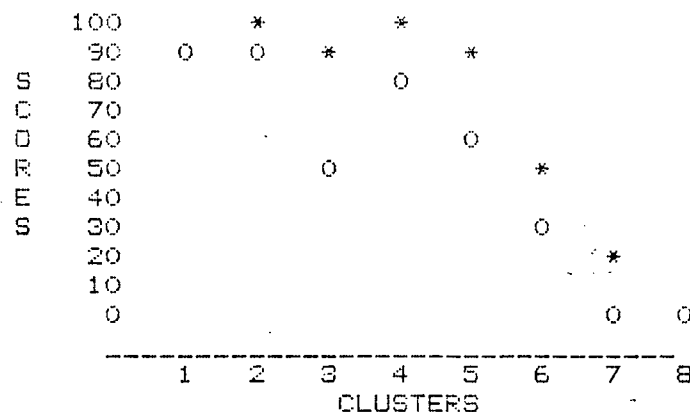
ATTACK PATTERN = -.926 PROFILE 4  
SUBMIT PATTERN = -.678 PROFILE 6  
CONFLICT PATTERN = .172 PROFILE 18

Provider subject 17 14 years  
daughter and father



THE MAXIMUM CORRELATION WAS = .947 WITH PROFILE 13  
NO NAME (LINEAR DESCENT)

ATTACK PATTERN = -.891 PROFILE 4  
CONTROL PATTERN = -.538 PROFILE 6  
CONFLICT PATTERN = .187 PROFILE 9

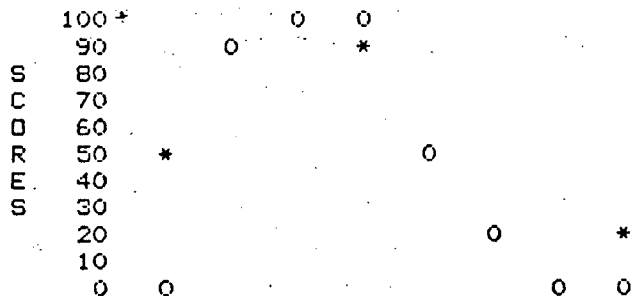


THE MAXIMUM CORRELATION WAS = .942 WITH PROFILE 11  
FRIENDLY INTRANSITIVE STATE OF SUBMITTING

ATTACK PATTERN = -.761 PROFILE 2  
SUBMIT PATTERN = .480 PROFILE 8  
CONFLICT PATTERN = .489 PROFILE 9

Understanding the preceding Program FIG printout requires the following interpretive information.

Provider subject 17 14 years  
mother and daughter



The circles on this graph are the subject's ratings for the questionnaire items indicated below the horizontal axis. (See p. 47 for the items.)

This graph consists of the eight item scores that reflect the mother's transitive behavior toward her daughter.

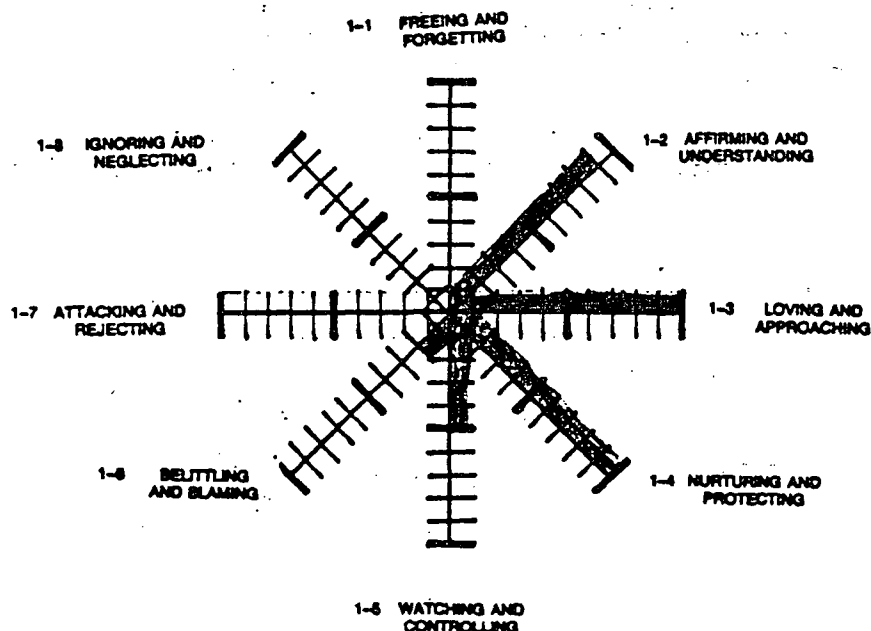
1(4) 2(7) 3(6) 4(3) 5(9) 6(3) 7(12) 8(4) ( ) = Intrex Questionnaire item number  
CLUSTERS

