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University of Massachusetts Amherst

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THE PHENOMENOLOGY OF EMOTION IN DEPRESSED YOUNG
ADOLESCENTS

A Dissertation Presented

by

BRUCE M. ECKER

Submitted to the Graduate School of the
University of Massachusetts in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

February, 1991

Department of Psychology

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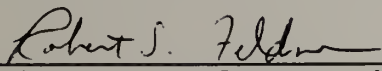
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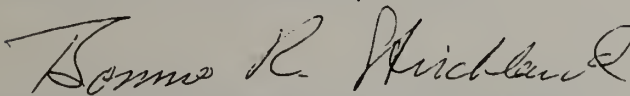
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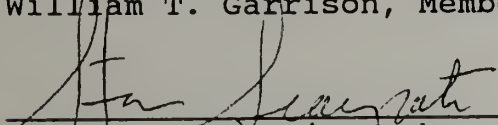
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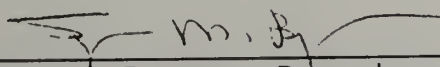
Bonnie R. Strickland, Member



William T. Garrison, Member



Stanley Scarpati, Member



Seymour M. Berger, Department Head
Department of Psychology

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ABSTRACT

THE PHENOMENOLOGY OF EMOTION IN DEPRESSED YOUNG
ADOLESCENTS

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BRUCE M. ECKER, B.A., TEMPLE UNIVERSITY

M.A., UNIVERSITY OF MINNESOTA

Ph.D., UNIVERSITY OF MASSACHUSETTS

Directed by: Professor Robert S. Feldman

Depressive affect and depressive disorders have been shown to increase in the transition from childhood to early adolescence. Furthermore, although Major Depression is classified as an affective disorder and many have asserted the importance that knowledge about emotions holds for understanding the organization, etiology, neurobiology, and treatment of depression, empirical investigation has been lacking. This is particularly true as regards adolescence.

The current study explored the subjective experience of emotions, with attention also to emotional expression, associated with depression in groups of 39 psychiatric inpatients and 22 non-clinical control young adolescents. Measures included a self-report measure of depressive symptomatology, the Childhood Depression Inventory (CDI), and a self-report measure of the frequency of experience of individual emotions, the Differential Emotions Scale-IV

(DES-IV). Two new emotions scales, Loved and Detached, were added to the DES-IV. There also was a video mood induction procedure accompanied by verbal report of immediate emotional state and detailed analysis of emotional facial expressions using the AFFEX system.

Results were analyzed considering differences in depression level and gender. Depressed subjects scored significantly higher on a Dysphoria factor, most saliently comprised of Inward Hostility and Shame but also including Shyness, Fear and Sadness, and significantly lower on a Joy/Loved factor. The depressed subjects also reported being more aware of their emotions. Regarding emotional expression, depressed subjects showed a higher frequency of negative emotions (anger, sadness, disgust) and a lower frequency of joy than their non-depressed counterparts. There were no depression-related differences in self-report of emotional state in response to the video mood induction procedure, though males reported being happier than females. The relationship between emotional experience and emotional expression was stable over all depression level by gender groupings with the exception of highly depressed males. Overall, there were large gender-related differences in the organization of emotions associated with depression, with relationships for males characterized as fragmented.

Study results are discussed in reference to research on emotions and depression in children and adults, normal adolescent emotional development, and adolescent development in other domains, most notably the self-concept.

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CHAPTER I
INTRODUCTION

On Feelings: First, they have to be acknowledged, then one has to bear them, and finally one has to decide what to do with them.

--E.Semrad, as recorded in Rako and Mazer (1983)

The pendulum has swung regarding conceptualizations of mental illness in adolescence. Prior to the 1970s adolescence was viewed by mental health professionals predominantly as a tumultuous period of stress and strain, one in which psychological abnormality was the norm (cf. Blos, 1962; Erikson, 1968; A. Freud, 1958). In contrast, due chiefly to the work of Offer and colleagues (Offer, 1969; Offer & Offer, 1975), research findings have accumulated over the past 20 years indicating that the majority of adolescents are satisfied with themselves, their families, and their peers and hold optimistic expectations for the future. Nevertheless, community-based epidemiological studies in the United States, Canada, and Great Britain have all found that approximately 20% of adolescents show a diagnosable psychiatric disorder at any given point in time (Boyle et al., 1987; Langer et al., 1974; Leslie, 1974; Rutter, Graham, Chadwick & Yule, 1976). Furthermore, the adolescent period, particularly early adolescence, is a time of tremendous physical, cognitive, affective, and

social change, with resulting increased vulnerability to sub-clinical problems such as isolation from family, school failure, and experimental alcohol and drug use (Brooks-Gunn, 1987; Petersen, 1987).

One psychiatric disorder that shows a significant increase in the transition from childhood to adolescence is Major Depression. Incidence rates of Major Depression in adolescence, found to be between 4.4% and 4.7%, are more than double those found in childhood (Garrison, Schluchter, Schoenbach and Kaplan, 1989; Kashani, Carlson & Beck, 1987; Kashani et al., 1983). Depressive disorders in adolescence exact great personal and social cost, as they have been shown to be persistent, to be associated with subsequent school, occupational and marital failure, and to be joined by co-existing anxiety disorders and conduct problems in later adolescence to early adulthood (Garber, Kriss, Koch & Lindholm, 1988; Kandel and Davies, 1986; Kovacs, Gatsonis, Paulauskas & Richards, 1989; Kovacs, Paulauskas, Gatsonis & Richards, 1988).

Though Major Depression is classified as an affective disorder, and many have asserted the critical importance that knowledge about emotions holds for understanding the organization (Cicchetti & Schneider-Rosen, 1986; Rutter, 1986b), etiology (Izard, 1979), neurobiology (Panksepp, 1988), and treatment (Greenberg & Safran, 1987; Lewis, 1986; Plutchik, 1988; Stern, 1985) of depression,

empirical investigation has been sorely lacking. This is particularly true as regards adolescence, as to date there has not been a single study of emotions in clinically depressed adolescents. Little is known regarding adolescent emotional development in general, with Thompson's (1986) statement that "...affect in adolescence is wholly uncharted territory (p.169)" still holding some truth today.

The current study attempted to fill some of these knowledge gaps by exploring the subjective experience of emotion, with attention also to emotional expression, associated with depression in psychiatric inpatient and non-clinical samples of young adolescents. Methodologically, the study included questionnaire measures of depression and individual emotions. There was also a motion picture mood induction procedure accompanied by verbal report of emotional experience and detailed analysis of emotional facial expressions. The questions that were raised included: What emotions are experienced prominently by depressed young adolescents? How do emotional experience and the non-verbal expression of emotion relate in adolescence, and does this relationship change with depression level? Are there gender effects in any of these emotion-depression relationships?

The remainder of this introduction includes a survey of relevant research on the epidemiology and symptomatology of depression in adolescence, a definition of emotion together with an outline of emotion-related age and gender differences found in normal populations, and an analysis of theoretical notions on the role of emotions in depression followed by a review of the pertinent empirical research. Several methodological issues which hold bearing on the current study are discussed. Finally, the study's specific research questions are presented.

Depression in Adolescence

The term "depression" has been used to describe several conditions: a mood state, a psychiatric disorder and a cluster of psychiatric symptoms. The mood state refers to a particular affective experience, without associated psychiatric symptoms, which has been called by others dysphoria or demoralization (Dohrenwend, Shrout & Egri, 1980). The disorder may be comprised of the same elements as the symptom cluster, but these must persist and be accompanied by significant impairment in daily functioning. The current diagnostic criteria for Major Depressive Disorder, embodied in the DSM III-R (American Psychiatric Association, 1987), are depressed or irritable mood or loss of interest or pleasure together with at

least four of the following seven associated features: disturbance in weight or appetite, disturbance in sleep, psychomotor agitation or retardation, fatigue, feelings of worthlessness or inappropriate guilt, diminished ability to concentrate, and recurrent thoughts of death. These must occur for a minimum of two weeks and be associated with some functional impairment. Throughout this paper the unspecified term "depression" will refer to the symptom cluster. Major Depression or depressive disorder will refer to the formal psychiatric disorder, and references to depressive mood will be identified as such.

Though no large epidemiological survey of depressive disorder in adolescence has been conducted to date, several small geographically limited studies suggest that the incidence of the disorder increases during childhood and reaches a plateau in adolescence that is equivalent to the adult rate. The rates of depressive disorder found in community samples in Missouri, ranging in size from 70 to 150, were .3% among pre-school age children (Kashani, Holcomb, & Orvaschel, 1986), 1.8% among 9 year olds (Kashani et al., 1983), and 4.7% among 14-16 year old adolescents (Kashani, et al., 1987) all with DSM-III or similar criteria. Garrison et al. (1989) found a similar rate of 4.4% in a school-based middle to upper-middle class sample of 735 seventh to ninth grade students in the Southeastern U.S. Rutter (1986a; Rutter, Tizard, &

Whitmore, 1970) found a lower incidence in the Isle of Wight study (1.75% among adolescents) though with the same pattern of increasing rates with increasing age.

As expected, rates of depressive disorder are higher in clinical samples. In outpatient studies Kashani and Carlson (1987) found .9% of 1000 preschoolers evaluated at a developmental evaluation clinic to be clinically depressed while Garber (1984) found rates among outpatient girls of 35% among 7-8 year olds, 40% among 9-11 year olds, and 70% among 12-13 year olds, once again with DSM-III criteria. Kashani, Cantwell, Shekim & Reid (1982) found a rate of 13% among psychiatrically hospitalized preadolescents while Strober, Green, and Carlson (1981) and Robbins, Alessi, Cook, Poznanski & Yanchyshyn (1982) found equivalent rates of 18% and 27% among hospitalized adolescents. Rated severity of depressive disorder has not been found to vary with age (Ryan et al., 1987). Differences in rate by gender show a higher incidence among males before puberty and among females after puberty (Ryan et al., 1987; Rutter, 1986a).

Studies of depressive symptomatology, with less stringent criteria than depressive disorder, suggest that large proportions of adolescents experience substantial depression-related distress. Kandel and Davies (1982) found that 18% of a large geographically and economically representative sample of 13 to 18 year old New York State

teenagers reported a level of depression equivalent to that found in clinical samples. Furthermore, twenty per cent of a Southeastern U. S. sample of 12 to 15 year olds reported that they "felt depressed" much or most of the time, and from 8 to 10% reported frequent crying spells and that their life "was a failure." Depressive symptoms have been found more frequently in adolescent girls than adolescent boys, a finding strongly evident in adults (Nolen-Hoeksema, 1987), in blacks than whites, and in lower than higher socioeconomic classes (Baron & Joly, 1988; Garrison et al., 1989; Kandel & Davies, 1982). The difference in incidence rates between males and females increases from early to middle adolescence (Kandel & Davies, 1982). Garrison et al. (1989) found an interesting gender and race interaction, with the highest rates of depression among black females (11%) with equivalent rates among black males and white males and females.

Correlates. Several individual and family factors have been found to be associated with depression in adolescence. Self-esteem, good grades in school, family cohesion, a democratic family climate, and supportive relationships with peers have all been found to be inversely related to depression (Friedrich, Reams & Jacobs, 1988; Kandel & Davies, 1982; Feldman, Rubinstein & Rubin, 1988). One-parent family structure has been

associated with increased depression though there is an interesting interaction with race. Garrison et al. (1989) found that for white males and white females the absence of a parent from the home was associated with increased depressive symptomatology, while for black females the absence of a parent, usually father, from the home decreased depressive symptomatology. Gender differences, consistent with notions that females are more concerned about body image and are more sensitive to relationships (cf. Gilligan, 1982), have also been found. Distortion of body image, loss of appetite, and weight loss have been associated with higher depression levels in teenage girls while work inhibition, social withdrawal, irritability and sleep disturbance have been associated with depression in teenage boys (Friedrich et al., 1988). Peer social support, family cohesion and a democratic family climate were far stronger correlates of depression for girls than for boys while only grades and stressful life events were associated with depression for boys (Friedrich et al., 1988).

The finding that stressful life events were not associated with depression for girls may be confounded by pubertal status. In an intriguing study, Brooks-Gunn and Warren (1989) found that depressive symptoms increased with stressful life events in premenarcheal girls whereas such symptoms decreased with stressful life events in

postmenarcheal girls. No relationship was found between depression and somatic pubertal changes and only a slight increase in depressive symptoms was found to be related to surges in one (Estradiol) of the five pubertal hormones assayed.

Stability. The stability of adolescent depression along with the adverse effects of an array of associated features was documented in a nine year longitudinal study of 1,004 individuals whose mean age was initially 15 years (Kandel and Davies, 1986). The correlation in depression scores over the nine year period was .44 for females and .35 for males with no difference in depression means for either gender. At the follow-up assessment females with high adolescent depression scores were less likely to be working, more likely to have been married and divorced, twice as likely to have consulted a mental health professional and four times as likely to have been hospitalized for psychiatric reasons than their low-depression counterparts. Males with high depression scores were more likely to have been out of work for lengthy periods and more likely to have been arrested. High depressed males and females were more likely to have dropped out of high school. Furthermore, in a broad regression model incorporating adolescent depression, parental characteristics, spouse, peer and parental relationships, and educational and occupational

achievements, adolescent depression alone was a significant predictor of adult depression.

Emotions: Definition, Function, and Development

Emotions are defined here, as they are by Izard, Kagan, and Zajonc (1984), as syndromes comprised of physiological, experiential, and expressive aspects. The physiological aspect includes specific neuroendocrine, autonomic, and somatic components. The experiential aspect is what is commonly referred to as emotional feelings. Expression includes gestures, instrumental acts, gaze, facial movements and vocal intonation. The terms emotion and affect are used here synonymously, as they are by Thompson (1985) and Hauser and Smith (1990), among others.

Definitions of emotion can be placed on a continuum regarding the degree to which they grant prominence to the role of cognition. These range from the cognitivist Mandler (1984) and Lazarus (1982,1984) to the decidedly non-cognitive Ekman (cf. 1972) and Zajonc (1980,1984). In the current paper emotion and cognition are conceptualized as ever in transaction, and perhaps undifferentiable, yet they may be separated for heuristic purposes.

Cognitive processes (among others) trigger emotions and play a critical role in their constitution and

regulation. Emotion, in turn, influences perception, memory, and cognition (cf. Bower, 1981). One is never without emotion as one is never without thought. At low levels of intensity emotions filter perception and cognition; at high levels emotions come to dominate consciousness (Izard, 1984). Bower and colleagues (cf. Bower, 1981) have suggested that affective "nodes" might provide a matrix for organizing memories. Bower found that the induction of joy leads to faster learning and more accurate recall of information learned when the individual was joyful, and induction of depression leads to faster learning and more accurate recall of information learned when the individual was depressed.

Several characteristics of emotions have been identified. First there is emotion type, such as joy, sadness, pride, anger, fear, love etc. Second, is emotional intensity, incorporating both the strength of an emotion and the degree of arousal or activation it implies. Consider the difference between annoyed and rageful, down and miserable, and glad and thrilled, all arranged along a gradient from low to high intensity. Numerous factor analytic studies, reviewed in Russell and Ridgeway (1983), have found that these two dimensions, type and intensity, are sufficient to describe the vast majority of emotion concepts used by adolescents, children

and adults. Type and intensity are the two characteristics of emotion that are considered in the current study.

The lability of emotions, i.e. the frequency of emotional shifts, is another quality which has been thought to be critical in adolescence (Larson, Csikszentmihalyi & Graef, 1980; Larson & Lampman-Petratis, 1989), perhaps due to conventional characterizations of adolescence as a period of great flux. At a higher level of abstraction, Thompson (1985) asserts the importance of emotional "intensionality", stating that emotions always refer to the relationship between oneself and an object, be that another person, a thing, an idea, or another emotion. Thompson asserts that the object is as much a part of the emotion as its type. Hauser and Smith (1990) refer to Stern's (1985) brilliant analysis of emotions in infants and call for an understanding of emotional process, i.e. the "shape, vitality...and configuration of affective experience (p.35)" in adolescence as well. Their view of emotions is almost musical, as is that of Clynes (1988) in attending to changes in emotional qualities over time much as one hears differences in tone, volume, accent, and instrumentation in the unfolding of an orchestral piece.

Hauser and Smith (1990) also emphasize the importance of considering stage of ego development, citing Loevinger's model, as a template for the experience of

emotions. For example, individuals at the Impulsive stage are thought to experience emotions with great urgency and immediacy and no awareness of emotional alternates or the emotional needs of other persons. Those at the much higher Conscientious stage are capable of reflecting on emotions, understand that emotions may blend and be replaced, and can coordinate one's own emotional needs with those of others.

Emotions and Motivation

Emotions serve critical motivational functions, regulating both intrapersonal psychological processes and interpersonal relations (Bretherton et al., 1986; Izard, 1984; Campos, Barrett, Lamb, Goldsmith & Stenberg, 1983). Intrapersonally, emotional experience automatically appraises the meaning of events, e.g., as personally dangerous vs. beneficial, energizing and guiding subsequent behavior. We tend to approach that which brings joy, escape or avoid that which is fearful, and rid ourselves of that which brings anger.

In the interpersonal domain, Darwin (1872/1965) recognized more than 100 years ago that emotional expressions communicate one's internal state to others and are thus useful in coordinating social relations. Social coordination has been demonstrated in the mutual regulation of mother-infant pairs via emotion-related

signals (cf. Stern, 1985; Bowlby, 1969), the role of emotion expression in mediating preschool children's peer interactions (Sroufe, Schork, Motti, Lawroski, & LaFreniere, 1984), and the critical importance of emotions in creating long-lasting social bonds through empathy and love (for empathy cf., Hoffman, 1982). Emotions also facilitate acculturation, i.e., the adoption of group values and practices (Armon-Jones, 1986). One need think only of pride in patriotism, bittersweet joy at a wedding or graduation, and sadness and despair at a funeral, all of which bond the individual to the group.

Izard (1977) has detailed the intra- and interpersonal functions of several discrete emotions. Based on developmental and cross-cultural research, Izard (1971; Izard, Hembree & Huebner, 1987; Izard, Bloxom & Kotsch, 1974) asserts that there are 10 innate universal emotions, each with unique motivational properties: interest, joy, surprise, sadness, anger, disgust, contempt, fear, shame/shyness, and guilt. For example sadness, also termed distress, is a signal to the self and others that all is not well and one is in need of help. Sadness motivates one to seek others and alerts others to one's needs. The anticipation of separation-related sadness serves to maintain relationships. Alternatively, the functions of anger are to mobilize one's energies and rid oneself of obstacles that interfere with goals (Campos

et al., 1983). Anger displays, when coordinated with their converse, submission displays, serve to decrease aggression in humans and other species (Eibl-Eibesfeldt, 1970). Averill (1979) has described the ways in which anger, associated with justifiable indignation, serves to maintain social norms.

Izard (1977) notes that emotions often occur in sequential or simultaneous combinations, called patterns, and that these are more common in every-day life than are single emotions. The combination of interest and fear results in a state of proximity to the feared stimulus, guardedness, and anxiety while fear and sadness are associated with pervasive avoidance. The combination of sadness and anger leaves one in static conflict, as the expression of anger may jeopardize the relationships that are motivated by sadness. Izard (1977) posits that linkages between the physiological, experiential, and expressive components of each emotion are fixed, though the internal and external cues for emotion, as well as associated instrumental behaviors, are learned within a cultural context.

Ekman and associates have carefully investigated the link between emotional experience and expression in extensive cross-cultural research. They have applied a variety of research methods, including labelling the emotional facial expressions of others (Ekman et al.,

1987; Ekman & Friesen, 1971), analyzing facial expressions posed in response to emotion terms (Tourangeau & Ellsworth, 1979), and self-report of emotion associated with spontaneous facial displays, in both western and non-western, literate and pre-literate cultures. They have found conclusive evidence for four universal experience--expression linkages, anger, disgust, joy, and sadness, with probable support for three others, fear, surprise, and contempt. Ekman et al. (1987) also found high levels of agreement regarding the components of emotional blends, i.e. simultaneous combinations of emotions, in a broad range of literate cultures. While noting that the form of emotional facial expressions are universal, Ekman concurs with Izard that social norms for the display of emotional expression as well as the antecedents and associated instrumental behaviors are culturally variable.

Emotions and Development

Young children are thought to experience and express all of Izard's and Ekman's basic emotions by the age of two years (Campos et al., 1983; Izard, 1977). Children gain cognitive awareness of several of these emotions, in terms of the emotion concepts of happy, mad, sad, and scared, by age four (Borke, 1971; Schwartz & Trabasso, 1984). With increasing age comes increasing cognitive complexity; Harter(1983) found that 3 - 5 year olds did

not have a clear understanding of ashamed, proud, nervous, or jealous, though these, along with more complex annoyed, disappointed, relieved, and discouraged, were common in a 10-13 year-old group. Weiner and Graham (1984) concur, noting that children make increasing distinctions between a greater number of emotions with age. Factor analytic studies of emotion ratings have found that interest/joy and sadness/anger formed single factors in an 8 - 12 year old sample while they differentiated in an 11 - 17 year old sample (Kotsch, Gerbing & Schwartz, 1982).

Of particular relevance to the current study, self-reports of several negative emotions thought to be associated with depression, including sadness and anger increase with age. Glasberg and Aboud (1982) found that second graders were more likely to describe themselves as "sad" than were kindergartners. Borke (1971) found that children up to age 8 had difficulty matching anger and sadness faces to relevant emotion-provoking situations, while children as young as 3 had no difficulty with happiness. When asked to choose pairs of emotions that a person might feel together, 72% of 4-5 year old children chose positive pairs while only 39% of 11-12 year-olds did so (Harter and Buddin, 1987).

Self-reports of negative emotions, such as sadness, anger, and shame, are thought to peak in early adolescence and then decline slightly in middle to late adolescence.

Kotsch et al. (1982) compared the emotional self-descriptions of 857 children aged 11 to 17. Ratings of positive emotions (interest, enjoyment, surprise) were stable during this period while ratings of negative emotions, particularly sadness, anger, disgust, shame, and contempt, increased from 11 to 15 but not thereafter. Similarly, sadness was found to increase with age in a sample of 9 to 14 year old boys, finally reaching a level that had been higher and stable for girls from the younger ages (Sussman et al., 1987). Larson and Lampman-Petratis (1989) asked young adolescents from 10 to 14 to rate their emotional state on a daily basis and found a decrease in happiness, friendliness and cheerfulness across this period. It is notable that they also found a decrease in emotional activation, defined as feeling less alert and less strong. Larson and Lampman-Petratis (1989) concluded that "...the adolescent's conscious experience includes many fewer occasions when the individual feels on top of the world and more occasions of feeling mildly negative (p.1258)."

Evidence for the decline in dysphoric emotions from early to later phases of adolescence comes from studies in which sample ages ranges were extended. Stapley and Haviland (1989) found that shyness, shame, fear, contempt, and disgust decreased overall from 11 to 17 and Brooks-

Gunn, Rock and Warren (in press) found that sadness decreased with age in a sample of 12 to 18 year old girls.

The increase in depression-related affect in early adolescence may be due, in part, to the hormonal shifts that underlie puberty. Sussman et al. (1987) found an increase in sadness and "negative" emotional tone concurrent with surges in several pubertal hormones in young adolescent boys but not girls. Depressive affect may be less dependent on hormonal factors in girls than in boys, as the girls in this sample showed depression levels equivalent to the highest level in boys at all phases of pubertal development. Brooks-Gunn and Warren (1989) found a very weak relationship between pubertal hormonal changes and depressive symptomatology, including depressive mood, in a 10 to 14 year old sample of girls. Negative life events accounted for more depression variance, though still a very small amount (8%). Attending more to the timing of hormonal shifts, Sussman et al. (1985) found increased sadness in adolescents who matured relatively early than those who matured later, controlling both for age and absolute hormonal levels. It is notable that there was no relationship between somatic pubertal changes and emotions in any of these studies.

Emotional Lability. Emotional lability, i.e. the frequency of emotional shifts, has also been found at increased levels in early adolescence, though with clear

gender differences. Larson and associates (Larson, Csikszentmihalyi & Graef, 1980; Larson & Lampman-Petratis, 1989) conducted two studies in which subjects wore electronic pagers which beeped at random intervals, signalling them to record their emotional state. Variability increased with age along dimensions of happy--unhappy and cheerful--irritable for 10 to 14 year old girls but not for boys. Variability decreased for the friendly--irritable dimension in boys across this age span.

In comparing emotional lability between adolescents and adults, Larson et al. (1980) found increased variability in both emotional tone and emotional activation in the adolescent sample. Emotional tone was defined along dimensions of happy--sad, cheerful--irritable, and sociable--lonely. Activation was defined in terms of active--passive, alert--drowsy, strong--weak, and excited--bored. It is notable that while emotional variability was associated with a higher frequency of negative life events, it was not associated with poorer overall adjustment. In fact, greater variability in the adolescent sample was found among those who spent more time with peers, were leaders of organizations, and spent more time thinking about their appearance and about heterosexual relationships. Variability was inversely related with several school-related variables: amount of

time doing homework or thinking about school as well as teacher's reports of involvement in schoolwork. Thus, the greater emotional variability found in adolescence seems a direct result of the heightened social and heterosexual interests common in this period.

Antecedents, Attributions and Reversibility.

Developmental changes in emotion duration and the antecedents to emotion have also been posited. Young children are thought to be context-bound, i.e. react to the situation more than enduring qualities of self, other, or environment (Harter, 1983). Weiner and Graham (1984) noted a shift from more outcome-dependent emotions (feeling happy, sad, angry) to more attribution-mediated emotions (e.g. pride, gratitude) with age. Outcome-dependent affects are seen as intense and of short duration while attribution-mediated emotions are more stable, as these are associated with enduring thoughts and dispositions.

There are related developmental differences in the attributions which children ascribe to emotions. In general, the attributional trend is from concrete environmental events to inner mental states. Harris, Olthof, and Terwogt (1981) found that the situational event and/or one's own behavior (e.g., it's my birthday) were the primary cues used by six year olds in describing how they know they are feeling happy, while internal

states or thoughts (e.g., when i believe the situation is fair) were the primary cues used by 11 and 15 year-olds. Schwartz and Trabasso (1984) cite Wolman et al. (1972a) in which all of a group of 5 year-olds attributed emotions to external events while only 25% of a group of young adolescents did so.

This shift in attributions from environmental events to internal thoughts and feelings is termed "reversibility" by Thompson (1985), who borrows the term from Piaget. Reversibility is related to the movement towards formal operations in cognitive development and is considered to potentiate many of the affective changes evident in adolescence. According to Thompson (1985), the pre-adolescent child does not have feelings, but he or she is in the feelings. Feelings are endemic properties of their objects, so that, e.g., a particular food is inherently disgusting rather than tasting bad to me, and an event is hateful rather than being hated by me. With reversibility the emotion is experienced as a property of the self, so that one can change or "reverse" the feeling. What an object is and how one feels about it become separated. Thus, the mature adolescent can realize that his/her irritation with teasing by a peer is related more to a family argument earlier that morning than to the actions of the peer, and that in fact the teasing is friendly and welcome. Thompson (1985) cites unpublished

data indicating that different emotions become reversible at different rates, in that sadness maintains its irreversible properties longer than happiness.

Thompson's notions regarding reversibility are supported by much empirical evidence. With increasing age comes greater awareness that one can both hide and change one's emotions. In comparing 6 year olds, 11 year olds, and 15 year olds, Harris et al. (1981) found that the two older groups increasingly reported that they could hide their feelings from others, especially as regards anger and fear. Carroll and Steward (1984) found a similar shift occurring at 8 - 9 years. Selman (1981) posited that control over the experience and expression of emotion is acquired in stages that unfold from age three to adolescence. Experience and expression become differentiated between the ages of 8 and 12, with inner experience considered "truer." Change in emotional experience becomes possible through volitional re-focusing of thoughts. This is in contrast with younger children's self-described strategies of leaving the emotion-provoking situation or changing their facial expression. With adolescence comes the realization that one can have feelings that are out of conscious awareness.

Emotional Ambivalence. Concurrent with the differentiation of emotional experience and expression there emerges the development of emotional ambivalence,

i.e. the ability to integrate disparate emotions towards the same person. Harter and associates (Harter, 1983; Harter and Buddin, 1987) found ambivalence to develop through a five-stage sequence, maturing at about age 11. Donaldson and Westerman (1987) found that the majority of 11 year-old children have become aware that conflicting emotions modify each other (e.g., "I'm not so mad because I'm sad too") and that current emotions are influenced by enduring moods and internal process (e.g., "I blew up at him because I was still mad at what my father did yesterday").

Gender Differences. Several of the emotions thought to be more prominent in depression, particularly sadness and fear, are more common in females than males. Birnbaum, Nosanchuk, and Croll (1980) found that pre-schoolers associate sadness, fear, and happiness with females and anger with males. Six year-old girls rated themselves as sadder and more strongly affected than boys upon hearing a sadness-inducing story (Terwogt et al., 1981). Seven, nine, and eleven year-old girls attributed less anger and more sadness and fear to themselves than did boys (Brody, 1984).

Adolescent girls rated themselves significantly higher than males for sadness and lower than males for contempt, i.e. perceiving themselves as superior to others, in a large survey of emotional self-description

(Kotsch et al., 1982). Stapley & Haviland (1989) found similar results in that 11 to 17 year old girls described themselves as more shy, surprised, ashamed, guilty, sad, and hostile-towards-self than did the same age boys, who described themselves as more contemptuous. This study further explored the objects towards which emotions were felt and their contexts. Consistent with notions regarding the greater importance of affiliation for females than males (cf. Gilligan, 1982), girls reported more often that relationships stimulated their emotions and that they typically felt sad or surprised in a social context. Boys more often reported having these feelings when alone. Webb & VanDevere (1985) found that gender differences in two dysphoric emotions, unhappiness and resentment, increase with age from childhood to adolescence. In contrast to the majority of findings, Sussman et al. (1987) found no gender difference in emotional tone, defined in terms of the dimensions angry--friendly, nervous--calm, and happy--sad, in a sample of 9 to 14 year olds. Reasons for the differences between this finding and others were not explained.

Gender differences have been found in other aspects of emotions as well. Emotional lability was found to increase for girls along dimensions of happy--unhappy and cheerful--irritable whereas lability decreased along the dimension of friendly--angry for boys. As noted above,

pubertal hormones were more strongly related to emotional disposition in boys than in girls (Brooks-Gunn & Warren, 1989; Sussman et al., 1987). However, both girls and boys who matured earlier than their age-mates showed sadder emotional tone (Sussman et al., 1985).

Additional differences have been found in the areas of emotional expressiveness and responsiveness to the emotions of others, with females exceeding males in both. Pre-school girls' spontaneous emotional facial expressions were more easily understood than those of boys (Buck, 1975). Six-to-twelve year-old girls have been found to display more emotion-related non-verbal behaviors than same age boys (Shennum & Bugental, 1983). Further, the clarity of non-verbal emotion expressions as well as accuracy in understanding similar expressions from others is associated with social competence in girls but not in boys (Custrini & Feldman, 1988; Feldman, White, & Lobato, 1982). Adult women have consistently been found to be more accurate in expressing their emotions non-verbally and in discriminating the emotion messages of others (Buck, 1984). It is notable that none of these studies were done with adolescents.

Summary: Affect in Adolescence. In the normal course of development, the adolescent experiences a greater number of emotions that are more complex and more fully differentiated from one another. The young adolescent

typically feels sad, angry, ashamed and contemptuous more often than he or she did in childhood. The frequency of negative emotions such as these declines from early to middle adolescence. The young adolescent also tends to feel activation affects, such as "alert" and "strong," with lesser intensity than in childhood or adulthood. Emotional lability is greater in adolescents than in adulthood. It is notable that higher emotional lability in adolescence is not related to adjustment, either positively or negatively, but rather to a greater variety of interests.

Emotions typically become reversible in adolescence, so that they are experienced more as properties of the self than as immutable properties of other things, events, or persons. Thus, adolescents can reflect on their emotions and realize that they can voluntarily hide and change them. Adolescents also typically attain emotional ambivalence, i.e. the ability to integrate positive and negative emotions felt towards the same object. They can also realize that current emotions are influenced both by past events and by enduring moods.

Gender differences, evident in childhood, continue and in some cases enlarge in adolescence. Adolescent girls feel more sad, shy, ashamed, guilty, and hostile-towards-self than adolescent boys, who typically feel more contemptuous than the girls. Girls' emotional experience

is more often triggered by social activities than is that of boys. While no studies of emotional expressiveness have been done specifically with adolescents, female children and female adults express emotion more often and more clearly, and are more responsive to the emotional expressions of others, than are their male counterparts.

Emotions and Depression

Despite substantive theoretical interest in the role of emotions in depression, little empirical research has been done with adults and even less with children or adolescents. Major aspects of the theoretical literature will be presented followed by a review of relevant empirical research, first with adults and then with children and adolescents.

Theoretical Formulations

Psychoanalytic theorists have given emotions, primarily anger, sadness, and shame, a central role in their conceptualizations of depression. Freud (1917) wrote of melancholia as consequent to the loss of an introjected object towards whom an individual feels ambivalence. The anger aspect of the ambivalence, emanating from the superego, becomes directed at the lost object's introject in the ego and depression results. In

more current terms, one becomes angry at the lost object's representation in the self, and thus also angry at oneself. In a seminal study of institutionalized infants, Spitz and Wolf (1946) stress loss of the attachment with the caregiver, behavioral expressions of intense sadness, and aggression which cannot be discharged externally due to the young infant's inability to ambulate. Klein (1932/1949) emphasizes both sadness consequent to loss and normal destructive impulses which then become discharged inwardly. Sandler and Joffe (1965) write of depression as following the loss of one's "previous sense of self (p.91)" and not necessarily an other, resulting in inhibition of aggressive energies. Further, "...the accumulation of undischarged aggression may reinforce the painful state so that one is forced into a state of painful resignation (p.93)."

Rutter (1986b), decidedly not an analyst, highlights this sense of resignation in writing:

"Thus, the negative mood of depression may be represented more by a loss of interest or pleasure, an emotional emptiness, a lack of responsiveness to ongoing activities, or a feeling of flatness (p.492)"

Unlike Freud (1917) who argued that melancholics lack a sense of shame, Lewis (1986) grants shame the predominant emotional position in depression. In Lewis's (1986) terms:

"Shame is directly about the self. It is the vicarious experience of the other's scorn of the self. The self at the moment of shame is felt to be in the eye of a storm of disapproval....While in a state of shame, the self feels helpless, as if paralyzed (p.330)."

Shame is more common in women, perhaps due to increased interest in relationships and the "other" (cf. Gilligan, 1977), whereas guilt is the more common experience in men. While shame is about deficiencies in the self, guilt is about things done or undone, separated from a less protected self. The helpless deficient sense of self in shame leads to depression, while the focus on actions and deeds in guilt leads to obsession and compulsions. Lewis considers anger and hostility to be important but secondary features of depression. Rather than retroflected anger causing the characteristic loss of self-esteem, as in classical analytic formulations, she considers anger to be the result of such a loss. However, anger cannot be directed outwards, as it would threaten the social bonds that are so sorely needed.

Blatt (1974) considers shame and guilt both prominent in depression, though each associated with a different sub-type of the disorder. Shame is associated with anaclitic depression, the more severe type which is "...characterized by feelings of helplessness, weakness, and depletion. There are intense fears of abandonment and direct struggles to maintain contact with the need-gratifying object (Blatt, 1974, p. 107). " In contrast,

introjective depression has guilt as one of its primary features, along with feelings of worthlessness, failure, and a fear of the loss of approval. Self-directed anger plays a role in both types, though in different ways. In anaclitic depression, similar to the observations of Lewis (1986), anger cannot be expressed outwardly for fear of distancing the needed other in the relationship. In introjective depression one tends to project anger onto others, experiencing them as harsh evaluators and thus directing hostility towards the self.

Moving from the analytic camp to that of personality research, Izard (1972, 1977, 1985) has written extensively on the role of emotions in depression. Izard views depression as a syndrome comprised of elements from several personality systems: biogenetic, biochemical, affective, cognitive, and ecological. Any of these systems may deviate initially and trigger depression, though the affective system plays a key role in organizing the experience of depression. This organizational role is fulfilled by selectively filtering perception and cognition, thus also influencing behavior. Izard posits that sadness is the key emotion in depression, joined by patterns of self- and other-directed hostility, fear, guilt, and shame. These secondary emotions vary across individuals and across time within an individual. Different emotion combinations lead to different

experiences of depression. For example, the hypothesized most common combination, sadness and self-directed hostility, leaves one feeling in desperate need of relationships yet unworthy of social contact. With the addition of shame one becomes convinced that others share this painful self-devaluation. Anger can mobilize one's energies, capacitating involvement in activities and relationships that can break the depressive cycle.

A few theorists posit developmental shifts in the emotional experience of depression. Emde, Harmon and Good (1986) propose a salience for shame in the preschool years with guilt prominent in middle childhood and anger, hostility, and self-destructiveness mixed with sadness in adolescence. Izard and Schwartz (1986) speculate that sadness is the predominant affect of depression in infancy, sadness and anger alternate during the preschool years, and shame emerges together with Piagetian concrete operations and the capacity for self-critical comparison with others between the ages of six to nine. This is followed by guilt stemming from comparison with one's internalized standards during puberty and thereafter.

Empirical Findings

Empirical findings will be reviewed separately in terms of those studies done with adults and those done with children and adolescents.

Studies with Adults. Data on emotions and depression in adults have been generated in studies using self-report of emotional experience as well as electromyographic and observational measures of emotion-related facial expressions. While few, these studies generally support the view that sadness is key in depression while the experience and expression of happiness is attenuated. Izard (1972) tested his notions regarding the emotional composition of depression by administering the Differential Emotions Scale (DES), an emotion adjective checklist, to 40 hospitalized depressives. Sadness was endorsed most strongly, followed by fear, inner-directed hostility, guilt, shyness/shame, and outer-directed hostility. A large non-clinical sample of college students generated a similar profile when asked to imagine that they were depressed. However, self-directed hostility was more prominent and fear and shame/shyness less prominent than in the adult clinical sample (Marshall & Izard, 1972).

Several investigators have found that depressed individuals evidence attenuated happiness facial expressions and more frequent sadness facial expressions than do non-depressed (Genero, 1986; Schwartz, Fair, Salt, Mandel & Klerman, 1976). Depressed individuals have been found to emit fewer emotion-related facial expressions overall, with those that are sent being more ambiguous,

than non-depressed (Gerson & Perlman, 1979; Prkachin, Craig & Papageorgis, 1977). Finally, depressed persons show a stronger association between their self-reports of sadness and their facial expressions of sadness while for normals the stronger association was between happy self-reports and happy expressions (Brown, 1982).

Studies with Children and Adolescents. Studies on emotions and depression in children and adolescents present a somewhat different picture from those with adults, indicating a more prominent position for shame and suggesting substantive variation across age and gender. Blumberg (1986) administered the DES-IV, a child version of the DES, and a measure of depression to 28 male 8 to 12 year-old psychiatric inpatients. The study also included naturalistic observations of emotional facial expressions. Sadness was the strongest predictor of depression in a hierarchical regression analysis, accounting for 22% of depression variance, followed by shame (19%) and guilt (suppression effect, 9%). Overall, emotions as rated on the DES-IV accounted for 50% of depression variance. Intensity of self-report of sadness and anger correlated significantly with frequency of facial expression of these emotions, though this was not the case for fear and joy.

Gender differences were evident in a school-based non-clinical sample of 10- and 11-year old children

(Blumberg & Izard, 1985). For girls the significant predictors of depression, along with the percentages of variance for which they accounted, were sadness (55%), self-directed hostility (14%), anger (4%) and joy (suppression effect, 2%). For boys the predictors were sadness (11%), anger (11%), interest (suppression effect, 9%) and shame (5%). Girls' depression was more predictable than boys'; emotions accounted for 78% of depression variance among girls and only 45.1% among boys. Furthermore, self-ratings of depression correlated significantly with teacher ratings for girls but not for boys. In a similar study with a 10 to 12 year old school-based sample Blumberg and Izard (1986) did not separate findings by gender. The affective predictors of depression were sadness (39%), self-directed hostility (7%), joy (suppression effect, 4%), interest (suppression effect 3%), fear (1%) and anger (1%).

It is notable that in all of the studies with both clinical and non-clinical samples of children sadness was the peak emotion associated with depression. Sadness was also the peak emotion in a normal mixed-gender adolescent sample (Marshall & Izard, 1972). The prominence of anger among boys in Blumberg & Izard (1985) is consistent with other findings indicating that disobedient behaviors were associated with elevated depression scores in a school-based sample of adolescent males while dysphoric mood

behaviors (sadness, crying) correlated with depression among females (Smucker, Craighead, Craighead, & Green, 1986).

Studies on the non-verbal behavior, both facial and gestural, associated with depression in children yield findings that are consistent with those for adults. Children with higher levels of depression generally show slower activity overall, less facial and vocal expressiveness, and increased signs of sadness (e.g., tearfulness) than do less depressed (Kazdin, Sherick, Esveldt-Dawson and Rancurello, 1985). This relationship is stronger for girls than boys. Feldman, White and Lobato (1982) found that a small mixed-disorder emotionally disturbed sample made more ambiguous emotion-related facial expressions and were less accurate in understanding the facial expressions of others than were their normal counterparts. Finally, Custrini and Feldman (1988) found that accurate non-verbal emotional expression and understanding were related to social competence in girls but not in boys.

Review of Methodology

The questions explored in this study entailed several difficult methodological issues. These will be considered as regards the assessment of emotion, both subjective

emotional experience and emotional expression, and the assessment of depression.

Assessment of Emotion

Self-report constitutes the principal means for studying emotion experience (Izard, 1982). Relevant techniques include structured interviews (cf. Selman, 1980), labelling pictures intended to represent particular emotions (Glasberg & Aboud, 1982; Harter & Buddin, 1987) and emotion adjective rating scales (cf. Izard, Dougherty, Bloxom, & Kotsch, 1974; Zuckerman, 1960), one of which has been developed for children and adolescents (Differential Emotions Scale-IV: Kotsch, Gerbing, & Schwartz, 1982). However, reliance on verbal report as the sole indicator of emotion presents several liabilities. Verbal report is inordinately dependent on the subject's language skills, degree of self-awareness and rapport.

Izard (1982) notes that data from any one emotion component, such as verbal report of subjective experience, is indicative but may not be sufficient to identify a particular emotion. The current study took advantage of the extensive body of cross-cultural research indicating that particular facial expressions are associated with particular emotion experiences (Ekman et al., 1987; Ekman, Friesen, & Ellsworth, 1972; Izard, 1971). The study incorporated variables related to both the

verbal/experiential and expressive aspects of emotion. It also explored how these two aspects relate, which is the domain of emotion awareness.

Subjective Experience. The most widely used measure of emotional experience is the Differential Emotions Scale (DES), with its child/adolescent counterpart, the Differential Emotions Scale-IV (DES-IV: Izard et al., 1974; Kotsch et al., 1982). The DES presents a series of emotion adjectives while the DES-IV uses more easily understood emotion-related statements (e.g., "feel glad about something," "feel unhappy, blue, downhearted," "feel like screaming at somebody or banging on something"). Both involve ratings on a five point Likert-type scale for either severity or frequency of occurrence. The DES-IV has 37 items, three each for Izard's ten fundamental emotions (joy, interest, anger, fear, guilt, disgust, contempt, shyness, surprise, and sadness has four), plus three each for shame and inwardly-directed hostility.

The empirical methods used to develop both of these scales were exemplary. The initial item pool was derived from emotion labels used to describe photographs of facial expressions by American, English, French, and Greek samples (Izard et al., 1974). These were then administered to large samples of Americans and the findings were entered into factor analyses using stringent criteria. The final list of items emerged from these

analyses with some slight adjustments to maintain balance across scales. The resulting measure has demonstrated good internal consistency (coefficient alpha of .84) and adequate test-retest reliability (one week interval, $r=.77$) (Izard et al., 1974). Acceptable concurrent and criterion-related validity have been established as well (Izard et al., 1974; Kotsch et al., 1972).

The child/adolescent DES-IV was developed when Izard (1972) found that factor loadings were much weaker when the DES was used with a high school sample. The single adjectives of the DES were expanded into emotion phrases as noted above. The DES-IV and DES were found to be comparable when administered jointly to an undergraduate sample (Kotsch et al., 1982). The DES-IV maintained the factor structure of the DES with some small modifications (Kotsch et al., 1982). Disgust and anger merged in an adolescent sample while interest and joy merged, as did sadness and anger, and disgust was not evident in an 8-12 year old sample. The large majority of items loaded on the factors theoretically indicated (over 70% had loadings $> .6$) while inter-factor correlations suggested relative independence (Kotsch et al., 1982). Test-retest reliability in a normal sample across a four month interval ranged from .3 to .75 across individual scales (Blumberg & Izard, 1986). The scales of greatest interest to the study of depression were among the most stable:

self-directed hostility $r=.66$, sadness $r=.58$, shame $r=.75$, anger $r=.5$ and fear $r=.49$. Blumberg's (1986) findings with a clinical sample were lower, though once again the depression-implicated scales were the most stable (e.g., self-directed hostility $r=.62$, sadness $r=.62$). Regarding validity, DES-IV anger and sadness scales have correlated significantly facial expressions of emotion in naturalistic settings, and with Child Behavior Checklist (Achenbach, 1982) and emotion-related behavior ratings (Blumberg, 1986). DES-IV scale scores have differentiated high anxiety from high depression children (Blumberg, 1986; Blumberg and Izard, 1985). The similarity of item-factor correlations in samples from 8 to 17 years of age led Kotsch et al. (1982) to conclude that the "psychological meaning" of items is similar across this age span.