THE MAXIMUM CORRELATION WAS = .905 WITH PROFILE 1  
FRIENDLY TRANSITIVE ACTION OR INITIATIVE

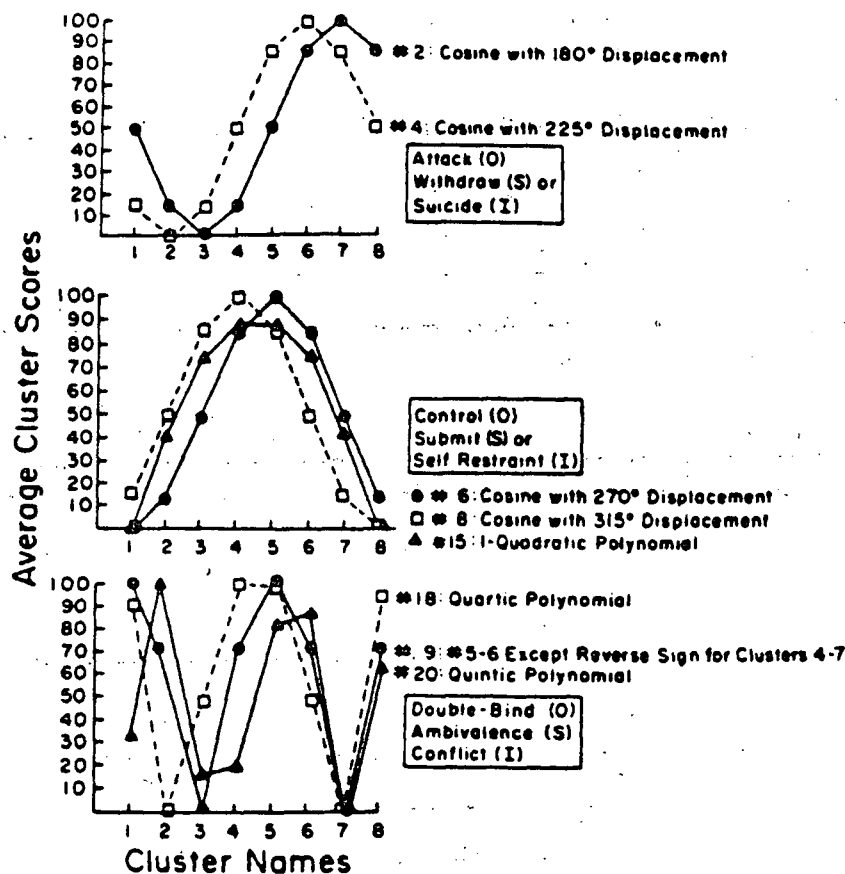
ATTACK PATTERN = -.905 PROFILE 2  
CONTROL PATTERN = .846 PROFILE 8  
CONFLICT PATTERN = -.144 PROFILE 9

\* The original Intrex response scale of 0-100 was changed in this study to 0-10.

Data from the above graph can also be represented using the circumplex model itself. Graphing data on the circumplex model serves to highlight the theoretical links between clusters sharing an axis.



The ATTACK, CONTROL and CONFLICT pattern values indicate the correlation between the subject's scores on the eight transitive items and the three theoretical curves illustrated below.



Key examples of theoretical curves; these can be fitted to actual curves by FIG. O denotes "other," S denotes "self," and I denotes "introjection." Correlations between various theoretical curves and actual curves yield the "best-fit" curve. If  $r > .71$ , the best fit characterizes the actual curve at the .05 level. Such fits permit the naming of specific relationships as "controlling," "attacking," "submissive," "withdrawn," and so on.

(Benjamin, 1988, p. 77)

While Benjamin has identified twenty-one theoretical curves, the three illustrated above represent extremes of behavior as it is understood in the SASB paradigm and thus are useful in the identification of psychopathology.