Emotion Expression. The elements needed for a study of emotion expression are an eliciting stimulus, emotion behavior, and a means of analyzing such behavior. Two types of stimuli have been used: social interaction in naturalistic settings (Charlesworth, 1982) and experimental manipulations (cf. Buck, 1975; Custrini & Feldman, 1988; Notarius, Wemple, Ingraham, & Burns, 1982). While naturalistic observation ensures ecological validity, it requires a more extensive sample of behavior, disallowing detailed analyses of emotion behavior without

enormous resources. Further, the stimulus conditions are not standard across subject groups.

Experimentally-manipulated stimuli used in studies of emotion have included text- and story-prompted mood induction (Lang, 1984; Terwogt, Schene, & Harris, 1986), emotional imaging (Marshall & Izard, 1972), posing emotional facies (Tourangeau & Ellsworth, 1979; Zuckerman, Larrance, Hall, DeFrank, & Rosenthal, 1979), viewing slides (Buck, 1975), staged interpersonal encounters (Notarius et al., 1982), and motion pictures (Custrini & Feldman, 1988; Ekman, Friesen, & Ancoli, 1980; Zuckerman et al., 1979). Only the last two of these procedures, staged encounters and motion pictures, are sufficiently arousing to generate visible spontaneous expressions of differentiated emotion. Although staged encounters may offer greater ecological validity, they typically involve some degree of stress and deception, are difficult to arrange when the experimenter is familiar to the subject as in the current study, and there is often a lesser degree of experimental control. Motion pictures may be less valid, though they do avoid the problems of interpersonal encounter. Further, the motion picture vignettes chosen empirically by Custrini and Feldman (1988) have been shown to elicit specific joy, sadness, anger, disgust, and fear/surprise emotion expressions.

Once stimulated, emotion is expressed through gesture, vocal intonation, facial patterns, and instrumental acts. Perhaps due to Darwin's (1872/1965) interest, facial expression has received the greatest research attention. While there is growing interest in vocal aspects (cf. Scherer, 1982) the links between subjective experience and facial expression are clearer than those with any other expressive modality (Izard, 1982). Furthermore, sophisticated methodologies have been developed for the analysis of emotional facial expressions, and these are essentially of three types. The first involves the viewing of a subject's facial expressions, typically recorded on video-tape, by large groups of untrained judges. These judges then rate the expression on particular dimensions such as pleasantness/unpleasantness (Zuckerman et al., 1979) or in relation to specific emotions (Custrini & Feldman, 1988). This method has the advantage of social validity, though it is subject to context and rater biases and the empirical association of expressions rated in this manner with particular emotional experiences has not been well documented (Ekman et al., 1972).

The second type, electromyographic recordings on the face, is extremely sensitive to minor muscle movements which underlie emotional expressions (Brown, 1982; Genero, 1986; Schwartz et al., 1976). Unfortunately,

electromyographic procedures may be excessively obtrusive with an adolescent psychiatric sample and the instrumentation is costly. Alternatively, Ekman and Friesen (1978) and Izard and Dougherty (1982) have developed separate microanalytic techniques for coding visible facial expression based on extensive cross-cultural research (cf. Ekman et al., 1972; Izard, 1971). These techniques constitute the third type of expression analysis methodology. Facial expressions are typically videotaped and then coded for particular movements, emotion expressions, or blends of emotions to the tenth of a second. The Facial Action Coding System (FACS) created by Ekman and Friesen (1978) is an anatomically-based system which codes any facial movement whether or not it is related to an emotion. Patterns of movements are then analyzed to determine whether they constitute joy, sadness, fear, anger, surprise, or disgust. The FACS system is comprehensive though exceptionally time-consuming; it may require up to 150 minutes to analyze one minute of video-tape.

Izard and Dougherty (1982) have developed a dual-system approach which combines both microanalytic analyses and holistic judgements. While less comprehensive than FACS, this system is more efficient and still captures data on eight emotions. The microanalytic component, Maximally Discriminative Facial Movement Coding System

(MAX) codes emotion-related movements in three separate areas of the face (brow, eyes, cheeks and nose, mouth and chin) and like FACS, these data are then analyzed in relation to particular emotion formulas. MAX has required a mean of 11 hours training time for coders to reach an 80% reliability criterion (Izard & Dougherty, 1982). The second component, System for Identifying Affect Expressions by Holistic Judgements (AFFEX), requires trained judges to observe the whole face and label emotional expressions directly. Judges who were previously trained on MAX, the recommended training procedure so as to increase rater sensitivity and objectivity, required a mean of five hours of training to reach criterion on AFFEX (Izard & Dougherty, 1982). In the dual-system approach expressions are coded via AFFEX and then 10-20% of the sample is also coded via MAX to ensure adequate reliability. Data are generated in terms of "affectograms," i.e. the sequence of emotion expressions across time by seconds, and indices for the proportion of positive emotion time, proportion on negative emotion time, and proportion of time expressing each discrete emotion.

Four reliability studies have shown AFFEX inter-rater agreements to range from 77% - 92% with a mean of 86.5%. Studies of concurrent validity with MAX have yielded a mean 80% inter-system agreement. Concurrent validity

figures for comparisons of AFFEX with untrained observers' ratings have ranged from 56% to 73%. Additional validity is granted from the careful construction of the systems, deriving the codes from subjects' labels of their emotional experience in extensive cross-cultural research (Izard, 1971). MAX and AFFEX were developed originally for use with infants and young children, though they can be used with individuals of all ages with slight modifications (e.g., infants show bulges and dimples due to subcutaneous fat where adults show wrinkles and furrows). The advantages of the AFFEX or AFFEX/MAX dual system approaches for the current study were 1) finer discriminations in emotion can be made than with untrained judges' ratings, 2) it is less time-consuming than FACS, and 3) comparability to the DES data as they are both based on the same theoretical premises.

Assessment of Depression

Four methods have been devised for the assessment of depression in children. The first is the standardized semi-structured interview, e.g., the Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS; Puig-Antich & Chambers, 1978), and the Interview Schedule for Children (I.S.C.; Kovacs, 1983). These were designed to make categorical diagnoses across the broad spectrum of psychiatric disorders. While comprehensive, they involve

lengthy interviews with both subject and parent, do not yield dimensional severity scores, and are overly broad for the purposes of the current study. The second method, the clinical rating scale, involves rating the subject on depressive symptomatology based either on information that is obtained in a non-standardized fashion (Children's Depression Rating Scale; Poznanski, Cook, & Carroll, 1979) or a semi-structured interview (Bellevue Index of Depression; Petti, 1978). These measures, particularly the Bellevue Index of Depression, have been shown to have good psychometric characteristics though they are vulnerable to rater bias (Kazdin, 1987; Kazdin, Colbus, & Rodgers, 1986; Kazdin, French, Unis, & Esveldt-Dawson, 1983).

Reports by informants familiar with the adolescent in his/her daily environment, such as parents and peers, constitute the third assessment method. Several of the self-report measures described below have parent-report versions (e.g., Children's Depression Inventory: Kovacs, 1980/81; Children's Depression Scale: Tisher & Lang, 1982). These have received little psychometric evaluation, though they have been shown to correlate significantly with clinician ratings of depressive symptomatology (Kazdin, 1987) and to differentiate depressed from non-depressed inpatient groups (Kazdin et al., 1986; Kazdin et al., 1983a). Parent-report measures

are impractical for the current study due to an increased risk of non-compliance and the probable absence of a stable home, yielding no reliable informant, for a sizable proportion of the sample. Most importantly, correlations between parent- and subject-reports have consistently been found to be non-significant (Kazdin et al., 1983a; Kazdin et al., 1983b). As all of the other measures in the study involved subject-report, a parent-report criterion measure would introduce unnecessary informant error. In addition, Kazdin et al. (1985) found self-report inventories to be more sensitive to differences in non-verbal behavior, including elements of emotional expression, than diagnostic classification.

The fourth method, and the one which was used in the current study, is subject self-report. Self-report measures yield a dimensional severity score which is amenable to a variety of data analysis techniques, are economical, and are of similar format to the emotion measures, thus reducing informant error. The psychometric features of three self-report measures have been investigated to greater or lesser extent. The Children's Depression Inventory (CDI) , a 27-item questionnaire which covers several types of depressive symptoms including mood, hedonic capacity, vegetative functions, evaluation of self, and social relations, has received the most attention (Kovacs, 1980/81; 1983). The

CDI is suitable for children and adolescents ages 8 to 17. It has shown exceptionally strong internal consistency, yielding coefficient alphas of .83 to .89 in inpatient psychiatric and normal samples (Nelson, Politano, Finch, Wendel, & Mayhall, 1987; Smucker et al., 1986; Kaslow & Wamboldt, 1985; Kovacs, 1983). Individual item -- total score correlations have been adequate with the exception of three items (5, 15, 18; Kovacs, 1983; Kovacs, 1985; Nelson et al., 1987). Stability is adequate with test-retest reliabilities ranging from .59 to .87 among psychiatric samples with the range of intervals from 1 to 13 weeks (Blumberg, 1986; Kovacs, 1983; Saylor, Finch, Spirito, & Bennett, 1984). Equivalent correlations among normal samples have ranged from .75 to .84 (Kaslow & Wamboldt, 1985; Kovacs, 1983; Smucker et al., 1986;) with one study (Saylor et al., 1984) reporting .38. There has been no sizable variation in reliabilities across age and gender groups. The CDI has not yielded significant differences in depression level across race, age, or gender, though an age by gender interaction, with adolescent girls scoring higher than adolescent boys, has been found (Kaslow & Wamboldt, 1985; Kazdin et al., 1983; Nelson et al., 1987).

Both the concurrent and criterion-related validity of the CDI have been investigated, with some mixed results. Correlations with other subject-report depression

measures, clinician's global ratings of depression, self-esteem, and a measure of depressive attributions have consistently been significant and moderate to strong (Kazdin et al., 1983a; Kazdin et al., 1986; Kazdin, 1987; Kovacs and Beck, 1977; Saylor et al., 1984). While several studies have found that CDI scores differentiate depressed from other psychiatric groups (Kazdin et al. 1986; Kovacs, 1983; Moretti, Fine, & Haley, 1985) others have found no difference (Kazdin, 1987; Nelson et al., 1987). The CDI has been found to be sensitive to individuals' clinical status over time and to blood levels of tricyclic anti-depressants (Kovacs, 1985). The CDI offered particular advantages to the current study in that it is brief, has undergone the most extensive psychometric evaluation, requires no greater than a first-grade reading level (Kovacs, 1983), and was used as the criterion measure in all other studies of emotion and depression prior to adulthood (cf. Blumberg, 1986; Blumberg & Izard, 1985, 1986).

The Children's Depression Scale (CDS: Tisher & Lang, 1983), a second self-report measure, has been explored less fully. The CDS has 66 items which are answered in 1 to 5 Likert fashion and are organized on six subscales: affective response, social problems, self-esteem, concerns about sickness/death, guilt, miscellaneous symptoms, and pleasure. These subscales have not held up in factor

analysis, as one general factor accounts for nearly all of the variance of the scale (Rotundo & Hensley, 1985).

Internal consistency, defined both in terms of coefficient alpha and subscale intercorrelations, have been shown to be strong (Kazdin, 1987; Rotundo & Hensley, 1985). No studies on test-retest reliability have been published to date. Concurrent correlations with other self-report depression measures have been significant and moderate to strong (Kazdin, 1987). All of the studies to date that have tested criterion-related validity, namely the CDS's ability to differentiate depression from other diagnostic groupings, have been favorable (Kazdin et al., 1986; Moretti et al., 1985; Rotundo & Hensley, 1985). Kazdin (1987) found the CDS preferable to the CDI in criterion-related validity with one inpatient sample.

The third self-report measure is the Depression Self-Rating Scale (DSRS), also titled the Birelson Depression Inventory (Birelson, 1981). The DSRS is comprised of 18 symptom-related items which are rated for frequency of occurrence on a three-point scale. Internal consistency has been found to be adequate (Asarnow & Carlson, 1985) while test-retest reliability has yet to be reported. Asarnow and Carlson (1985) found the DSRS to correlate at .81 with the CDI in an inpatient sample with equivalent criterion-related validity. The DSRS had a higher false negative rate than the CDI, apparently due to the tendency

of several male subjects who appeared severely depressed to clinicians to deny depressive symptomatology on the DSRS. Birelson (1981) and Birelson, Hudson, and Buchanan (1987) found strong criterion-related validity, though neither study used standardized procedures in arriving at criterion diagnoses, thus attenuating the importance of their results.

Summary. Several difficult methodological issues were considered in choosing measures and procedures for the current study. In summary, the study applied the most reliable and widely-used dimensional self-report measure of depression, the Children's Depression Inventory (CDI), together with a carefully constructed dimensional self-report measure of the frequency of experience of several discrete emotions, the DES-IV, to assess emotional experience associated with depression. In addition, a motion picture mood induction procedure accompanied by verbal report of emotional state and a detailed analysis of emotional facial expressions was used to measure emotional expressiveness as well as the relationship between emotional expressiveness and experience. Analysis of emotional facial expressions was accomplished with one of two available sophisticated coding systems, AFFEX. The mood induction procedure was thought to provide greater experimental control and to require less time than the

other available approaches to studying emotional expression, e.g., naturalistic observation.

Questions Addressed in the Current Study

Although sophisticated techniques are available for the study of emotions and depression, and despite strong assertions regarding the important role emotions play in numerous aspects of depression (cf. Panksepp, 1988; Rutter, 1986b), empirical evidence is scanty for children and adults and virtually non-existent for adolescents. The current study is the first to explore emotions in clinically depressed adolescents. As such it makes an important contribution to three related research literatures: adolescent depression, the relationship between emotions and depression, and, to a lesser extent, the normal development of emotions in adolescence. The study has bearing on our phenomenological understanding of the affective life of depressed young adolescents as well as our approach to the treatment of depression in adolescence. It further has implications for our notions regarding the relationship between normality and pathology in general. The following questions were addressed:

- 1) What emotions are experienced prominently by young adolescents showing a high level of depression? Are the peak emotions, i.e. those emotions rated

highest in terms of intensity and frequency, sadness and self-directed hostility as proposed by Freud (1917), Klein (1932/1949) and Izard (1977)?

Alternatively, is the peak emotion of depression shame as asserted by Lewis (1986). Or rather, are the primary emotional features of depression a diminution of feeling and a sense of detachment, as suggested by Rutter (1986) and Bowlby (1980)?

2) Do individuals high in depression express emotion with lesser frequency and intensity, as suggested by common clinical characterizations of "blunted affect?" What type of non-verbal emotional expression is associated with depression?

3) What is the relationship between an individual's concurrent experience and expression of emotion? Does this relationship vary with depression level?

4) Are there gender-related differences in the emotional phenomenology of depression?

The design and procedures used in the current study also represent several methodological advances over prior investigations. First, this is the only study to date that compares the performance of clinically depressed and non-clinical samples, thus increasing the ability to generalize findings to other populations. Second, it is the first study to use a standardized mood induction procedure to examine the

non-verbal expression of emotions in a clinically depressed sample. Third, while still somewhat limited in scope, the range of emotions studied currently is broader than that in any previous investigation. Fourth, and of critical importance, the study paid full attention to the influence of gender on both depression and emotions, as these differences have been shown to increase substantially in adolescence (cf. Stapley & Haviland, 1989; Rutter, 1986a).

CHAPTER II

METHODS

Subjects

Subjects included male and female young adolescents, 12 to 15 years of age, who were drawn from two populations: a clinical sample of psychiatric inpatients and a non-clinical school-based sample. There were 39 subjects in the clinical sample and 22 subjects in the non-clinical sample.

Clinical Sample. The clinical sample was comprised of 20 male patients and 19 female patients who were admitted to the inpatient child psychiatry unit at the Baystate Medical Center, a large urban tertiary care hospital in Springfield, Massachusetts. The selection of these subjects from the patient population was done without bias, as every patient who met the inclusion criteria described below was enrolled in the study. The inpatient child psychiatry unit at Baystate Medical Center is a 15-bed acute service that admits patients from 5 to 15 years of age with a broad spectrum of psychiatric diagnoses.

Only those patients who agreed to participate in the study and whose parents signed the required informed consent document were included. A copy of the informed consent form used for the clinical sample as well as supporting documents from Baystate Medical Center are included in Appendices A.1 and A.2. None of the patients

or their families refused participation. One patient who did agree to participate was later excluded as she was not available on both of two scheduled research assessment dates. An additional qualifying criterion for the clinical sample was a Wechsler Intelligence Scale for Children-Revised (WISC-R) Full Scale IQ of 70 or greater. WISC-R results were available for 28 (71.8%) of the clinical sample. The mean Full Scale IQ was 94.5, SD = 12.8, with a range of 70 to 122. One potential subject was excluded because of an IQ lower than 70. The joint clinical judgement of both the licensed unit psychologist and the board-certified attending child psychiatrist was used to assess intelligence in those cases in which WISC-R results were not available.

The mean age of subjects in the clinical sample was 13.9, SD = 1.13. Regarding race, 71.8% of subjects in this sample were white, 17.9% were Hispanic, 5.1% were black, and 5.1% were other, non-white. The socioeconomic status of patients in the clinical sample was assessed with the Hollingshead (1975) Two Factor Index of Social Position. The mean Social Position Score for the clinical sample was 32.21 (SD = 13.58, range = {8 - 58}), which is comparable to a skilled worker or craftsman who has graduated from high school. The clinical subjects' DSM III-R discharge diagnosis, given by unit psychiatrists in a non-standardized fashion, included 16 Disruptive

Behavior Disorders (41.0%), 13 cases of Major Depression (33.3%), 3 cases of Adjustment Disorder (7.7%), 2 Post Traumatic Stress Disorder(5.1%), 2 Mixed Substance Abuse (5.1%), and 3 others (7.7%). The mean length of hospital stay for patients in the study was 37.7 days ($SD = 12.5$).

Non-clinical Sample. There were 10 male and 12 female subjects in the non-clinical sample. These subjects were recruited from randomly selected seventh, eighth, and ninth-grade homerooms in the public junior high school of a small New England town. Letters describing the study and return postcards were distributed to all students in the selected homerooms. Ten dollars was offered as payment for participation. Four hundred letters were distributed and 25 postcards, indicating interest, were returned. The parents of interested students were then sent a more lengthy explanatory letter as well as an informed consent form. A copy of the informed consent document is included in Appendix A.3. All 25 students who returned the postcards subsequently participated in the research assessment. Those who were currently involved in psychotherapy by their own report were then excluded following participation in the study (see Appendix B.1). There were three such exclusions, yielding the non-clinical sample size of 22.

The mean age of subjects in the non-clinical sample was 13.77 years, $SD = 0.69$. The racial composition of the

non-clinical sample was 77.3% white, 9.1% Hispanic, and 13.6% black. As with the clinical sample, the socioeconomic status of patients in the non-clinical sample was assessed with the Hollingshead (1975) Two Factor Index of Social Position. The mean Social Position Score for the non-clinical sample was 57.59 ($SD = 9.06$, range = {32 - 66}), which is comparable to manager or minor professional (e.g., teacher, computer programmer) who has received some post-graduate university training.

Comparison of the Samples. There was no significant difference between the ages ($t = -0.43$, 59 df , $n = 61$, $p = .67$) or the races ($\chi^2 = 3.18$, 3 df , $n = 61$, $p = .37$) of the clinical and non-clinical samples. Notably, there was also no significant association between age and assessed depression level ($r = -.1268$, n.s.) and no significant difference between white and non-white subjects in terms of assessed depression level ($t = -0.94$, 59 df , $n = 61$, n.s.). There was a large and highly significant difference between the samples in regards to social class ($t = 7.83$, 59 df , $n = 61$, $p < .001$). Consequently, social class is included as a covariate in all appropriate data analyses.

Measures

The study incorporated core measures administered to both the clinical and non-clinical groups and additional measures administered to the clinical group only. The core measures included a criterion measure of self-reported depression, a quasi-trait measure of emotional experience, and one measure each of immediate emotional state and non-verbal expression of emotion which were administered in conjunction with a video mood induction procedure. Subjects in the clinical sample were also administered a semi-structured interview on the emotional experience associated with depression. Ancillary measures of overall psychopathology, intelligence, and receptive language abilities were collected as part of the ongoing Child Psychiatry Unit clinical regimen and were made available to the study.

Depression. The Childhood Depression Inventory (CDI: Kovacs, 1983, 1980/81) was used as the criterion measure of depression. The CDI is a 27-item self-report questionnaire which covers several areas of depressive symptomatology including mood, hedonic capacity, vegetative functions, evaluation of self, and social relations. Each item is rated on a three-point scale (0 - 2) for severity yielding an overall score range from 0 to 54. A copy of the CDI is included in Appendix B.2. Items

were read to the subject while he or she responded by marking a separate answer form.

The CDI is suitable for children ages 8 to 17 and requires no more than a first-grade reading level. The CDI has shown exceptionally strong internal consistency and stability (Blumberg, 1986; Kaslow, 1983; Kaslow & Wamboldt, 1985; Kovacs, 1985; Nelson et al., 1987; Saylor et al., 1983, 1983; Smucker et al., 1986). There have been some mixed findings regarding concurrent and criterion-related validity, though in general the CDI has been found to correlate significantly with clinicians' independent ratings of depression (Kazdin, 1987; Kazdin et al., 1986; Saylor et al., 1984) and to differentiate depressed from other psychiatric groups (Kazdin et al., 1986; Kovacs, 1983; Moretti et al., 1985).

Several of the CDI items refer directly to aspects of emotion, potentially resulting in over-estimates of the association between the CDI and measures of emotional experience. Adjustments were made to CDI scores in order to mitigate this potential bias. Nine Ph.D. candidates in clinical psychology were asked to rate each CDI item regarding its emotional content. These raters were given the instruction:

"Emotions are defined here as syndromes comprised of physiological, experiential, and expressive aspects. The experiential aspect is what is commonly referred to as emotional feelings. Izard has proposed a number of emotions that he considers basic: joy, interest, anger, fear, guilt, disgust, contempt,

shyness, surprise, sadness, shame, and inwardly-directed hostility. Rate each Childhood Depression Inventory item in regards to its emotional content. Check off each item which directly refers to an emotion or emotional experience."

All items which were identified as representing direct emotional content by more than half of the raters was omitted from the original CDI score to yield an adjusted score. There were four such items: "I am sad," "I have fun," "I hate myself," and "I feel like crying." This technique is similar to that used by Blumberg and Izard (1986). Post hoc analysis in the current study revealed the correlation between the raw and adjusted CDI scores was $r=.99$ ($p<.001$).

In an attempt to identify a sub-group of clinical subjects with depression levels approximately equivalent to that of patients with a psychiatric diagnosis of Major Depression, a CDI score cut-point of 13 was used to construct Low Depressed and High Depressed groups in the current study. This cut-point was recommended by Kovacs (1985) as it both maximized overall accuracy and minimized false positive assignments in separating psychiatric patient with Major Depression from those with other diagnoses. Thus, there were three research groups: a Non-Clinical group composed of 10 male and 12 female subjects, a Clinical Low Depressed group, composed of 13 males and 6 females, and a Clinical High Depressed group, composed of 7 males and 13 females.

Emotional Experience. The Differential Emotions Scale-IV (DES-IV: Blumberg & Izard, 1985; Kotsch et al., 1982), was used to measure subjects' self-report of emotional experience. The DES-IV has 37 items, three each for Izard's 10 fundamental emotions (joy, interest, anger, fear, guilt, disgust, contempt, shyness, surprise, and sadness has four), plus three each for shame and inwardly-directed hostility. Each item consists of an emotion-related statement (e.g., "feel glad about something," "feel unhappy, blue, downhearted," "feel like screaming at somebody or banging on something") which is rated on a five-point Likert-type scale. The DES-IV can be administered as a state measure, capturing the intensity of emotional experience at a given point in time, or as a "quasi-trait" measure (Blumberg, 1986) indicating the frequency one has experienced particular emotions over a one week interval. The DES-IV was administered in its quasi-trait form in the current study, as the focus was more on ongoing emotional experience. A copy of the DES-IV is included in Appendix B.3.

Psychometric stability across individual DES-IV scales has been shown to vary, though the scales theoretically related to depression, including sadness, shame, anger, and self-directed hostility, have been the most stable with test-retest reliabilities ranging from .49 to .75 across eight week to four month intervals

(Blumberg, 1986; Blumberg & Izard, 1986). Validity has been established through significant correlations with other emotion measures (Blumberg, 1986) and through differentiation of depressed from anxious subjects based on DES-IV profiles (Blumberg, 1986; Blumberg & Izard, 1985).

Three modifications were made to the DES-IV for this study. First, the target period during which emotions were rated was lengthened to two weeks. This was done in order to make the DES a better complement to the CDI, which similarly requires ratings based on the prior two weeks. Second, to minimize any misunderstanding of the concept of frequency (i.e., "how often") a drawing of five circles, each of increasing size and labelled with a number corresponding to the appropriate DES-IV response alternative (e.g., small circle labelled with "1" corresponding to "rarely or never," largest circle labelled with "5" corresponding to "very often") was placed in front of each subject. As with the CDI, items were read to subjects while they entered their response on a separate response sheet.

In the third modification, six additional items, based on theoretical considerations, were added to the DES-IV. Three items related to feeling loved: "I feel that my family loves me," "I feel that many people love me," and "I love myself." Inclusion of these items was based

on Lewis's (1986) notions regarding the importance of attachment emotions in depression, as well as the emergence of "love" as a prototype in Shaver, Schwartz, Kirson, and O'Connor's (1987) major study on emotion concepts. Three additional items were derived from Rutter's (1986) observations regarding emotional emptiness and detachment in depression: "I feel empty, " "I feel like I have no feelings," "I feel like nothing affects me." These six new items were added to the end of the DES-IV in fixed random order.

Emotional State and Emotional Expression. Measures of immediate emotional state and non-verbal emotional expression were applied during a videotape mood induction procedure. Seven 2 - 3 minute film clips, demonstrated in a previous study by Custrini and Feldman (1988) to induce happiness (2 clips), sadness (2 clips), anger (2 clips), and fear (1 clip), were used as mood induction stimuli. These clips include scenes such as a boy witnessing his bike smashed by a bully (anger), the loss of loved ones (sadness), the sudden unexpected appearance of a screeching bird (fear), and a stand-up comedian mimicing hungry stomach sounds (happiness). A complete description of the film clips is included in Appendix B.4. In the original development of the mood induction procedure, Custrini and Feldman (1988) showed 50 film clips to one of several groups of no fewer than 20 college undergraduates.

Each film clip was rated for both category and intensity of emotion. Those clips which were rated as evoking the same emotion in 85% or more of both male and female viewers, and were judged to be moderately arousing, were then shown to a group of 11 children ages 8 - 12. Ten clips which exceeded the 85% criterion for evoking a particular emotion among the children were retained. Three clips were judged to be excessively arousing for a psychiatric population (two disgust, one fear) and these were omitted from the current study. The remaining seven film clips were shown in fixed random order.

Emotional State. Following the viewing of each film clip subjects were asked to choose one of four emotion adjectives (happy, sad, angry, or scared), in response to the question: "How did you feel when you were watching this video?" Emotion adjectives were read in fixed random sequences which differed for each film segment. Subjects were also asked to rate the intensity with which they felt the particular emotion while viewing the film clip. Ratings were made on a five-point intensity scale from "not at all" to "very strongly," and the placard with five circles of increasing sized described above as an aid to rating ongoing emotional experience was used here as well.

Non-Verbal Expression of Emotion. A particular point in each film clip was established by Custrini and Feldman

(1988) as the peak emotion-eliciting portion. Videotapes of subjects' facial expressions, emitted during the 10 seconds following each peak emotion-eliciting point, were made through a one-way mirror. Attempts were made to have the subjects' expressive response to the film clips be as spontaneous and unrestrained as possible. In a similar procedure Buck (1984) noted that taking time for a rapport-building interview, sitting next to and slightly behind the subject, and responding to questions in a natural though non-committal manner increased the spontaneity of emotional expression. These techniques were used in the current study. In addition, subjects were told that the videotape would be running throughout the assessment sessions (not only during the critical induction period) and that the experimenter would be reading while the film clips were shown, as he had seen the film clips many times before.

Videotapes of subjects' facial expressions during each 10-second peak emotion segment were analyzed with the AFFEX coding schedule for the facial expression of emotions (Izard & Dougherty, 1982). The AFFEX system codes both pure expressions and blends for 8 of the 10 fundamental emotions identified by Izard (1977): interest, anger, sadness, joy, disgust, shyness/shame, surprise, and fear. Emotions are coded in sequence by seconds. Izard and Dougherty's (1982) recommendations for minor

modifications in the coding schedule to accommodate adolescents were employed in the study. MAX/AFFEX has been shown to have strong inter-rater reliability ($r = .77 - .92$) and moderate to strong concurrent validity with untrained observers' emotion ratings ($r = .56 - .73$). Two experienced AFFEX coders were employed to analyze the subjects' facial expressions of emotion in the current study. Analysis of study videotapes began after these coders reached an 80% criterion of agreement for each AFFEX category in training sessions. Booster training sessions were interspersed after coding each quarter of the total sample in order to minimize drift. AFFEX coders were blind to the source of subjects (i.e., hospital and school-based samples) as well as to other study data. All coding was done with the videotape sound deleted. Each coder analyzed equal numbers of clinical and non-clinical subjects independently.

Sixteen (26%) of the 61 subjects were coded jointly to assess reliability. Reliability was computed separately for each emotion category by second¹. The percentage of agreement by second for each AFFEX emotion category is presented in Table 1. Percentages of agreement ranged from 96.5 (Interest) to 0.0 (Fear,

1 In the event of a coding mis-match, e.g., one coder entering "sadness" when the other entered "anger", the error was divided among the two codes so that each was apportioned .5 mis-match. This method avoids an inflated error rate (E. Tronick, personal communication).

Table 1. Inter-rater Reliability: Percentage of Agreement Between Two Affex Coders by Second for Individual and Grouped Emotions

Emotion	Percent Agreement
Interest	96.5
Joy	88.1
Sadness	93.0
Disgust	36.4
Anger	75.0
Fear	0.0
Anger/Sadness Blend	0.0
Sum Negative	88.5
Surprise	44.4
Overall	94.3

Anger/Sadness blend) with an overall mean percentage of 94.3. The breadth of the range is due to very poor reliability on several rare codes including disgust, fear, surprise, and anger/sadness blend. The reliability of these codes was improved substantially by collapsing the categories of sadness, disgust, anger, fear, and anger/sadness into one negative emotion category, having a percentage of agreement of 88.5. The legitimacy of characterizing these emotions as "negative" is supported by a series of factor analytic studies by Russell and Ridgeway (1983), who found that all of them loaded on the negative pole of an emotional tone factor. The larger negative expressed emotion category is incorporated here in all relevant data analyses. Furthermore, the category surprise, accounting for only 7 of the 1280 seconds assessed for reliability (0.5%), is omitted from all analyses.

Ratings of Emotion When Depressed. Subjects in the clinical sample were read a series of thirteen statements, each representing a different emotion scale from the DES-IV. Each statement was derived from that DES-IV item which correlated most highly with its attendant scale. A listing of these statements is included in Appendix B.5. Subjects were then asked to identify those emotions they feel when they are depressed and to rate each on a 5-point intensity scale in similar fashion to the DES-IV. In the

event two emotions received equally high ratings subjects were asked to designate which emotion they feel most strongly when depressed.

Additional Measures. Data from the Child Behavior Checklist (CBCL:Achenbach and Edelbrock, 1981, 1983), the Wechsler Intelligence Scale for Children-Revised (WISC-R:Wechsler,1974), and the Peabody Picture Vocabulary Test-Revised (PPVT-R:Dunn & Dunn, 1981) were available on a large portion of the clinical sample. These data were collected by Baystate Medical Center child psychiatry unit personnel as part of the regular clinical regimen independent of the current study.

The CBCL is a 113-item normative symptom checklist which yields scores on overall psychiatric symptomatology as well as a variety of empirically derived clinical scales and symptom clusters. Strong reliability and validity have been established for the CBCL. The CBCL was completed by patients' parents or guardians at the time of admission.

The WISC-R and PPVT-R are both widely used nationally standardized psycho-educational measures which have strong psychometric properties (Wechsler, 1974; Dunn & Dunn, 1981).

Procedures

Measures were administered in the following order for all subjects: Childhood Depression Inventory (CDI), Differential Emotions Scale-IV, video mood induction technique with corresponding measures of emotional state and emotional expression, and emotion--depression ratings (clinical subjects only). Administration of the measures was preceded by a brief rapport-building interview during which subjects were asked to tell "what kind of things make you feel mad... happy... sad... and... scared." All measures were administered by the author.

Subjects were seated facing a one-way mirror in a relatively bare room in which there were several chairs, a desk, a television set and a video cassette recorder. Subjects in the clinical sample were assessed on the Child Psychiatry Unit and subjects in the non-clinical sample were assessed at the University of Massachusetts.

Clinical subjects were assessed between the third and tenth day of their hospital stay. This period was chosen to allow some acclimation to hospitalization yet also to be sufficiently early in the stay that there was a decreased likelihood that psychotropic medication would be prescribed. Six of thirty-nine clinical subjects (15.4%) had been prescribed psychotropic medication prior to the research assessment; there was no significant difference in the depression level ($t = 1.02$, $df = 37$, n.s.) or

emotional expressiveness ($t = 0.15$, $df = 4$, n.s.) of these patients as compared with non-medicated patients.

Furthermore, clinical subjects were assessed during either one approximately eighty minute session or two approximately 40 minute sessions. The use of one vs. two sessions depended on the child psychiatry unit schedule and/or the subject's individual tolerance for the research procedures. Eighteen of the clinical subjects were assessed in one session and 21 were assessed in two sessions. There was no significant difference in the criterion depression level (Childhood Depression Inventory, $t=1.48$, $df=37$, n.s.) or in the major areas assessed in the second session, namely emotional state ($t={.61}$ to -1.83), $df=37$, n.s.) and emotional expressiveness ($t={.01}$ to -1.32), $df=37$, n.s.) of clinical subjects assessed in one as compared with two sessions. All of the non-clinical subjects were assessed in one approximately one-hour session.

Treatment of Missing Data

The CDI, DES-IV, and ratings of emotional state were completed by all 61 subjects. Data on the non-verbal expression of emotion (AFFEX) were lost on three subjects, two clinical and one non-clinical, due to technical mishaps. All clinical subjects completed emotions--

depression ratings. CBCL data were available for 31 (79%) of the clinical sample. WISC-R data were available for 28 (71.8%) clinical subjects and PPVT-R data were available for 37 (94.9%). Missing data were excluded on a pair-wise basis, i.e. subjects were excluded only from those analyses which involved the data that were missing.

CHAPTER III

RESULTS

Method of Analysis

The primary method of analysis was 3 X 2 multivariate analysis of variance with depression-related research group (three levels) and gender (two levels) as the independent variables and socioeconomic status, defined by scores on the Hollingshead Two Factor Index of Social Position (Hollingshead, 1975), included as a covariate. The first level of the research group factor included all non-clinical subjects, the second was a clinical low-depressed group, and the third a clinical high-depressed group. As noted above, a CDI score greater or equal to 13, as recommended by Kovacs (1985), was used to differentiate low-depressed from high-depressed subjects.

Analysis of variance was the preferred method, as there were sufficient differences between the clinical and non-clinical samples, reflected most clearly in disparate socioeconomic status means and a discontinuous distribution of depression scores, to question the use predictive models such as multiple regression. Specifically, there was a significant and substantial difference between the mean Hollingshead Index of Social Position scores for the non-clinical (57.59, SD = 9.06) and the clinical (32.21, SD = 13.58) samples (t = 7.83, 59

df, n = 61, p < .001). Furthermore, the mean CDI scores for the three research groups were Non-Clinical 6.18, Clinical Low Depressed 8.74, and Clinical High Depressed 21.45, also significantly different ($F_{2,57} = 29.67$, p < .001).

Pillai's Trace, the most stringent of available tests (Norusis, 1986), was used to assess overall multivariate effects. The Roy-Bargman Stepdown F was used to account for dependence between variables in univariate analyses. Dunn procedures, which attempt to balance Type I and Type II error rates (Keppel, 1973) were used to adjust alpha levels in making post hoc multiple comparisons.

Additional statistical methods included factor analysis (principal components analysis with oblique rotation), which was used to decrease overlap between DES-IV scales. Chi-square was used to explore the associations between ordinal variables, e.g., the percentage of subjects in each research group who endorsed a particular emotions scale most strongly. Finally, stepwise multiple regression was used to predict depression (CDI) within the clinical sample for comparative purposes, as this method was used in all prior studies. Stepwise elimination procedures were used rather than a hierarchical comparison of models due to the exploratory nature of the study.

Depression and Emotional Experience

The relationship between assessed depression level, as defined by the CDI, and the frequency of experience of discrete emotions, as determined by the DES-IV, was explored to address the first question posed in this study, i.e. what emotions are experienced prominently by young adolescents? Descriptive data from the CDI and the DES-IV scales are presented in Appendix C.

There was a great deal of overlap between individual DES-IV scales; 65 of the 91 possible correlations (71%) exceeded the $p < .05$ significance level and 25 of 91 (27%) exceeded $r = +/- .50$ (see Table 2). Consequently, a factor analysis was conducted to decrease this overlap and to represent the relationship between the CDI and the DES-IV more accurately. A Principal Components analysis with oblique rotation yielded four unique factors. A minimum load criterion of .50 was chosen to determine inclusion of individual scales on each factor. Shyness, Shame, Fear, Inward Hostility, and Sadness all loaded on the first factor, which is characterized as Dysphoria. Surprise alone loaded on the second factor. Contempt and Anger loaded on the third factor. Joy, Loved, Interest, and Detached (suppression) loaded on the fourth factor, which appears to combine positive social engagement with awareness of one's own emotional state, and is termed

Table 2. Intercorrelations Among DES-IV Emotion Scales for the Total Sample^{a,b}

Scale	1	2	3	4	5	6	7
1. Interest	--	.73*	.16	-.45*	-.24	-.37t	.07
2. Joy	.73*	--	.03	-.72*	-.42*	-.53*	-.09
3. Surprise	.16	.03	--	.14	.18	.38t	.02
4. Sadness	-.45*	-.72*	.14	--	.65*	.63*	.19
5. Anger	-.24	-.42*	.18	.65*	--	.50*	.44*
6. Disgust	-.37t	-.53*	.38t	.63*	.50*	--	.31t
7. Contempt	.07	-.09	.02	.19	.44*	.31t	--
8. Inward Hostility	-.48*	-.64*	.18	.78*	.49*	.58*	.22
9. Fear	-.45*	-.54*	.15	.74*	.48*	.52*	.19
10. Shame	-.27	-.28	.12	.58*	.43*	.48*	.27
11. Shyness	-.33t	-.47*	.23	.63*	.37t	.51*	.23
12. Guilt	-.35t	-.51*	.40*	.68*	.48*	.65*	.35t
13. Loved	.40*	.52*	.02	-.37t	-.36t	-.35t	-.20
14. Detached	-.31t	-.43*	.10	.50*	.39*	.37t	.01

Scale	8	9	10	11	12	13	14
8. Inward Hostility	--	.78*	.59*	.71*	.73*	-.47*	.41*
9. Fear	.78*	--	.60*	.69*	.50*	-.31t	.32t
10. Shame	.59*	.60*	--	.70*	.46*	-.29	.30t
11. Shyness	.71*	.69*	.70*	--	.49*	-.25	.31t
12. Guilt	.73*	.50*	.46*	.49*	--	-.39*	.28
13. Loved	-.47*	-.31t	-.29	-.25	-.39*	--	-.41*
14. Detached	.41*	.32t	.30t	.31t	.28	-.41*	--

^aN=61

^tp < .05. *p < .01.

Joy/Loved. The individual factor loadings of DES-IV scales are presented in Table 3.

Factor scores were entered into a research group X gender multivariate analysis of variance, with socioeconomic status controlled as a covariate, as the primary test of the relationship between depression and emotional experience. The results of this analysis are presented in Table 4. There was a significant multivariate depression-related group effect (Pillai's Trace $F_{8,104} = 3.42, p < .01$) as well as significant univariate group effects for the Dysphoria ($F_{2,53} = 3.71, p < .01$) and the Joy/Loved ($F_{2,54} = 11.15, p < .001$) factors using the Roy-Bargman Stepdown F . Inspection of the group means, presented in Table 5, reveals a linear increase in Dysphoria scores with increasing levels of depression together with a contrasting decline in Joy/Loved scores. Post hoc comparisons between the Non-Clinical and combined Clinical groups and between the Clinical Low Depressed and the Clinical High Depressed groups, using Dunn procedures for adjusting the Type I error rate, revealed significant differences between each of the groups for both factors. There was no significant gender effect or group by gender interaction.

An additional analysis of emotional experience and depression considered the particular DES-IV scales endorsed most strongly by subjects in each of the three

Table 3. Factor Analysis of DES-IV Emotion Scales for the Total Sample^a

DES Scale	Factor			
	1	2	3	4
Shyness	.92	.05	.04	.09
Shame	.85	-.03	-.15	.17
Fear	.85	-.02	.03	-.10
Inward Hostility	.69	.09	-.02	-.31
Sadness	.59	.12	-.06	-.39
Surprise	.02	.95	.08	.12
Disgust	.29	.41	-.20	-.33
Guilt	.32	.41	-.26	-.29
Contempt	.03	-.09	-.95	.12
Anger	.15	.17	-.54	-.30
Joy	-.25	.10	-.07	.78
Loved	.14	.05	.25	.75
Interest	-.25	.33	-.11	.68
Detached	-.02	.21	.09	-.68

^aPrincipal components analysis (Kaiser normalization) with oblimin rotation.

Table 4. Multivariate Analysis of Variance for Emotional Experience (DES-IV) Factor Scores Controlling for Socioeconomic Status

Source	<u>df</u>	Hypothesis <u>MS</u>	Error <u>MS</u>	<u>F</u>
Mean ^a	4, 51	175.75	382.50	47.25**
Group ^a	8, 104			3.42*
^b Factor 1 (Dysphoria)	2, 53	374.09	100.75	3.71*
Factor 2 (Surprise)	2, 51	3.09	6.27	0.49
Factor 3 (Anger)	2, 52	0.42	22.65	0.02
Factor 4 (Joy/Loved)	2, 54	525.68	47.16	11.15**
Gender ^a	4, 51			0.07
^b Factor 1 (Dysphoria)	1, 53	194.87	100.75	1.93
Factor 2 (Surprise)	1, 51	0.00	6.27	0.00
Factor 3 (Anger)	1, 52	41.95	22.65	1.85
Factor 4 (Joy/Loved)	1, 54	16.74	47.16	0.35
Group by Gender ^a	8, 104			0.97
Error ^a	4, 51			0.42

^aPillai's Trace used to test multivariate differences.

^bRoy-Bargman Stepdown F used to test univariate differences.

* $p < .01$. ** $p < .001$.

Table 5. Mean Emotional Experience (DES-IV) Factor Scores for Non-Clinical, Clinical Low Depressed and Clinical High Depressed Groups

Factor Depressed ^c	Group					
	Non-Clinical ^a		Clinical Low Depressed ^b		Clinical High	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Factor 1** Dysphoria	27.0 ^d	6.6	21.1 ^e	11.6	15.0	14.1
Factor 2 Surprise	7.5	2.5	8.1	1.9	8.2	2.8
Factor 3 Anger/Contempt	15.3	5.7	16.5	4.8	19.2	4.5
Factor 4** Joy/Loved	30.9 ^d	4.7	21.1 ^e	8.5	15.0	6.8
CDI	6.2	4.1	8.7	2.9	21.5	7.3

Note. All means except CDI are adjusted for socioeconomic status.

^a $n=22$. ^b $n=19$. ^c $n=20$.

^dNon-Clinical mean differs from combined Low and High Depressed Clinical means at $F_{Dunn}(4,54)$, $\alpha=.05$.

^eClinical High Depressed and Clinical Low Depressed means differ at $F_{Dunn}(4,54)$, $\alpha=.05$.