## Appendix C

### Glossary of SASB Terminology

#### axes

- a) the horizontal axes in the three circumplex planes (or foci) of the SASB model represent affiliative behavior, a continuum of behavior that ranges from "attacking and rejecting" to "loving and approaching"
- b) the vertical axes in the SASB model represent autonomy related behavior the ranges from "freeing and forgetting" to "watching and controlling"

#### cluster

a group of questionnaire items that are associated with one of the eight points located around the perimeter of the circumplex (1 item per cluster in Intrex: Short Form and 5 items per cluster in Intrex: Long Form)

#### focus

a term used to differentiate among behaviors that are transitive, intransitive or introjections

- a) transitive behavior - behavior that is directed toward another individual (focus on other)
- b) intransitive behavior - reactive behavior that involves only the individual (focus on self)
- c) introjection - intrapsychic behavior that is an internalization of behavior that significant others have directed toward the individual

#### interpersonal antitheses

transitive and intransitive behaviors that are located in clusters that are 180 degrees apart (eg. "watching and controlling" and "asserting and separating")

#### interpersonal complementarity

transitive and intransitive behaviors that are located in the same cluster position (eg. "nurturing and protecting" and "trusting and relying")

#### pattern coefficient

correlation coefficient between a set of scores and one of the twenty-one theoretical curves identified by Benjamin



Raw Scores from Intrex Items

## Father-daughter relationship

Item	Organic Subjects		Non-organic Subjects	
	Mean	Standard Deviation	Mean	Standard Deviation
1	6.6	2.4	8.3	2.3
2	4.5	3.0	2.3	3.2
3	1.6	2.1	1.3	2.1
4	1.1	2.6	0.9	2.5
5	5.4	2.2	6.1	2.7
6	5.6	2.8	6.8	2.2
7	2.2	2.5	0.7	1.2
8	6.3	2.9	7.0	2.9
9	4.3	2.8	5.8	3.2
10	1.3	1.2	1.1	1.3
11	7.6	3.6	6.3	3.5
12	0.4	0.9	0.8	1.8
13	7.7	2.6	8.7	2.3
14	6.3	2.2	7.6	2.3
15	7.2	2.4	7.6	2.3
16	1.0	1.2	1.1	2.6
17	6.7	2.6	7.1	2.3
18	2.8	1.7	2.0	2.7
19	0.8	1.0	1.8	2.6
20	1.3	1.1	1.1	1.2
21	6.6	1.2	6.9	2.6
22	6.5	1.5	5.8	1.1
23	2.0	1.8	4.0	3.0
24	5.5	2.7	5.8	3.5
25	0.6	1.2	1.1	1.4
26	2.0	1.9	1.9	2.3
27	6.7	2.1	6.0	2.0
28	1.0	2.3	0.4	1.0
29	5.6	2.7	5.3	2.4
30	8.3	1.7	7.5	2.9
31	6.6	2.6	6.6	2.2
32	1.2	2.5	0.5	1.3

Raw Scores from Intrex Items

## Mother-daughter relationship

Organic Subjects			Non-organic Subjects	
Item	Mean	Standard Deviation	Mean	Standard Deviation
1	7.1	2.4	7.4	1.9
2	1.6	1.8	.9	1.2
3	1.3	1.7	1.6	2.5
4	.4	.1	.0	0.1
5	6.4	1.4	8.0	1.7
6	6.8	2.5	8.8	1.2
7	1.5	1.8	4.5	4.4
8	6.9	3.1	8.4	1.7
9	6.2	2.2	7.7	2.1
10	.7	1.6	1.0	1.6
11	5.9	2.8	5.5	1.4
12	.6	1.1	.0	0.0
13	8.4	1.7	9.6	0.7
14	5.1	2.0	3.2	2.5
15	6.9	2.1	7.5	1.7
16	0	0.9	.0	0.0
17	6.3	1.7	6.7	2.1
18	4.0	2.1	3.8	3.2
19	.9	2.0	2.2	2.7
20	.3	0.8	1.0	3.2
21	7.7	1.6	7.3	1.1
22	5.7	2.2	5.1	2.1
23	2.9	2.5	3.8	3.9
24	6.7	2.8	6.8	2.8
25	1.5	2.1	1.3	2.2
26	1.8	1.7	1.8	1.6
27	5.7	2.7	6.4	2.4
28	.2	0.6	.0	0.1
29	5.8	2.3	6.7	1.6
30	7.8	2.1	8.8	1.5
31	7.1	2.0	6.4	1.3
32	.4	1.0	.3	0.3