**Roy-Bargman Stepdown F-test $p<.001$.

research groups. DES-IV scales were grouped according to placement on the four factors described above with results presented in Table 6. These results indicate a relatively stable percentage of subjects across the three groups rated scales in the Anger/Contempt factor most strongly (20.8% to 34.8% across the groups) with a marked decline in Joy/Loved ratings (79.2%, 38.1%, and 13.0%) and an increase in Dysphoria ratings (0.0%, 23.8%, and 34.8%) with increasing depression. These differences were significant for the samples overall (χ^2 (6, $n=68$) = 24.54, $p < .001$) as well as separately for males (χ^2 (6, $n=33$) = 15.93, $p < .05$) and females (χ^2 (6, $n=35$) = 15.13, $p < .05$). There was no significant gender difference when research groups were collapsed (χ^2 (3, $n=68$) = 3.98, n.s.) or within any of the three groups.

Summary. Results from the DES-IV and the CDI were used to address the question of what emotions are experienced prominently by depressed young adolescents. Dependence among individual DES-IV emotion scales, reflected in numerous high inter-correlations, was decreased through a principal components factor analysis with oblique rotation. Four unique factors emerged: Dysphoria, Surprise, Anger/Contempt, and Joy/Loved. Dysphoria increased with depression level and Joy/Loved scores decreased. Anger/Contempt scores were equivalent across depression levels. There were no significant

Table 6. Percentage of Emotion Factor Scores (DES) Endorsed Most Strongly by Research Group Jointly and by Gender

Research Group	n	<u>Factor</u>			
		1 Dysphoria	2 Surprise	3 Anger	4 Joy/Loved
Non-clinical					
Male	10 ^a	0.0	0.0	0.0	100.0
Female	12 ^b	0.0	0.0	38.5	61.5
Overall	22 ^c	0.0	0.0	20.8	79.2
Clinical Low Depressed					
Male	13	28.6	0.0	21.4	35.7
Female	6	14.3	0.0	28.6	42.9
Overall	19	23.8	0.0	23.8	38.1
Clinical High Depressed					
Male	7	12.5	0.0	37.5	25.0
Female	13	46.7	0.0	33.3	6.7
Overall	20	34.8	0.0	34.8	13.0

Note: 1) When two categories endorsed equally strongly .5 was added to each category. 2) Some percentages do not sum to 100 due to an "other" category, including Disgust, Guilt, and Detached, not presented here.

^a $\chi^2(6, n = 33) = 15.93, p < .05$ across research groups.

^b $\chi^2(6, n = 35) = 15.13, p < .05$ across research groups.

^c $\chi^2(6, n = 68) = 24.54, p < .001$ across research groups.

gender effects. Thus, depressed young adolescent boys and girls more often feel a combination of dysphoric emotions, notably shyness, shame, fear, inward hostility, and sadness and less often feel joyful, loved, and interested than do their non-depressed counterparts.

Emotional State and Non-Verbal Emotional Expression

Emotional state and non-verbal emotional expression, both immediate affective reactions, were considered a complement to the study of ongoing emotional disposition and thus were examined as well.

Self-reported Emotional State

Whereas the DES-IV assesses ongoing emotional disposition or mood, the emotion ratings made by subjects following the viewing of each mood induction film clip are immediate, reflecting emotional state, and indicate inclinations to respond to environmental events with particular emotional biases. These biases are considered a second component of the emotional experience associated with depression, one that might have important bearing on the way depressed adolescents interact with their social environment.

Subjects were asked to rate both the emotion they experienced while watching the film, choosing among happy,

sad, angry, and scared, and the intensity with which they experienced that emotion in this mood induction procedure. Intensity ratings were made on a five-point Likert-type scale. Results were analyzed in terms of the overall examination of whether differences were more likely to occur under particular induction (sadness, anger, fear, joy) conditions.

A research group X gender multivariate analysis of variance of the frequency of emotion adjectives chosen, once again with socioeconomic status controlled as a covariate, was used to assess overall bias across induction conditions. These results are presented in Table 7. There is a significant difference in the multivariate gender effect (Pillai's Trace $F_{4,51} = 2.72$, $p < .05$), attributable only to a significant univariate effect for Joy ratings ($F_{4,51} = 10.86$, $p < .01$). Thus, adolescent boys across depression levels were inclined to react more happily than adolescent girls to the mood induction conditions, with mean joy ratings of 2.43 and 1.58 respectively (see Table 8). There was no significant effect for depression level, defined in terms of group status, nor a group X gender interaction. A similar 3 X 2 multivariate analysis of variance was conducted for the mean intensity of each emotion choice, and there was no significant group (Pillai's Trace $F_{8,104} = 1.08$, n.s.),

Table 7. Multivariate Analysis of Self-Report of Emotional State Across Seven Video Mood Induction Segments by Research Group and Gender Adjusted for Socioeconomic Status

Source	<u>df</u>	Hypothesis <u>MS</u>	Error <u>MS</u>	<u>F</u>
Mean ^a	4, 51			331.28 ^{**}
Group ^a	8, 104			0.77
<u>b</u> Joy	2, 54	0.55	0.81	0.67
Anger	2, 53	0.91	0.76	1.20
Fear	2, 52	0.04	0.18	0.22
Sadness	2, 51	0.11	0.11	1.02
Gender ^a	4, 51			2.72 ^t
<u>b</u> Joy	2, 54	8.83	0.81	10.86 [*]
Anger	2, 53	0.08	0.76	0.10
Fear	2, 52	0.05	0.18	0.29
Sadness	2, 51	0.01	0.11	0.11
Group by Gender ^a	8, 104			0.49
Error ^a	4, 51			0.42

^aPillai's Trace used to test multivariate differences.

^bRoy-Bargman Stepdown F used to test univariate differences.

^tp < .05.

* p < .01.

** p < .001.

Table 8. Mean Frequency Self-Report of Emotional State Across Seven Video Mood Induction Segments by Research Group^a and Gender^b Adjusted for Socioeconomic Status

Research Group	Sadness		Anger		Emotion Fear		Joy ^c	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Non-clinical								
Male	1.95	0.63	1.79	0.92	0.96	0.57	2.25	0.70
Female	2.24	0.29	1.82	0.39	1.23	0.39	1.76	0.52
Overall	2.09	0.49	1.72	0.66	1.09	0.49	2.09	0.64
Clinical Low Depressed								
Male	1.80	0.90	1.62	0.65	0.75	0.44	2.58	1.45
Female	2.16	0.41	1.83	0.41	1.16	0.41	1.84	0.41
Overall	1.92	0.78	1.71	0.58	0.89	0.46	2.33	1.25
Clinical High Depressed								
Male	1.56	0.49	1.87	0.38	0.94	0.58	2.44	0.49
Female	1.60	0.86	3.00	1.92	0.96	0.71	1.25	0.90
Overall	1.59	0.73	2.68	1.64	0.97	0.65	1.58	0.95
Males								
Overall	1.80	0.71	1.73	0.69	0.87	0.51	2.45	1.04
Females								
Overall	1.94	0.63	2.32	1.38	1.10	0.54	1.57	0.77

^aMultivariate Analysis of Variance (Pillai's Trace)

$F(8, 104) = 0.77$, n.s., for research group.

^bMultivariate Analysis of Variance (Pillai's Trace)

$F(4, 51) = 2.72$, $p < .05$, for gender.

^cMultivariate Analysis of Variance (Roy-Bargman Step-down)

$F(2, 54) = 10.86$, $p < .01$ for gender difference of Joy scores.

gender (Pillai's Trace $F_{4,51} = 1.44$, n.s.), or group X gender (Pillai's Trace $F_{8,104} = 1.01$, n.s.) effect.

An exploration of the emotion choices made separately under each of the four types of induction conditions, i.e. sadness, anger, fear and joy, allows for finer examination of the data. These data are presented in Table 9. A qualitative method of analysis, chi-square, was used rather than analysis of variance due to the high degree of dependence between the emotion variables and a high frequency of zero cell variances (46 of 96 cells).

The predilection of males to react more happily was most pronounced in response to joy and anger mood induction. Regarding joy conditions, 97% of the males reported feeling happy while only 77% of females did so (χ^2 (3, $n = 121$) = 10.61, $p < .05$); the remaining females reported that they felt angry (9.7%), afraid (9.7%) and sad (3.2%). Under anger induction 15% of the males reported that they felt happy while only 2% of the females did so (χ^2 (3, $n = 113$) = 7.66, $p < .10$). The gender difference was not evident for either the sadness (χ^2 (3, $n = 39$) = 5.54, n.s.) or fear (Fisher's Exact Test ($n = 18$) = .59, n.s.) mood induction conditions. The Fisher's Exact Test was used in place of chi-square in this last analysis as it gives more accurate results with the 2 X 2 table (Hays, 1981) that was generated for the fear analysis.

Table 9. Percentage of Emotional State Self-Ratings by Gender and Research Group Separately for Sadness, Anger, Fear, and Joy Video Mood Induction Segments

Gender	<u>Emotion Self-Rating</u>			
	Sadness	Anger	Fear	Joy
Sadness Video Segments (\underline{n} = 121 Ratings) ^a				
Males Overall	85.0	3.3	1.7	10.0
Non Clinical	85.0	10.0	0.0	5.0
Clinical Lo-D ^b	84.6	0.0	0.0	15.4
Clinical Hi-D ^c	85.7	0.0	7.1	7.1
Females Overall	88.5	9.8	1.6	0.0
Non Clinical	100.0	0.0	0.0	0.0
Clinical Lo-D	100.0	0.0	0.0	0.0
Clinical Hi-D	72.0	24.0	4.0	0.0
Anger Video Segments (\underline{n} = 113 Ratings) ^d				
Males Overall	3.3	80.0	1.7	15.0
Non Clinical	5.0	75.0	0.0	20.0
Clinical Lo-D	3.8	80.8	0.0	15.4
Clinical Hi-D	0.0	85.7	7.1	7.1
Females Overall	7.5	90.6	0.0	1.9
Non Clinical	4.2	91.7	0.0	4.2
Clinical Lo-D	8.3	91.7	0.0	0.0
Clinical Hi-D	11.8	88.2	0.0	0.0
Continued, next page.				

^a χ^2 (3, \underline{N} = 121) = 8.08, $p < .05$.

^bClinical Low Depressed ^cClinical High Depressed

^d χ^2 (3, \underline{N} = 113) = 7.66, $p < .10$.

Table 9 (continued).

Gender	Emotion Self-Rating			Joy
	Sadness	Anger	Fear	
Fear Video Segments (\underline{n} = 56 Ratings)				
Males Overall	0.0	7.7	88.5	3.8
Non Clinical	0.0	11.1	88.9	0.0
Clinical Lo-D	0.0	0.0	90.9	9.1
Clinical Hi-D	0.0	16.7	83.3	0.0
Females Overall	0.0	10.0	90.0	0.0
Non Clinical	0.0	0.0	100.0	0.0
Clinical Lo-D	0.0	0.0	100.0	0.0
Clinical Hi-D	0.0	25.0	75.0	0.0
Joy Video Segments (\underline{n} = 121 Ratings) ^e				
Males Overall	1.7	0.0	1.7	96.6
Non Clinical	0.0	0.0	5.0	95.0
Clinical Lo-D	4.0	0.0	0.0	96.0
Clinical Hi-D	0.0	0.0	0.0	100.0
Females Overall	3.2	9.7	9.7	77.4
Non Clinical	0.0	0.0	8.3	91.7
Clinical Lo-D	0.0	0.0	8.3	91.7
Clinical Hi-D	7.7	23.1	11.5	57.7

^a χ^2 (3, \underline{N} = 121) = 8.08, $p < .05$.

^bClinical Low Depressed ^cClinical High Depressed

^d χ^2 (3, \underline{N} = 113) = 7.66, $p < .10$.

^e χ^2 (3, \underline{N} = 121) = 10.61, $p < .05$.

Summary. There was no significant relationship between depression level and self-report of immediate emotional state in response to a video mood induction procedure. There were, however, differences related to gender as adolescent boys across assessed depression levels were inclined to respond to environmental events, specifically joy and anger mood induction conditions, more happily than adolescent girls.

Non-verbal Expression of Emotion

An analysis of subjects' emotion-related facial expressions, recorded as they watched the mood induction films, was used to address the study's second question, i.e. concerning the non-verbal emotional expressiveness of depressed adolescents. The mean seconds of facial expression for each AFFEX coding system emotion category, as well as the sum for all negative emotions² and the sum for combined positive and negative emotional expressions³, are presented by research group in Table 10 and by gender in Table 11.

2 As noted in the Methods section, all negative emotions were combined into one category to enhance reliability. The identification of those emotions to be considered negative was consistent with the findings of Russell and Ridgeway's (1983) factor analytic study of emotion concepts.

3 This variable represents the sum of all emotion codes other than Interest, as Interest is a default code used when no other emotion is expressed in the AFFEX system.

Table 10. Mean Seconds of Emotional Facial Expressions (AFFEX) Across Seven Video Mood Induction Segments by Research Group

Emotion	Group					
	Non-Clinical ^a		Clinical Low Depressed ^b		Clinical High Depressed ^c	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Joy	11.0	9.4	7.9	6.2	5.8	5.1
Sadness	0.4	2.1	2.2	4.3	2.7	6.7
Disgust	1.0	0.0	0.0	0.5	0.7	3.3
Anger	0.4	0.0	0.2	0.8	0.8	3.1
Fear	-0.1	0.0	0.0	0.0	0.5	1.8
Contempt	0.1	0.2	0.0	0.0	0.0	0.0
Distress	0.0	0.0	0.1	0.2	0.0	0.0
Anger/Sadness Blend	0.1	0.3	0.1	0.3	0.0	0.0
Sum Negative	1.9	2.2	2.6	4.9	4.8	11.7
Surprise	0.0	0.2	0.5	0.8	0.4	0.6
Sum						
Non-Interest	12.8	9.9	11.0	9.5	10.9	11.1
Interest	57.0	9.9	58.8	9.8	57.9	11.2

Note. All means are adjusted for socioeconomic status.
^a $\bar{n}=21$. ^b $\bar{n}=19$. ^c $\bar{n}=18$.

Table 11. Mean Seconds of Emotional Facial Expressions (AFFEX) Across Seven Video Mood Induction Segments by Gender

Emotion	Male ^a		Female ^b	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Joy	9.5	8.3	7.3	6.7
Sadness	0.6	2.2	2.8	6.1
Disgust	0.0	0.2	1.1	3.3
Anger	0.4	2.0	0.5	1.8
Fear	0.0	0.0	0.3	1.5
Contempt	0.0	0.0	0.0	0.2
Distress	0.0	0.0	0.0	0.2
Anger/Sadness Blend	0.0	0.2	0.1	0.3
Sum Negative	1.1	3.1	4.8	9.7
Surprise	0.1	0.5	0.4	0.7
Sum Non-Interest	10.7	9.7	12.5	12.4
Interest	59.1	9.7	56.8	12.4

Note. All means are adjusted for socioeconomic status.
^an=28. ^bn=30.

Contrary to predictions of "blunted" affect among depressed subjects, there was virtually no difference in the total frequency of emotional facial expressions among the three groups, with means of 12.8, 11.0, and 10.9 for the Non-Clinical, Clinical Low Depressed, and Clinical High Depressed groups respectively. There was a progressive increase in negative emotion facial expressions with increasing depression level (\bar{M} s = 1.9, 2.6, and 4.8 for the three research groups), and a corresponding decrease in joy facial expressions (\bar{M} s = 11.0, 7.9, and 5.8 respectively). Consonant with the findings on self-report of emotional state presented above, males overall showed a higher frequency of joy expressions ($M = 9.5$, female $M = 7.3$) and females a higher frequency of negative expressions ($M = 4.8$, male $M = 1.1$). While all of these relationships were in the expected direction, none was significant statistically when tested as separate between-subjects factors in a multivariate analysis of variance. However, when the joy and sum-negative variables were considered concurrently in a single repeated measures design, highly significant relationships emerged. These relationships are presented in Table 12 and illustrated in Figure 1.

The significant research group X expression within-subjects interaction ($F_{2,52} = 5.29$, $p < .01$) objectifies the findings presented above that negative emotion facial

Table 12. Repeated Measures Multivariate Analysis of Variance for Positive and Negative Facial Expression of Emotion (AFFEX) Controlling for Socioeconomic Status

<u>Source</u>	<u>df</u>	<u>MS</u>	<u>F</u>
Between Subjects			
Mean	1, 51	382.50	5.76*
Group	2, 51	17.53	0.26
Gender	1, 51	31.70	0.48
Group by Gender	2, 51	48.19	0.73
Regression	1, 51	13.47	0.20
Error	51	66.35	
Within Subjects			
Expression	1, 52	774.92	18.60***
Group by Expression	2, 52	220.43	5.29**
Gender by Expression	1, 52	156.33	3.75 ^t
Group by Gender by Expression	2, 52	7.66	0.18
Error	52	41.66	

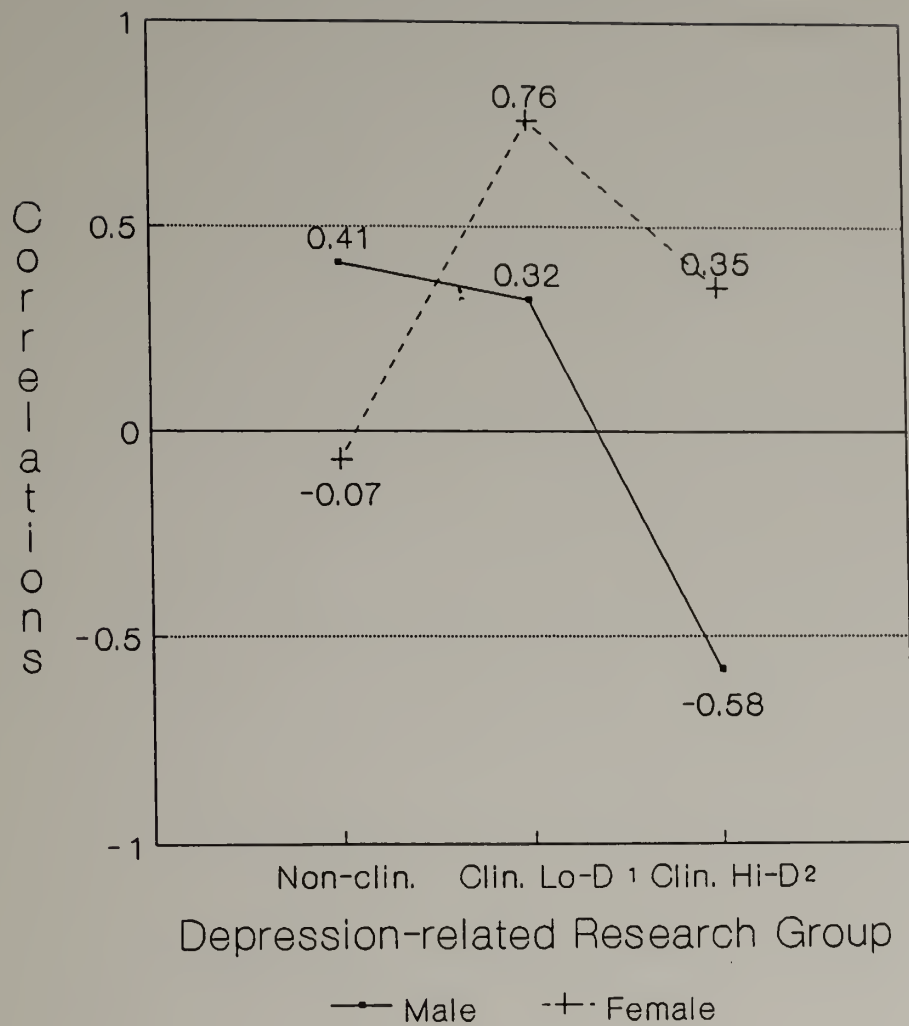
Note: $N = 58$.

^t $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.



[1] Clinical Low Depressed
 [2] Clinical High Depressed

Figure 1. Mean Seconds of Emotional Facial Expressions (AFFEX) Across Seven Video Mood Induction Segments by Depression-related Research Group

expressions increased and joyful facial expressions decreased with increasing depression. Notably, a gender X expression trend ($F_{1,52} = 3.75, p < .10$), attributable largely to increased negative facial expressions for females, particularly depressed females, remains even when depression-related group effects are partialled out. Thus, depressed subjects showed more frequent negative emotion facial expressions and less frequent joy facial expressions, and, additionally, females overall were more likely to show negative emotions while males overall were more likely to show joy.

Summary. Facial expressions of emotion were recorded during the video mood induction procedure using the AFFEX coding system. There was no evidence of "blunted" affect among more depressed subjects; the overall frequency of facial expressions of emotion did not vary with depression level. However, there was a significant increase in negative emotional facial expressions with increasing depression and a concomitant decrease in joyful facial expressions with increasing depression. There were gender effects as well, as females more often expressed negative emotions and males more often expressed joy. Gender differences were additional to the depression effects.

Associations Between Emotional State and Emotional Expressiveness

Ratings of emotional state made by subjects while watching the mood induction films together with simultaneous recording of emotion-related facial expressions made possible consideration of the third question posed in the study, i.e. concerning the relationship between emotional experience and emotional expression. As an initial analysis, product-moment correlations were computed between self-reported emotional states and emotional facial expressions. Emotional state was defined as the frequency of ratings within each of the four emotion choices and emotional expression was defined in terms of the number of seconds each emotion is expressed, both summed across the mood induction segments. There was a significant positive association between self-reports of anger and negative emotional expression ($r = .31, p < .01$) and a significant negative association between self-reports of joy and negative emotional expressions ($r = -.35, p < .01$). There was no significant association between joy expressions and any of the self-reported emotional states.

Summary variables were computed for emotional expression and emotional state separately in order to examine the ways in which the association between expression and experience might vary with depression level

and gender. As regards emotional expression, this variable was computed for each subject in terms of the frequency of joy expressions minus the sum frequency of negative emotion expressions. The emotional state variable was computed in terms of the product of three times the frequency of joy ratings minus the frequencies of sadness, anger and fear ratings. Thus, both variables are measures of positiveness within their respective domains. The correlations between these summary variables are presented for the total sample in Table 13 and separately by research group and gender categories in Table 14. It is notable that whereas several of these correlations are substantive, few reach statistical significance. This is due primarily to the small sample size in some cells, six of which are less than 15.

The strength of association between emotional state and emotional expression did not differ as a function of depression level, with a range across the three groups of {.30 to .38} and an overall $\underline{r} = .38$ ($p < .01$). The association was stronger for females ($\underline{r} = .40$) than for males ($\underline{r} = .20$), though this difference was not significant when tested through a group X gender analysis of variance (see Table 15). This analysis was conducted by computing a score representing the strength of association between emotional state and emotional expression for each subject. This score was computed

Table 13. Correlations Between Emotional State and Emotional Expressions (AFFEX) in Response to Video Mood Induction

Emotional State	<u>Emotional Expression</u>		
	Joy	Sum Negative	Combined ^a
Sadness	.02	.02	.00
Anger	-.17	.31*	-.35**
Fear	.05	-.01	.05
Joy	.17	-.35**	.38**
Combined ^b	.16	-.35**	.38**

Note: N = 58

^aThe combined expression score = joy - sum negative.

^bThe combined state score = 3 * joy - (sadness + anger + fear).

** p < .01.

Table 14. Correlations Between Emotional State and Emotional Expressions (AFFEX) Summary Variables by Research Group and Gender

Gender	<u>Group</u>			Overall
	Non-clinical ^a	Clinical Low Depressed ^b	Clinical High Depressed ^c	
Male ^d	.41	.32	-.58	.20
Female ^e	-.07	.76*	.35	.40*
Overall	.30	.37	.38	.38**

^a $n = 21$. ^b $n = 18$. ^c $n = 19$. ^d $n = 28$. ^e $n = 30$.
^{*} $p < .05$. ^{**} $p < .01$.

Table 15. Multivariate Analysis of Variance for Individual Product-Moment Correlation Emotional State-Expressiveness Scores^a By Research Group and Gender Controlling for Socioeconomic Status

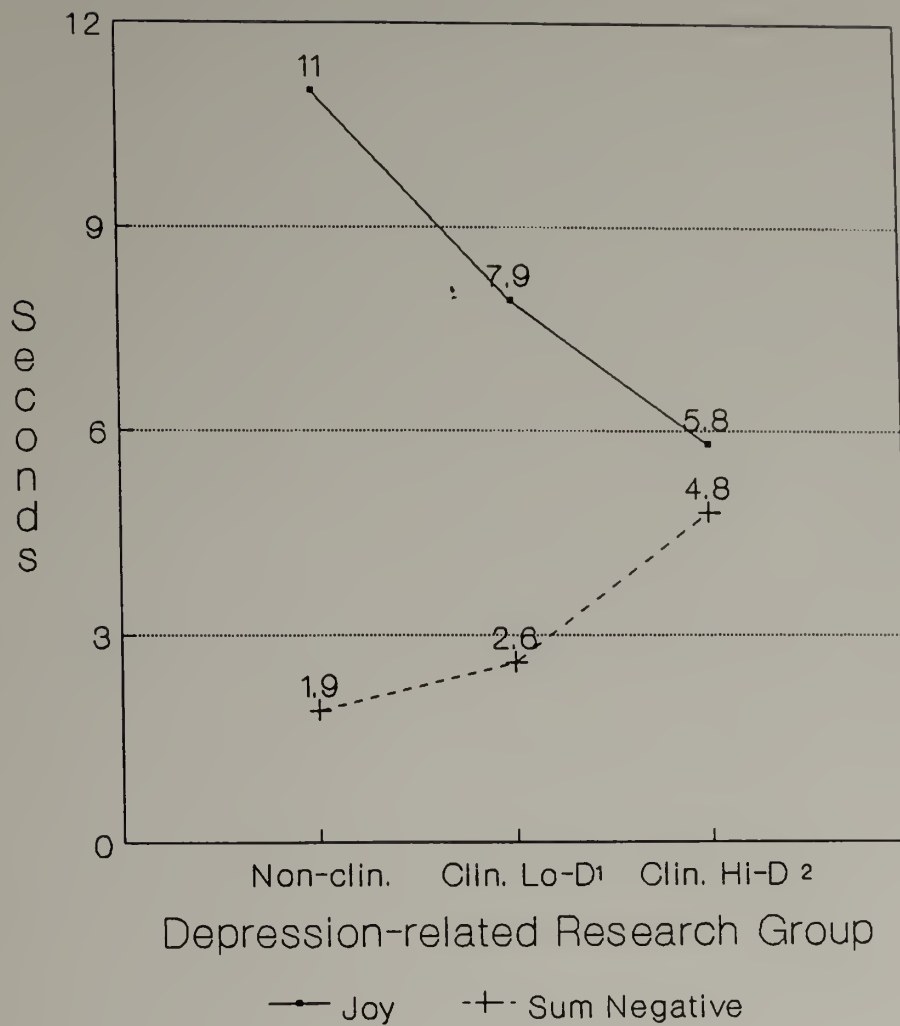
Source	df	Hypothesis	
		MS	F
Mean	1, 51	2.47	2.09
Research Group	2, 51	0.18	0.15
Gender	1, 51	0.39	0.33
Group by Gender	2, 51	3.62	3.07 ^t
Error ^a	51	1.18	

Note: $N = 58$.

^aThe combined State-Expressiveness score was computed for each \underline{S} according to the formula: $(\underline{x}_i - \underline{M}_x)(\underline{y}_j - \underline{M}_y) / \underline{S}_x \underline{S}_y$.

^t $p = .055$.

according to the formula $(x_i - M_x)(y_j - M_y) / S_x S_y$. The average of these scores equals the product moment correlation, $\sum_i \sum_j (x_i - M_x)(y_j - M_y) / NS_x S_y$. Thus, each score represents an individual subject's contribution to the overall product moment correlation and is amenable to investigation via analysis of variance (R.S. Bogartz, personal communication, Aug. 23, 1990). As can be seen in Table 15, the depression-related research group and gender effects are not significant in this test of the manner in which the relationship between emotional state and expression varies with depression level. However, the group X gender interaction nears significance ($p = .055$). This interaction is illustrated in Figure 2. Notably, the association between state and expression is positive and moderate for Non-Clinical and Clinical Low Depressed males, while it is negative and strong for Clinical High Depressed males. Non-Clinical and Clinical Low Depressed males appeared and reported feeling joyful at commensurate levels. Comparatively, Clinical High Depressed males reported feeling more joyful than others in the sample ($M_{\text{High Depressed}} = 2.29$, $M_{\text{Overall}} = 1.12$) yet their expression was more negative ($M_{\text{High Depressed}} = 4.17$, $M_{\text{Overall}} = 5.34$). There is virtually no association for Non-Clinical females, and strongly and moderately positive association for Clinical Low Depressed and Clinical High Depressed females respectively. These findings suggest a disjunction



[1]Clinical Low Depressed
 [2]Clinical High Depressed

Figure 2. Correlations Between Emotional State and Emotional Expression by Depression-Related Research Group.

in the experience--expression relationships for adolescent boys with a high depression level and adolescent girls with a low depression level.

Summary. The relationship between emotional experience and non-verbal expression of emotion, as well as the way in which that relationship varies with depression level, constituted the third question posed in the study. There were significant associations between self-report of emotional state and emotional facial expression, most notably a positive correlation between self-reported anger and negative emotional expression and a negative correlation between self-reported joy and negative facial expression. The results of a multivariate analysis of variance indicated that the strength of the state--expression association did not vary across depression level or gender. However, there was a depression level X gender interaction, evidenced in a positive association between state and expression in Non-Clinical and Clinical Low Depressed males, and a negative association in Clinical High Depressed males. The males in this latter group reported feeling more joyful than others in the sample yet their expression was more negative. In contrast, there was virtually no association between emotional state and expression among Non-Clinical females, and moderately strong positive associations for females in the two clinical groups. These findings

suggest a disjunction in the experience--expression relationships for adolescent boys with a high depression level and adolescent girls with a low depression level.

Emotions and Depression within the Clinical Sample

Prior studies on the experience and expression of emotion have been limited either to clinical (Blumberg, 1986; Izard, 1972) or non-clinical samples (cf. Blumberg & Izard, 1985, 1986; Marshall & Izard, 1972), with none comparing the two. While these single sample designs are constrained in regards to the extent to which results can be generalized, they are amenable to analysis via dimensional predictive methods, such as multiple regression. Such analyses are pursued here with the combined low and high depression clinical sample in order to facilitate comparison with the prior studies. Analyses confined to the clinical sample provide an additional benefit, in that they permit a finer examination of the emotional experience associated with severe depression, as the mean CDI score within this sample was 15.3 ($SD = 8.5$), which exceeds the cut-off for depressive disorder.

Along these lines, stepwise multiple regression of DES-IV factor scores and of individual DES-IV scales were conducted with the combined clinical sample and are presented in Table 16. It is notable that neither of the

Table 16. Hierarchical Regression: Self-Reported Emotions (DES), by Factor Scores and Discrete Emotions, for the Combined Clinical Groups

1. Self-Reported Emotion Factor Scores, Socioeconomic Status, and Gender Predict Self-Reported Depression.

Adjusted Multiple $R^2 = .57$, $F(2,36) = 25.78$, $p < .001$

<u>Hierarchy Added</u>	<u>Beta</u>	<u>Percent Variance</u>
Factor 1 (Dysphoria)	.59	51.1
Factor 2 (Surprise)	--a	--
Factor 3 (Anger/Contempt)	--	--
Factor 4 (Joy/Loved)	-.29	5.5
Socioeconomic Status	--	--
Overall Symptomatology (CBCL)	--	--
Gender	--	--

Continued, next page.

Table 16 (continued).

2. Self-Reported Discrete Emotions, Socioeconomic Status, and Gender Predict Self-Reported Depression.

Adjusted Multiple $R^2 = .71$, $F(4,34) = 24.45$, $p < .001$

<u>Hierarchy Added</u>	<u>Beta</u>	<u>Percent Variance</u>
Interest	--	--
Joy	--	--
Surprise	--	--
Sadness	--	--
Anger	--	--
Disgust	--	--
Contempt	-.25	5.8
Inward Hostility	.40	48.9
Fear	--	--
Shame	.39	7.1
Shyness	--	--
Guilt	--	--
Loved	-.34	9.3
Detached	--	--
Socioeconomic Status	--	--
Overall Symptomatology (CBCL)	--	--
Gender	--	--

^avariables with a tolerance $p < .05$ are excluded from the model.

two measures of cognitive functioning available for clinical subjects, a measure of intelligence (Wechsler Intelligence Scale for Children-Revised) and a measure of receptive language (Peabody Picture Vocabulary Test-Revised), were significant predictors of depression in the regression model. The product-moment correlations between the CDI score and these measures were $-.22$ and $-.18$ respectively.

Depression and Discrete Emotions

In a model which tested the four DES-IV emotion factor scores with socioeconomic status, overall symptomatology defined by the CBCL, and gender, Factor 1 (Dysphoria) accounted for slightly more than 50% of CDI depression variance and Factor 4 (Joy/Loved) accounted for an additional small (5.5%) though significant portion of the variance. Socioeconomic status and overall symptomatology, both of which were tested in the model alone before the emotion factor scores were added, as well as gender were not significant predictors of depression at a tolerance level of $.05$. The DES-IV factor score model accounted for 57% of CDI depression variance overall.

Substantially more of the CDI depression variance, 71%, was explained when individual DES-IV scales were entered into the regression model rather than the factor scores. While such analyses do not fully take into

account the dependence between DES-IV discrete emotions scales (see Table 2, the variance shared among scales is accounted for in stepwise regression and a more specific level of analysis is obtained. The significant predictors of depression, along with the percentage of depression variance each explained, were as follows: Inward Hostility (48.9%), Loved (supression; 9.3%), Shame (7.1%), and the absence of Contempt (supression; 5.8%).

Gender Differences. While gender did not emerge as a significant predictor of depression in the overall regression model, there were significant gender differences in both the identification and patterning of emotions when regression models were fit separately for males and females. These differences are presented in Tables 17 and 18.

First, overall predictability was far greater for females than for males. For males, a model incorporating the four DES-IV factors and socioeconomic status explained none of the depression variance and a model incorporating the individual DES-IV scales and socioeconomic status explained only 17%, all associated with the Disgust scale. The comparable figures for females were 85% and 91%. Considering the factor scores as predictors for females, Factor 1 (Dysphoria) explained 78.7% of total variance whereas Factor 4 (Joy/Loved) exerted a supression effect in explaining an additional 6.1%. Among the DES-IV

Table 17. Hierarchical Regression: Attenuated Trait Self-Reported Discrete Emotions (DES) for the Combined Clinical Groups, Analyzing Males and Females Separately

1. Males Only: Self-Reported Emotion Factor Scores and Socioeconomic Status Predict Self-Reported Depression.

Adjusted Multiple $R^2 = .00$, F is undefined.

<u>Hierarchy</u> <u>Added</u>	<u>Beta</u>	<u>Percent</u> <u>Variance</u>
Factor 1 (Dysphoria)	-- ^a	--
Factor 2 (Surprise)	--	--
Factor 3 (Anger/Contempt)	--	--
Factor 4 (Joy/Loved)	--	--
Socioeconomic Status	--	--

2. Females Only: Self-Reported Emotion Factor Scores and Socioeconomic Status Predict Self-Reported Depression.

Adjusted Multiple $R^2 = .85$, $F_{(2,16)} = 51.13$, $p < .0001$

<u>Hierarchy</u> <u>Added</u>	<u>Beta</u>	<u>Percent</u> <u>Variance</u>
Factor 1 (Dysphoria)	.72	78.7
Factor 2 (Surprise)	-- ^a	--
Factor 3 (Anger/Contempt)	--	--
Factor 4 (Joy/Loved)	-.31	6.1
Socioeconomic Status	--	--

^avariables with a tolerance $p < .05$ are excluded from the model.

Table 18. Hierarchical Regression: Factor Score Attenuated Trait Self-Reported Emotions (DES) for the Combined Clinical Groups, Analyzing Males and Females Separately

1. Males Only: Self-Reported Discrete Emotions and Socioeconomic Status Predict Self-Reported Depression.

Adjusted Multiple $R^2 = .17$, $F_{(1,18)} = 4.77$, $p < .05$

<u>Hierarchy</u> <u>Added</u>	<u>Beta</u>	<u>Percent</u> <u>Variance</u>
Interest	-- ^a	--
Joy	--	--
Surprise	--	--
Sadness	--	--
Anger	--	--
Disgust	.46	16.6
Contempt	--	--
Inward Hostility	--	--
Fear	--	--
Shame	--	--
Shyness	--	--
Guilt	--	--
Loved	--	--
Detached	--	--
Socioeconomic Status	--	--

Continued, next page.

Table 18 (continued).

2. Females Only: Self-Reported Discrete Emotions and Socioeconomic Status Predict Self-Reported Depression.

Adjusted Multiple $R^2 = .91$, $F(3,15) = 58.28$, $p < .0001$

<u>Hierarchy Added</u>	<u>Beta</u>	<u>Percent Variance</u>
Interest	-- ^a	--
Joy	-.37	7.0
Surprise	--	--
Sadness	--	--
Anger	--	--
Disgust	--	--
Contempt	--	--
Inward Hostility	.28	66.5
Fear	--	--
Shame	.55	17.0
Shyness	--	--
Guilt	--	--
Loved	--	--
Detached	--	--
Socioeconomic Status	--	--

^avariables with a tolerance $p < .05$ are excluded from the model.

individual scales, Inward Hostility was the strongest predictor for females (66.5% of variance), as it was for the total clinical sample, followed by Shame (17.0%) and the absence of Joy (suppression; 7.0%). Notably sadness, found to be the strongest predictor in clinical samples of children (Blumberg, 1986) and adults (Marshall & Izard, 1972), showed no unique association with depression in the current regression analysis once the influence of stronger correlates was partialled out.

Rating of Peak Emotion When Depressed

One additional procedure was used to assess the emotional experience of clinically depressed adolescents. Subjects in the combined clinical sample were asked to identify that emotion, based on statements derived from the DES-IV, which they feel most intensely when they are depressed. They were asked to make this rating specifically in regards to times in which they feel depressed, and not necessarily in respect to the current moment. Thus, the ratings are intended to reflect the subjects' concepts of the emotional experience of depression, rather than any current experience. These results are presented by low depressed versus high depressed status in Table 19.

Among those in the Clinical Low Depressed group, nearly half (47.4%) chose Sadness while an equal number

Table 19. Percent Highest Rated Discrete Emotion When Depressed by Depression Level^a and Gender^{b,c} for the Clinical Groups

Emotion	<u>Depression Level</u>					
	Clinical Low Depressed			Clinical High Depressed		
	Male	Female	Overall	Male	Female	Overall
Sadness	38.5	66.7	47.4	0.0	7.7	5.0
Fear	0.0	0.0	0.0	0.0	23.1	15.0
Inward Hostility	0.0	0.0	0.0	0.0	23.1	15.0
Surprise	7.7	0.0	5.3	0.0	0.0	0.0
Anger	53.8	33.3	47.4	71.4	15.4	35.0
Detached	0.0	0.0	0.0	28.6	15.4	20.0
Guilt	0.0	0.0	0.0	0.0	15.4	10.0

^a χ^2 (6, N = 39) = 19.64, $p < .10$ for overall differences between depression levels.

^b χ^2 (3, N = 20) = 7.18, $p < .10$ for differences between depression levels among males.

^c χ^2 (5, N = 19) = 10.67, $p < .10$ for differences between depression levels among females.

chose Anger. The pattern was quite different in the Clinical High Depressed group, suggesting a different experience of depression for these subjects. Slightly more than one third of the Clinical High Depressed group chose Anger, while 20% chose feeling emotionally Detached, 15% each chose Inward Hostility and Fear, 10% chose Guilt, and only 5% chose Sadness. The differences between groups was highly significant ($\chi^2 = 19.64, 6 \text{ df}, n=39, p<.01$). There also were gender trends within the High Depressed group. High Depressed females were more likely to identify Fear and Inward Hostility whereas High Depressed males were more likely to identify Anger and Detachment, with the associations approaching statistical significance ($\chi^2 = 9.32, 5 \text{ df}, n=20, p<.10$).

Summary. Multiple regression analyses in which DES-IV emotion experience scales predicted CDI depression scores were conducted with the combined clinical sample to facilitate comparison with prior studies. Inward Hostility, Shame, not feeling Loved, and not feeling Contempt were all significant predictors of depression for the combined clinical sample. Predictability was greater for females than for males. Among females, two of the DES-IV factors, Dysphoria and Joy/Loved (supression), were significant predictors of depression as were three individual DES-IV scales. These were Inward Hostility, Shame, and Joy (supression). None of the factor scores

predicted depression for males, while only one DES-IV scale, Disgust, accounting for only 17% of depression variance, did so.

Subjects in the combined clinical sample were also asked to identify that emotion which they feel most intensely when they are depressed. The pattern differed for the Low Depressed and the High Depressed groups. Equal large portions of the Low Depressed group reported that sadness or anger are the emotions they feel most strongly when depressed, whereas in the High Depressed group the comparable emotions were Anger, Detachment, Inward Hostility, and Fear. High Depressed females more often identified Fear and Inward Hostility and High Depressed males more often identified Anger and Detachment. These results suggest that an individuals' concepts regarding what it is they feel when they are depressed differ with depression level.

CHAPTER IV

DISCUSSION

Findings from this study help to explicate both personal and social aspects of the affective life of depressed young adolescents, as emotions serve critical motivational functions in regulating both intrapersonal psychological processes and interpersonal relations. This functional view of emotion comes from the tradition of ethology (cf. Bretherton et al., 1986; Campos, Campos & Barrett, 1989; Campos et al., 1983), a perspective that will be applied throughout the discussion.

The study's findings further contain important implications for the treatment of depression in early adolescence as well as for our understanding both of the early adolescent period in general and of the relationship between normality and pathology. It will be argued that the configuration of affective features found in depressed young adolescents is influenced by development in other domains, resulting in emotional proclivities, or specific patterns of emotions that are prominent at this time both in normal and pathological development. These and other issues will be discussed more fully, along with an analysis of the limitations of the current study and suggestions for future research. However, first the specific questions posed in the study will be reviewed in the light of current results with reference also to prior

theoretical observations and empirical evidence. Gender differences will be considered, where appropriate, throughout this review.

Review of Research Questions

Depression and Emotional Experience

The first question posed in the study asked what the emotions that are experienced prominently by depressed young adolescents are. The results of several analyses have bearing on this question. Two emotion experience factors, generated in a factor analysis of DES-IV scales, differentiated the depressed from non-depressed groups. Depressed subjects scored significantly higher on the Dysphoria factor and significantly lower on the Joy/Loved factor. Thus, these depressed adolescents felt more shy, ashamed, afraid, hostile towards themselves, and sad as well as less joyful, loved and interested than their non-depressed counterparts. The depressed subjects also reported being more aware of their emotions, as the Detachment scale loaded negatively on the Joy/Loved factor. Given the prominence of dysphoric emotions, this awareness must be painful.

In order to increase comparability with previous studies on the affective experience of depressed children

and adults, multiple regression, the method of analysis used in the prior studies, was used with the clinical sample in the current study. The same two factors, Dysphoria and Joy/Loved, predicted depression in the overall sample. Individual emotions were entered into a separate regression equation, and Inward Hostility, Loved (supression), Shame, and Contempt (supression) were significant predictors of depression. However, there were important gender differences. None of the emotion factors and only one individual emotion, Disgust, predicted depression for boys, accounting for a very small amount of variance. Both Dysphoria and Joy/Loved predicted depression for girls as did the individual emotions Inward Hostility, Shame and Joy. Furthermore, emotions accounted for more than 90% of the depression variance in the latter analysis, indicating that depression was far more predictable, at least by emotions, in teenage girls than in teenage boys.

One additional gender difference emerged when the highly depressed subjects were asked to identify the emotion they feel most strongly when depressed. Large proportions of the girls chose Fear and Inward Hostility, while large proportions of the boys chose Anger and Detachment. Considering the clinical sample as a whole, low depressed subjects reported that they feel sad or angry, while highly depressed adolescents reported that

they feel angry, detached, hostile towards themselves, or afraid.

Factor Scores and Emotional Cohesiveness. The finding that the Dysphoria and Joy/Loved factors differentiated depressed from non-depressed subjects is, in general terms, consistent with all prior research. The individual emotions that comprised these two factors, with a few notable exceptions that are discussed subsequently, were found to correlate with depression in the expected direction in both clinical and non-clinical samples of all ages. Furthermore, the current list of dysphoric emotions is nearly identical to that proposed by Panksepp (1988) as associated with a "separation--distress--sorrow--anguish--panic" emotive command circuit in the brain, which he contends is the neurophysiological substrate for depressive symptomatology. Panksepp (1988) speculates that early social loss results in over-stimulation of this command circuit, i.e. promoting neuronal proliferation and biochemical "priming" within the circuit, making it highly responsive to any subsequent loss.

These notions of a universal biopsychosocial system based on emotion do not, however, explain the significant gender differences in the Dysphoria and Joy/Loved factors. In the regression analysis performed with the combined clinical sample, neither of these factors predicted depression for males, while they both did for females.

Furthermore, males' depression was far less predictable, in terms of the proportion of depression variance accounted for by emotions, than females' depression. This finding is consistent with those from the one prior study in which such gender differences were considered (Blumberg & Izard, 1985). Gilligan's (1982) and Chodorow's (1978) observations that relationships, and presumably also the loss of relationships as in separation, are more salient for females than for males, may be relevant. If so, females' "separation" command circuit, in Paksepp's (1988) terms, with its associated combination of emotions, is likely to be more reactive in females than in males. Perhaps males' depression is based on some other, as yet unexplicated substrate, or perhaps depression in adolescent males is an emotionally fragmented phenomenon. In a broad and incisive review Nolen-Hoeksema's (1987) argues that gender differences in depression are the result of differences in "response set," i.e. the ways in which one responds to one's moods. She cites empirical evidence from studies done with children, adolescents and adults in asserting that females are more attentive to their depressed moods, resulting in increased intensity and chronicity, whereas males' predominant response to depressed mood is to distract themselves through activity. Thus, the emotional experience of depression in males, even adolescent males, is likely to be less consistent and

less cohesive, or at the least to be described less consistently and less cohesively, than is that in females.

Sadness. The most striking difference that emerges when comparing studies of depression in children and adults with the adolescents assessed in the current study is the unimportance of sadness in the adolescents. Sadness was the peak emotion endorsed by the clinical and non-clinical children and adults, both males and females, in all prior studies (Blumberg, 1986; Blumberg and Izard 1985, 1986; Marshall and Izard, 1972). The lesser prominence of sadness in the current sample is likely due to normal developmental features specific to the adolescent period which are exacerbated in this clinical sample. First, consider the function of sadness. Intrapersonally, sadness is thought to be a "shut-down" reaction which conserves energy, enables the individual to withdraw from the painful loss of a close relationship, and allows time for re-organization of thoughts, feelings, and subsequent activity. Interpersonally, the function of sadness is to elicit comfort from others. Thus, the essence of sadness is a relationship, either as its cause or its antidote (Campos et al., 1989; Izard, 1977).

There is a developmental trend evident in early adolescence in which the emerging teenager turns away from previously close relationships with parents and becomes preoccupied with him- or herself (Schave and Schave,

1989). Numerous studies have found that early adolescence, specifically pubertal changes, initiate a period of temporary disruption in family relationships with increased conflict and decreases in expressions of warmth and involvement (Hill, Holmbeck, Marlow, Green & Lynch, 1985a, 1985b; Steinberg, 1988). This is not to imply that families are unimportant to adolescent development; repeated findings also indicate that depression and other psychiatric disorders evident in adolescence, as well as adolescent ego development, are sensitive to numerous features of the parent-adolescent relationship (Feldman et al., 1988; Garrison et al., 1989; Powers, Hauser & Kilner, 1989). However, early adolescents need relationships with their parents that are different from those in childhood. They need relationships that are supportive yet fully respect the adolescents' autonomy (Hauser et al., 1984; Schave and Schave, 1989), as early adolescents are exquisitely sensitive to any environmental stress (Brooks-Gunn & Warren, 1989; Hauser & Smith, 1990; Schave & Schave, 1989).

Furthermore, it is reasonable to assume that the depressed young adolescents studied currently did not receive the respectful and accepting parental interaction described here. While family relationship variables were absent from the current study, data from a previous study

conducted on the same inpatient psychiatry unit (Garrison et al., 1990), with a presumably comparable sample, found that there was a positive history of substance abuse or psychiatric disorder among parents in 66% of the subjects' families and that 55% of the subjects had been neglected or suffered physical or sexual abuse, almost all by their parents. Thus, in families such as these, the early adolescent's need for supportive acceptance is far from met, leading to resentment and exacerbation of the normal developmental trend of increasing distance from parents. The prominence of an essentially social emotion, sadness, might well be diminished.

Self-directed Hostility. Concurrent with the decreased prominence of sadness in this adolescent sample, at least among girls, is the increased prominence of self-directed hostility. Self-directed hostility was found to be more prominent in this study than, in descending order, a mixed gender non-clinical sample of late adolescents (Marshall & Izard, 1972), a mixed gender clinical sample of adults (Izard, 1972), a non-clinical sample of pre-pubertal girls (Blumberg & Izard, 1985), and a mixed gender child non-clinical sample (Blumberg & Izard, 1986). Self-directed hostility did not emerge as a significant factor in either a clinical childhood (Blumberg, 1986) or the current adolescent sample of boys. Thus it appears that there are two components to the prominence of self-

directed hostility in the current sample: one developmental and one gender-related.

As noted above, early adolescence is thought to be a period of heightened pre-occupation with self, or self-consciousness (Schave & Schave, 1989). Many young adolescents make their way through the world surrounded by what Elkind (1981, 1984) has called an "imaginary audience," heightening their sense of self-importance. In addition, early adolescence is a time of heightened self-criticism (Lowenthal, Thurner & Chiriboga, 1975) as well as a time in which one's own evaluation of self is far more salient than those of others (Reinherz et al., 1989). Self-directed hostility may be an exaggeration, perhaps a distortion, of these normal developmental trends.

An additional, non-developmental factor that might relate to the prominence of self-directed hostility experienced by teenagers in the current sample is the maltreatment they have suffered. Perhaps by adolescence they have internalized the denigrating evaluations of their worth that result from such victimization. If so, then the pain of these self-evaluations is compounded if the depressed young adolescent has not yet achieved the affective developmental milestone that Thompson (1985) terms "reversibility." When an emotion is irreversible, one cannot comprehend that any other emotion could be evoked by the emotion's object. In irreversible self-

directed hostility, the object of the emotion is the self and the depressed adolescent cannot conceive of herself as anything but hateful.

The second component to this explanation for increased self-directed hostility relates to gender. The observation that males express distress outwardly and females express distress inwardly is one of the most common findings in psychopathology research (cf. Achenbach, 1982 ; Ostrov et al., 1989; Turner & Hersen, 1984). Perhaps self-directed hostility is the female equivalent for the increase in conduct problems seen in adolescent boys (cf. Ostrov et al., 1989). Furthermore, if conventional norms permit a more outwards expression of anger and aggression in boys than girls, as suggested in a longitudinal study by Cairns, Cairns, Neckerman, Ferguson, and Garipey (1989), then the depressed and presumably maltreated girls in the current study have nowhere to go but inwards. Taking into account observations made earlier on the increased importance of relationships for girls (cf. Gilligan, 1982) the function of self-directed hostility might be the preservation of relationships at the cost of sacrificing the self. This analysis is similar to that of Lewis (1986).

Shame. Shame, like self-directed hostility, is a punishing self-referential emotion. The intrapersonal function of shame is to contain those thoughts, feelings

and especially tendencies to action that conflict with social norms. Interpersonally, shame engenders submission and conformity, preserving social bonds.

Schave and Schave (1989) contend that shame is the "core affect of early adolescence (p.72)" in that it is the direct outgrowth both of heightened self-criticism and fears of humiliation by the "imaginary audience." In the current study shame was a strong component of the Dysphoria factor that differentiated the depressed from non-depressed groups as well as a significant predictor of depression in the regression analysis performed for girls. It was not a significant predictor in the boys' analysis. In prior studies shame was found to be related to depression in child and adult clinical samples of males and females (Blumberg, 1986; Izard, 1972) but was negligible or absent in non-clinical samples (Blumberg & Izard, 1985, 1986; Marshall & Izard, 1972). Thus, in disagreement with Schave and Schave (1989), the prominence of shame currently appears related more to clinical status than to any adolescent developmental trend. In clinical proportions shame can be debilitating, for one's denigration of self is internalized and relatively impervious to contradiction by others.

The relative absence of shame in the emotional experience of depressed boys in the current study is noteworthy. This may be due to two factors discussed

previously. First there is the tendency in males toward externalizing symptomatology and emotions. When asked what is their strongest emotional experience when depressed males in the current study endorsed anger, a strongly externalizing emotion, and detachment, one which involves separation from internal experience. Contrast these with shame, which is an internalizing, self-absorbed emotion. The second factor is related to the findings that relationships are more important for females than males (cf. Gilligan, 1982). Shame is a social emotion, in the sense that the concern is about others' anticipated judgements about oneself. Guilt is considered the male equivalent of shame (Lewis, 1986), in that guilt involves one's own evaluation of self, and thus is less social. Guilt was similarly unimportant for depressed boys in the current study, which may be due to their generally fragmented emotional experience, as discussed above.

Positive Emotions and Detachment. As noted above, the Joy/Loved factor, comprised of positive loadings for Joy, Loved and Interest and a negative loading for Detachment, differentiated depressed from non-depressed adolescents in the current study. This finding is both intuitive and consistent with all prior studies. The experience of joy and interest has been found to remain stable in the development course of normal adolescents (Kotsch et al., 1982; Larson and Lampman-Petratis, 1989). Perhaps joy

serves as protection from the pain of the negative emotions that typically increase in early adolescence (Kotsch et al., 1982; Sussman et al., 1987).

Unfortunately, not so in the current clinical sample of depressed adolescents.

An interesting finding, and one that contributes methodologically, is that the two new scales added to the DES in the current study, Loved and Detached (supression) loaded on the Joy/Loved factor. Both of these new scales should be considered in future research with the DES. Additional data analyses were performed to examine the salience of individual items on both of these scales to depression. Loved was comprised of three items indicating feelings of being loved by family, "many people," and oneself. The item inter-correlations ranged from .53 to .71, all at $p < .001$. Two of the items, "I feel that I love myself" ($F_{2,52} = 6.87, p < .01$), and "I feel that many people love me" ($F_{2,52} = 3.94, p < .05$), differentiated the depressed from non-depressed groups in univariate research group by gender analyses of variance.

The Detached scale was comprised of the items "I feel empty," "I feel like nothing affects me," and "I feel like I have no feelings." The first of these differentiated the depressed from non-depressed groups in univariate analyses of variance ($F_{2,52} = 5.31, p < .01$) while the second neared significance ($F_{2,52} = 3.02, p < .10$). This

scale was less cohesive than the Loved scale, with item inter-correlations ranging from $-.14$ to $.37$, and warrants further development.

Emotional State. One final set of findings which had bearing on the emotion experience--depression relationship came from subjects' report of their immediate emotional state, stated in response to the mood induction film clips. No depression-related differences were found, though there were gender differences. Thus, depressed subjects were not found to be predisposed to react in particular emotional ways when confronted with affect-laden stimulation. The absence of significant findings here is counter-intuitive, given the strong emotion experience findings reviewed above. It may be that the mood induction procedure, chosen for its ability to evoke the same emotions in broadly differing populations, was simply not sensitive to depression-related differences. Alternatively, it may be that the social interaction inherent in the experimental procedure as well as the fantasy stimulated by the film clips influenced immediate emotional state to such an extent that potential depression-related differences did not emerge. It may, of course, also be possible that intercurrent emotional state is not a strong feature of depression, whereas ongoing mood is.

The significant gender effect in these emotional state findings, in which boys reported themselves to be happier than girls, is consistent with the results of several studies of emotional experience in normal populations (cf. Brody, 1984; Webb & VanDevere, 1985). Nolen-Hoeksema's (1987) notions regarding males' inattention to depressive moods, discussed above, seem pertinent here as well.

Depression and the Nonverbal Expression of Emotion

Inconsistent with common clinical observations of diminished or "blunted" affect in depressed individuals, as well as with some of the prior clinical studies (Gerson and Perlman, 1979; Kazdin et al., 1985; Prkachin et al., 1977), depressed and non-depressed subjects here showed equivalent levels of emotion-related facial expressions overall. The explanation for the difference from prior studies is unclear, as it may be due to methodological differences (i.e. naturalistic observation as compared with several types of mood induction). There were, however, both depression-related and gender-related differences in the current study when considering the specific types of the facial expressions that were emitted. In response to the mood induction film clips, depressed subjects showed fewer joyful facial expressions and more frequent negative emotion facial expressions than

did non-depressed subjects. These results are consistent with those of Genero (1986) and Schwartz et al., (1976).

Additional to the depression effect, boys in the current study expressed joy more often and girls expressed negative emotions more often. While no prior research has examined the influence of gender on the hedonic tone of emotional expression, the gender findings here are consistent with gender differences found in subjects' reports of their concurrent emotional state, presented above.

These findings of diminished joy expressions and increased negative expressions, related to depression and more frequent in females than males, have substantial implications when considering the social function of emotions. The function of joyful facial expressions is to elicit or maintain interaction (Campos et al., 1989). It is unclear how to characterize the function of the negative emotions displayed in the study, as they were a combination of sadness, the function of which is to draw others in, and anger and disgust, which serve to distance. In any case, it is reasonable to assume that the combination of diminished joy and increased negativity leads to greater social distance. Such distance would presumably insulate the depressed young adolescent from learning from others that their hostile and shameful self-evaluations, as described above, are not warranted.

Emotional Experience and Emotional Expression

There was a significant relationship between emotional experience, defined in terms of emotional state, and emotional expression in the current study though this relationship differed in boys and girls of varying depression levels. The relationship was positive and moderately strong for boys with low depression levels in either the clinical or non-clinical samples, as well as for girls in the clinical sample who showed either a low or high depression levels. The experience--expression relationship remained intact in these subgroups, as these subjects appeared happy and reported that they felt happy at equivalent levels. However, high depressed boys reported that they felt far happier than they appeared, and in non-clinical girls there was virtually no relationship between emotional experience and expression. The atypical result for the depressed boys may be but another instantiation of the emotional fragmentation of depressed adolescent boys that was discussed above. The reason for the lack of an experience--expression relationship among non-clinical girls is unclear.

Conclusions: Gender and Development, Normal and Abnormal

In several sections of this discussion it was argued that the particular contours of the emotional phenomenology of depression in young adolescents are

shaped both by developmental and gender-related forces. The unimportance of sadness was thought to be due to the increased distance in close familial relationships typical in early adolescence. The prominence of self-directed hostility was discussed in terms of developmental trends towards self-absorption and self-criticism as well as the inwards expression of distress more common in females than in males. The paucity of emotion--depression associations of any kind in males, termed emotional fragmentation, was understood in terms of gender-related differences in response set, in which males flee from depressive affect whereas females reflect upon it (Nolen-Hoeksema, 1987).

This analysis, which is indebted to the transformational perspective in the field of developmental psychopathology (cf. Cicchetti, 1984; Sroufe and Rutter, 1984), asserts that the particular form in which suffering is expressed in patterns of emotions, symptoms, even full psychiatric disorders, is dependent upon numerous factors, including biological tendencies, developmental trends, family relationships, culture and society. This notion is akin to the concept of canalization in behavior genetics (cf. McClearn, 1970). Canalization helps to explain a frequent finding in genetics that the relationship between the genotype and the phenotype is not direct; the same gene may be expressed in different forms

in different individuals and under different circumstances. The particular pathway, or canal, through which the gene is expressed is first chosen and then strengthened through the influence of a host of individual and environmental forces.

Implications for the Treatment of Depression in Early Adolescence

The overarching goal of psychotherapy for these depressed young adolescents, as well as for children, adolescents and perhaps adults of any age, is to re-orient deviant developmental pathways to a more normal trajectory, thus allowing subsequent development to unfold (A. Freud, 1965). The denigrating self-directed hostility and shame shown by the depressed girls is considered an exaggeration, perhaps to grotesque proportions, of the normally increased self-absorption and self-criticism of early adolescence. The character of the developmental deviation is less clear for depressed early adolescent boys, though the fragmentation in their emotional experience and the disjointed relationship between experience and expression seems an exaggeration of the relative inattention to emotion that is seen in males beginning in childhood (Nolen-Hoeksema, 1987). Developmental adjustments may be necessary for families as

well. The increased distance and lack of acceptance and support presumed to occur in the families of these depressed adolescents is but another exaggeration of increased conflict that is seen in the families of normal young adolescents (Hill et al., 1985a, 1985b; Steinberg, 1988).

A focus on emotion, with implications drawn from the findings of this study, aids in the very difficult task of psychotherapy with depressed young adolescents. The task is difficult both because any psychotherapy is difficult with young adolescents (Schave & Schave, 1989) and because of the particular emotional patterns evident in these depressed patients. However, with difficulty also comes opportunity, for the developmental shifts that can be encouraged are large, due to the transitional quality of early adolescent development (Brooks-Gunn, 1987; Petersen, 1987), as are the ramifications that these developmental shifts contain. The remaining discussion considers the implications findings from the current study hold for the initial engagement of depressed young adolescents in psychotherapy as well as for subsequent restorative psychotherapeutic processes. It is noted that these implications are indirectly suggested by the current findings, rather than being direct derivatives. The discussion is prefaced with a review of the role emotions are thought to play in psychotherapy in general.

Emotions and Psychotherapy

Plutchik (1989) and Greenberg and Safran (1987) have both proposed models for psychotherapy based on emotion concepts. A synthesis of those models, combined with observations of the current author, suggests that six critical emotion processes occur in successful psychotherapy:

1) Empathizing. First and foremost, there is empathy. Empathy has been defined in numerous ways (cf. Schafer, 1983), though all definitions share the common element that it is based on the therapist's awareness and resonance, or "attunement" as described by Stern (1985), with the patient's affective state. In a survey of psychotherapists of widely differing approaches Plutchik (1989) found broad agreement that "shared dialogue" based on empathic engagement was "the primary tool of treatment."

2) Identifying emotions. As emotions are thought to serve as internal signals that guide an individual's actions (e.g., approach that which brings joy, avoid that which is fearful), important regulators in social interaction, and organizing nodes for memory (cf. Bower, 1981), identification of one's emotions is an important step towards understanding maladaptive thought--feeling--behavior complexes and generating more adaptive alternatives. Greenberg and Safran (1987) make a

distinction between primary and secondary emotions. Primary emotions, including deeply felt fear, anger, joy and sorrow, are associated with many important memories and action tendencies, are experienced inwardly as "true" and supply important motivational information to the individual. Primary emotions are all too often obscured by secondary emotions, including "hopelessness, despair, panic, dysphoria, hurt, and despondency (p. 176)," which involve a negative evaluation of the self and hinder problem-solving.

3) Experiencing emotions.⁹ Therapeutic change is possible only when a patient experiences, in addition to intellectually identifying, emotions. The experience of emotion unlocks awareness of associated memories and action tendencies. It further allows for relief gained from completion of previously incomplete emotional sequences, as when one has not fully grieved the loss of a loved one. One component of the therapeutic experiencing of emotion, emotional expression, is thought to provide benefits in its own right (Clynes, 1988; Greenberg & Safran, 1987; Plutchik, 1988). A heartfelt cry or a rageful fit, when accepted non-judgmentally by the psychotherapist, brings momentary relief as well as the awareness that intense emotions do not threaten the individual's well-being.

4) Accepting emotions. By accepting emotions, particularly primary emotions, which were previously rejected or unknown, the patient comes to accept more of him- or herself. For example, an anxious and compliant woman who was taught early in life that anger is condemnable becomes unburdened and can act more assertively once legitimate angry feelings are accepted. The acceptance of emotions grants one greater control of them, and thus one can re-appraise the affective meaning of previously troublesome events (e.g., "I need not avoid my boss or the anger I feel when I see him; I accept the anger and can choose to treat him kindly or not"). Re-appraisal is made possible once emotions become reversible, a developmental achievement described in the Introduction section of this paper.

5) Emotional ambivalence. The attainment of emotional ambivalence, in which one can feel disparate emotions simultaneously towards the same object (cf. Harter & Buddin, 1987), is an additional developmental achievement. In psychotherapeutic terms, this involves the integration of conflicting emotions, such as love and hate, in reference to another person, an idea, or a planned action. Without such integration one's experience and activity are either fragmented, shifting between polar opposites, or simply avoidant, thereby evading the conflict.

6) Modifying emotions. There are times when emotions, such as the self-critical secondary emotions described by Greenberg and Safran (1987), warrant modification. The power of the secondary emotion withers once the alternative primary emotion is experienced. For example, consider the sequence: "I hated myself for not loving my father. But now I am furious at him for beating me. He was wrong, and I am not worthy of such self-blame."

Therapeutic Engagement with Depressed Young Adolescents

The first and perhaps most difficult step in psychotherapy with depressed young adolescents is initial therapeutic engagement. The adolescent's depression is not constituted by a sadness that elicits and welcomes care, as depression is in children and adults (Blumberg, 1986; Izard, 1972), but rather by self-directed hostility and shame, which serve only to distance. Further, the depressed adolescent's normal developmental trend towards relational distance from adults is likely exacerbated by a history of painful life events. Consider the experience of a young teenager, joyless and terribly angry at herself⁴, taken to an office and told to talk about the

⁴ The feminine pronoun is used here, as these implications stem from the study's findings on depressed adolescent girls. The therapeutic implications may be relevant for boys as well, whose affective life was characterized as fragmented, though this is less clear. An increased focus

problems of which she is ashamed to an unfamiliar adult. Consider the experience of the psychotherapist in meeting a withdrawn 13 year-old girl who outwardly appears angry, and, if she speaks at all, says only that there is no problem. A parent sits restrained and exasperated.

Where to begin? Empathy is difficult, as how can one empathize with such self-denigrating emotions as inward hostility and shame? Questions about the referral problem are experienced as invasive and merely strengthen the patient's dreaded self-criticism. Light friendly conversation is experienced as phoney and out of touch. Silence is experienced as critical and hostile. No, the psychotherapist must allow the relationship to grow first, steer clear of the painful self-abusing secondary emotions (Greenberg & Safran, 1987), and permit distracting activity such as playing cards, listening to music or snacking until the patient is ready to talk. Alternatively, the therapist might join in the adolescent's self-protective blaming of others by using techniques such as Havens' (1986) counter-projections, where the therapist agrees, indirectly, that life stinks and it's all someone else's fault⁵. With time the patient

on activity, as suggested by Nolen-Hoeksema's (1987) analysis, may be beneficial with the boys.

⁵ One personal example of this technique came when a depressed 12 year old boy entered my office and said, "I'm not gonna' talk to any psycho!" I responded, in resigned tones, "Why did they give me a job that everyone hates?" After a pause, the patient said "They suck!" and proceeded

will come to feel safe from the therapist's ire as well as from her own, and then be more willing to experience and express the self-abusing emotions that are so painful.

Parents need attention at these initial stages as well, so that they can trust the therapist rather than blame him or her for the probable slow pace of progress. The psychotherapist might also consider referral for family or group therapy, where the focus on the already self-conscious adolescent will be more diffuse. However, the same obstacles of self-protective resentment towards adults and fear of showing defects, in this case to peers, remain.

Restorative Processes in Psychotherapy

The particular configuration of emotions prominent in depressed young adolescents engenders specific difficulties and opportunities in psychotherapy. These are considered in light of the six psychotherapeutic emotion processes proposed above.

There are difficulties even in empathizing; self-directed hostility and shame are both painful to share and functionally serve to distance others, rather than draw them near. Furthermore, empathizing with these dysphoric emotions leads to their intensification and a flight from therapy (Greenberg & Safran, 1987). While one must not

to talk about how he too had been wronged in being placed in the hospital.

deny them, it is far more valuable to empathize judiciously with the burdened, self-loving and outwardly angry affective aspects, be they rare, rather than the feelings of shame and self-hatred. This notion of empathy, not simply mirroring the patient's emotions but rather positioning oneself in his or her affective life so as to be most helpful, is derived from Schafer (1983). It is also helpful to note any emergence of the positive emotions that seem inimical to depression, such as feeling joyful and loved.

Findings from the current study hold particular benefits for the second of the six processes, identifying emotions. Simply put, if one looks for sadness one will miss depression; sadness has a small niche in the emotional pantheon of these depressed adolescents. Look rather for shame and self-directed hostility, but not probingly. Changes in the patient's non-verbal behavior can be a useful guide for the timing of questions intended to help identify emotions. Unfortunately, non-verbal cues are of little aid with the depressed boys, in whom the experience--expression relationship was found to be jumbled.

The third process, experiencing, is the most difficult. Not only must the depressed young adolescent experience their prominent feelings of shame and self-hatred, they must do so in the presence of the therapist.

Consider the shame of a 13 year old girl, feeling vile, who blames herself, as did other members of her family, for repeated rapes by a step-father. Experience of the dysphoric secondary emotions, in this case shame and self-directed hostility, is often followed by experience of related and more adaptive intense primary emotions (Greenberg & Safran, 1987). For example, in the case of the 13 year old girl shame was turned outwards, in a process described well by Schave and Schave (1989), and was followed by rage at the step-father and later sadness for the loss of her family, who neither believed nor supported her. Rage and sadness must be tolerated by the therapist, however painful, so that they can be tolerated by the patient. At times the intense primary emotions initiate behavioral disturbances, e.g., violent or self-destructive behavior or depressive withdrawal. These then must be contained, through increased limits at home and school, or through acute hospitalization or medication, always recognizing that these reactions are but one phase of recovery. Angry attacks on the therapist need be tolerated as well but they cannot grow to overwhelming proportions, for this jeopardizes the therapeutic relationship.

Following experiencing comes processes of acceptance and re-appraisal. Once the depressed adolescent can accept that she hated herself, and that others may have

been aware of her defects, she can begin to consider, rationally, whether or not she warrants such self-blame. This rational process is called re-appraisal (Greenberg and Safran, 1987) and requires the developmental shift to emotional reversibility that was described above (Thompson, 1985). The depressed adolescent girl now understands emotional reactions as her own (I hate myself) rather than as endemic properties of their objects (I am hateful). Furthermore, as she accepts the related primary emotions she begins to feel unburdened and empowered (Greenberg & Safran, 1987).

There are patients for whom acceptance alone does not bring reappraisal of the dysphoric emotions; these emotions need to be modified directly. This may be particularly evident in patients who are not yet capable of reversibility, for whom one must change the object of the emotion rather than trust that the change will come from within. Corrective explanations for events (e.g., "you are not responsible for that rape. He's an adult--he had the responsibility to protect you, not harm you") as well as cognitive-behavioral training in affirming self-statements (e.g., "I don't deserve to be hated; I am a good, lovable person") may be helpful.

In patients in whom reversibility is achieved there come opportunities for another developmental milestone, emotional ambivalence. In emotional ambivalence disparate

emotions are experienced towards the same object simultaneously (cf. Harter & Buddin, 1987). The object of rage, e.g., the rapist in the scenario presented above, can also be the object of love, as are nearly all parents regardless of how heinous their deeds. A multi-faceted, mature and ongoing relationship can emerge.

Developmental changes must occur in the family as well. Parents need to learn to maintain appropriate limits for their adolescent daughter or son, providing a sense of cohesiveness to the family, while also learning to respect the adolescent's normal push for autonomy. They must negotiate the difficult task of being firm in the face of important disagreements with their children, while remaining tolerant and accepting of others. Parents further need to acknowledge their own contribution to the problem, so as to decrease the burden of their ashamed adolescent child. They must also learn to be more attuned to the adolescent's emotional state, and to his or her need for acceptance (Hauser et al., 1984).

Shortcoming in the Current Study and Implications for
Future Research

The study's findings and related implications for treatment must be understood in light of several shortcomings that stem from aspects of both its design and procedures. First, the study was acontextual; it was not sensitive to the particular cultures or family circumstances of its subjects. Levy (1984) and Lutz (1983) have detailed the important bi-directional influence between culture and emotion. A larger sample would have made comparisons between cultures possible. Second, there likely were differences between the clinical and non-clinical samples that weren't captured in their clinical or socioeconomic status, both of which were accounted for. The families of 60% of the subjects in the clinical sample received some form of public financial assistance. Thirty-one percent of the clinical subjects were in the custody of a state agency and 26% had been living in a foster home immediately prior to hospital admission. In contrast, although the non-clinical sample was drawn from a broad public school population, a large percentage of its volunteer members were children of university professors. Lesser comparability between the samples makes generalization of results less certain.

An additional possible confound was that the differences in results found between the clinical and non-

clinical groups were more the result of clinical status, i.e. general psychopathology, than depression. However, it is unlikely that this confound exerted a strong effect, as suggested by two findings. The non-clinical and clinical low-depressed groups differed significantly ($t_{39} = -2.28, p < .05$) on the depression measure (CDI) which served as the study's criterion. Furthermore, general psychopathology, measured in terms of overall score on the Child Behavior Checklist, was not a significant predictor of depression in regression analysis once the emotion variables were entered.

The absence of direct pubertal assessment, most typically done in a physical exam according to Tanner's (1962) system, is an additional shortcoming. It is uncertain that all subjects were, in fact, young adolescents without such assessment. However, subjects' ages did correspond with the range commonly proposed in definitions of early adolescence (cf. Brooks-Gunn, 1987; Petersen, 1987).

Additional shortcomings are evident in each of the study's measures, though as noted earlier these were chosen for their psychometric soundness. While the CDI has the best psychometric properties of any depression scale and it is the most widely used, it cannot replace standardized psychiatric interviews, which were not practical for the current study, in establishing

diagnoses. The subjects in the clinical high-depressed group certainly reported a higher level of depressive symptomatology than others on the CDI, but it is unclear how many of them would have received a diagnosis of Major Depression.

The DES-IV, used in the study to assess ongoing emotional experience, is the broadest measure of emotion type now available for use with children and adolescents. However, this measure includes but a sub-set of the emotions experienced by adolescents; what of bored, disappointed, hassled, awesome? Further, other aspects of emotions and emotion processes, such as intensity, lability, associated referents, and whether or not the particular emotion--object link is reversible (see Thompson, 1985), were not studied.

The motion picture mood induction stimuli used were sufficiently strong to elicit facial expressions of emotion that could be coded, and significant relationships were found with both depression and gender. However, the most frequent emotion expressed was interest, accounting for 83% of the seconds coded. Perhaps more intense stimuli would have elicited a more differentiated distribution of expressions. It is notable that three film clips, used previously with normal populations (Custrini & Feldman, 1988), were excluded from the current study as they were considered too arousing for a

psychiatric population. Other alternatives might have been to eschew the sophisticated AFFEX coding system and replace it with untrained raters' judgements of expressed emotion, as in Custrini and Feldman (1988), or to substitute naturalistic observation for the mood induction procedure altogether.

Future Research. Despite these shortcomings, the study made significant contributions to understanding the affective life of depressed young adolescents. Our knowledge of what depressed young adolescents feel, and how they express those feelings, has been increased. However, this understanding is but a small beginning. Much additional research is needed. There are numerous other aspects of emotions, including intensity, lability, the objects towards which emotions are felt as well as the social contexts in which they are felt, that were not studied.

Stapley and Haviland's (1989) Elicitors of Emotions and Emotion Events questionnaires might be useful in assessing both objects and contexts. The relationships between emotions and associated thoughts and behaviors might be explored by including cognitive measures, such as the Attributional Style Questionnaire (Seligman et al., 1984) based on Abramson, Seligman and Teasdale's (1978) reformulated learned helplessness theory of depression,

and behavioral measures, such as naturalistic observations of peer and family interaction, in studies on emotion.

The how of emotion, i.e. process variables assessing areas such as emotional reversibility (Thompson, 1985) and emotional ambivalence (Harter & Buddin, 1987), might be included in studies of depressed young adolescents. In a sensitively written paper Hauser and Smith (1990) speculate on how the stages of ego development, in Loevinger's system, influence the experience of emotion. Ego development measures might be included in studies of emotions and depression as well. Furthermore, developmental differences in emotion, discussed in this paper through cross-study comparisons, might be examined with greater validity by applying the same measures to childhood, adolescent and adult samples.

Investigations regarding the presence of emotion subtypes in depressed adolescents might be made in samples larger than the current one. The pervasive gender differences found currently suggest that such sub-types exist. Cluster analyses of depressive symptoms with associated emotions, cognitions, and behaviors could be undertaken towards these ends. Moreover, the current study added little to our understanding of emotions in depressed adolescent boys, other than to find their organization fragmented. Additional studies of emotions in depressed boys should be undertaken, perhaps with equal

attention payed to the activities associated with depression, as suggested by Nolen-Hoeksema's (1987) analysis.

Emotion measures might also be used to assess treatment efficacy, both for psychotropic medication and psychotherapy. Panksepp (1988) posited that anti-depressant medication ameliorates depressive mood whereas psychotherapy influences associated cognitions. Emotion measures as well as measures of depressive symptomatology and depressive cognitions might be administered intermittently during the course of psychopharmacologic treatment in an attempt to partial out the timing of differential effects. Similar methods could be applied in studies of psychotherapy process and outcome. Finally, additional research is needed on the normal development of emotions in adolescents, so that we can understand more about the normal developmental trajectories from which our depressed patients deviate.

APPENDIX A

INFORMED CONSENT FORMS AND SUPPORTING DOCUMENTS

Appendix A.1.

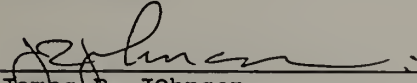
Approval Form, Medical Research Office, Baystate Medical Center.

Baystate Medical Center
 MEDICAL RESEARCH OFFICE

APPROVAL FORM

TO: Bruce Ecker, M.A. : DATE: 9/6/88
 (Principal Investigator)

Psychiatry
 (Department)

FROM: 
 James R. Johnson
 Acting Director

RE: BMC 88-122

Proposal/Protocol Compassionate Exemption Renewal
 Expedited Review Informational Item Other

TITLE: Phenomenology of Emotion in Depressed Children

The above referenced has been processed as follows:

MEDICAL RESEARCH COMMITTEE

INSTITUTIONAL REVIEW BOARD

Approved Date 8/11/88
 " w/changes* _____
 Disapproved _____

Approved Date 8/29/88
 " w/changes* _____
 Disapproved _____

*Approval was granted with the understanding that the following change(s) be made on the Informed Consent Form; Abstract; Other

cc: Department Chairman: Benjamin Ianzito, M.D.

NOTE: One copy of the Informed Consent Form should be placed and kept in the medical record and one should be kept in a separate file in the Principal Investigator's office.

To comply with federal regulations an annual review of your study will be requested in one year.

Appendix A.2.

Informed Consent Form, Clinical Subjects, Baystate Medical Center.

RESEARCH INFORMED CONSENT FORM

Principal Investigator: Bruce Ecker, M.A.

Title of Protocol: The Phenomenology of Emotion in Depressed Children and Adolescents.

I, _____ on behalf of my ward _____

_____, willingly agree to participate in this project. I understand that everything that would apply to me will apply to my ward. The essence of this project has been explained to me as follows:

The purpose of this study is to understand the emotions experienced by children and adolescents who have psychological and behavioral problems. Patients who participate in the study will be seen for two 30 - 45 minute individual assessment sessions. These will be scheduled so as not to conflict with ongoing treatment activities. Patients will be administered two questionnaires. They will watch and discuss seven brief film clips that may make the patients feel mildly sad, angry, scared and happy. Both the questionnaires and the film clips have been used with hundreds of other children and adolescents without negative effects. Patients will be videotaped. All names and other identifying information will be deleted from the videotapes. Videotapes will be seen only by professional staff.

Participation in the study will not alter treatment or evaluation of your child.

I understand that the following discomforts or risks may occur:

1) Breach of confidentiality. However, no names will be used on any research material and other maximum safeguards will be applied to ensure that this does not occur.

2) Mild emotional upset. However, the questionnaires and films used in this study have been judged not to be upsetting to children such as yours by the child psychiatry and nursing staffs. In the event a patient does become upset he/she will have the opportunity to speak to a nurse or therapist immediately.

I also understand that the possible and desired benefits of my participation in this study are:

To improve the treatment of my child and other children and adolescents who are hospitalized for psychological and behavioral problems.

I am aware that the following alternative procedures could be of benefit to me:

This does not apply.

I understand that 60 patients are to be enrolled in this study and that I will be informed of any new findings that could affect my treatment. This study is expected to last for 1 year.

I understand that Baystate Medical Center does not have a program for compensating patients for injury or complications arising from medical research but medical care will be made available as needed at usual charges.

I understand that participation in this research project will not affect any of the ordinary or customary hospital or outpatient charges associated with the treatment of my condition.

I am aware that I am under no obligation to participate in this project. I am also aware that I may withdraw my participation at any time without prejudice to my medical treatment at Baystate Medical Center.

I understand that although representatives of the U.S. Food and Drug Administration and the sponsor of this research project may inspect records which reveal my participation in the study, my identity and participation will be kept confidential to the extent permitted by law.

I further understand that should I have any questions about my treatment or any other matter relative to my ward's participation in this project I may call Dr. Matthew Friedman, M.D. or Mr. Bruce Ecker at (413) 784-3861 or James R. Johnson, Acting Director, Medical Research Office at (413) 784-4356.

A copy of this Informed Consent Form has been given to me and the project has been explained to me by:

Parent/Guardian's Name: _____

Signature: _____

Date: _____

Discussion and signature witnessed by: _____

Signature: _____

Date: _____

Appendix A.3.

Informed Consent Form, Non-clinical Subjects.

INFORMED CONSENT FORM

I, _____ willingly permit my
 son/daughter _____ to
 participate in this project.

The purpose of this study is to understand the relationship between thoughts and emotions experienced by children and adolescents. Individuals who participate in the study will be seen for a 1-hour and 15-minute session. Participants will be administered two questionnaires. They will watch and discuss seven brief film clips that may make them feel mildly sad, surprised, angry, scared and happy. Both the questionnaires and the film clips have been used with hundreds of other children and adolescents and there have been no negative effects. The study sessions will be videotaped. Videotapes will be seen by professional staff only and will not be shown to the public. All responses will be confidential.

I am aware that my son or daughter is under no obligation to participate in this project. I am also aware that my daughter or son may discontinue participation at any time.

I further understand that should I have any questions about my son or daughter's participation I can call Bruce Ecker, Project Director, at 549-6716 or Dr. Robert Feldman, Professor, at 545-0130.

Parent/Guardian's

Name: _____

Parent/Guardian's Signature: _____

Date: _____

APPENDIX B
MEASURES

Appendix B.1.

Demographic Information Sheet for Non-clinical Sample

Group Information Sheet

Please fill out the information below. This information will be used to describe the group of people who participate in this project -- how many people have parents who work in factories, how many people have parents who are professors, how many people have parents who are not working outside of their homes, etc. This information will not be used to describe you personally. As you can see, there is no name on this sheet.

Date of Birth: _____

Sex: _____ Female _____ Male

Grade in School: _____

Have you ever participated in a research project before?

 _____yes _____no

Have you ever received counseling or therapy from a psychiatrist, psychologist, or social worker?

 _____yes _____no

If yes, are you involved in this now?

 _____yes _____no

Does your mother work outside the home?

 _____yes _____no

Mother's work: _____

Does your father work outside the home?

 _____yes _____no

Father's work: _____

Appendix B.2.

Childhood Depression Inventory

CD INVENTORY

NAME: _____

DATE: _____

CASE NO.:

--	--	--	--

INTERVIEW NO.:

--	--

FORM NO.:

0	8
---	---

KIDS SOMETIMES HAVE DIFFERENT FEELINGS AND IDEAS.

THIS FORM LISTS THE FEELINGS AND IDEAS IN GROUPS. FROM EACH GROUP, PICK ONE SENTENCE THAT DESCRIBES YOU BEST FOR THE PAST TWO WEEKS. AFTER YOU PICK A SENTENCE FROM THE FIRST GROUP, GO ON TO THE NEXT GROUP.

THERE IS NO RIGHT ANSWER OR WRONG ANSWER. JUST PICK THE SENTENCE THAT BEST DESCRIBES THE WAY YOU HAVE BEEN RECENTLY. PUT A MARK LIKE THIS **X** NEXT TO YOUR ANSWER. PUT THE MARK IN THE BOX NEXT TO THE SENTENCE THAT YOU PICK.

HERE IS AN EXAMPLE OF HOW THIS FORM WORKS. TRY IT. PUT A MARK NEXT TO THE SENTENCE THAT DESCRIBES YOU BEST.

EXAMPLE:

- I READ BOOKS ALL THE TIME
- I READ BOOKS ONCE IN A WHILE
- I NEVER READ BOOKS

Appendix B.2, (continued).

-2-

REMEMBER, PICK OUT THE SENTENCES THAT DESCRIBE YOUR FEELINGS AND IDEAS IN THE PAST TWO WEEKS.

1. I AM SAD ONCE IN A WHILE
 I AM SAD MANY TIMES
 I AM SAD ALL THE TIME
2. NOTHING WILL EVER WORK OUT FOR ME
 I AM NOT SURE IF THINGS WILL WORK OUT FOR ME
 THINGS WILL WORK OUT FOR ME O.K.
3. I DO MOST THINGS O.K.
 I DO MANY THINGS WRONG
 I DO EVERYTHING WRONG
4. I HAVE FUN IN MANY THINGS
 I HAVE FUN IN SOME THINGS
 NOTHING IS FUN AT ALL
5. I AM BAD ALL THE TIME
 I AM BAD MANY TIMES
 I AM BAD ONCE IN A WHILE
6. I THINK ABOUT BAD THINGS HAPPENING TO ME ONCE IN A WHILE
 I WORRY THAT BAD THINGS WILL HAPPEN TO ME
 I AM SURE THAT TERRIBLE THINGS WILL HAPPEN TO ME
7. I HATE MYSELF
 I DO NOT LIKE MYSELF
 I LIKE MYSELF

Continued, next page.

Appendix B.2 (continued).

-3-

8. ALL BAD THINGS ARE MY FAULT
 MANY BAD THINGS ARE MY FAULT
 BAD THINGS ARE NOT USUALLY MY FAULT
9. I DO NOT THINK ABOUT KILLING MYSELF
 I THINK ABOUT KILLING MYSELF BUT I WOULD NOT DO IT
 I WANT TO KILL MYSELF
10. I FEEL LIKE CRYING EVERYDAY
 I FEEL LIKE CRYING MANY DAYS
 I FEEL LIKE CRYING ONCE IN A WHILE
11. THINGS BOTHER ME ALL THE TIME
 THINGS BOTHER ME MANY TIMES
 THINGS BOTHER ME ONCE IN A WHILE
12. I LIKE BEING WITH PEOPLE
 I DO NOT LIKE BEING WITH PEOPLE MANY TIMES
 I DO NOT WANT TO BE WITH PEOPLE AT ALL
13. I CANNOT MAKE UP MY MIND ABOUT THINGS
 IT IS HARD TO MAKE UP MY MIND ABOUT THINGS
 I MAKE UP MY MIND ABOUT THINGS EASILY
14. I LOOK O.K.
 THERE ARE SOME BAD THINGS ABOUT MY LOOKS
 I LOOK UGLY
15. I HAVE TO PUSH MYSELF ALL THE TIME TO DO MY SCHOOLWORK
 I HAVE TO PUSH MYSELF MANY TIMES TO DO MY SCHOOLWORK
 DOING SCHOOLWORK IS NOT A BIG PROBLEM

Continued, next page.

Appendix B.2 (continued).

-4-

REMEMBER, DESCRIBE HOW YOU HAVE BEEN IN THE PAST TWO WEEKS.

16. I HAVE TROUBLE SLEEPING EVERY NIGHT
 I HAVE TROUBLE SLEEPING MANY NIGHTS
 I SLEEP PRETTY WELL
17. I AM TIRED ONCE IN A WHILE
 I AM TIRED MANY DAYS
 I AM TIRED ALL THE TIME
18. MOST DAYS I DO NOT FEEL LIKE EATING
 MANY DAYS I DO NOT FEEL LIKE EATING
 I EAT PRETTY WELL
19. I DO NOT WORRY ABOUT ACHES AND PAINS
 I WORRY ABOUT ACHES AND PAINS MANY TIMES
 I WORRY ABOUT ACHES AND PAINS ALL THE TIME
20. I DO NOT FEEL ALONE
 I FEEL ALONE MANY TIMES
 I FEEL ALONE ALL THE TIME
21. I NEVER HAVE FUN AT SCHOOL
 I HAVE FUN AT SCHOOL ONLY ONCE IN A WHILE
 I HAVE FUN AT SCHOOL MANY TIMES
22. I HAVE PLENTY OF FRIENDS
 I HAVE SOME FRIENDS BUT I WISH I HAD MORE
 I DO NOT HAVE ANY FRIENDS

Continued, next page.

Appendix B.2 (continued).

-5-

23. MY SCHOOL WORK IS ALRIGHT
 MY SCHOOLWORK IS NOT AS GOOD AS BEFORE
 I DO VERY BADLY IN SUBJECTS I USED TO BE GOOD IN
24. I CAN NEVER BE AS GOOD AS OTHER KIDS
 I CAN BE AS GOOD AS OTHER KIDS IF I WANT TO
 I AM JUST AS GOOD AS OTHER KIDS
25. NOBODY REALLY LOVES ME
 I AM NOT SURE IF ANYBODY LOVES ME
 I AM SURE THAT SOMEBODY LOVES ME
26. I USUALLY DO WHAT I AM TOLD
 I DO NOT DO WHAT I AM TOLD MOST TIMES
 I NEVER DO WHAT I AM TOLD
27. I GET ALONG WITH PEOPLE
 I GET INTO FIGHTS MANY TIMES
 I GET INTO FIGHTS ALL THE TIME

THE END

THANK YOU FOR FILLING OUT THIS FORM

SUM: _____

Appendix B.3.
Differential Emotions Scale-IV.

DES - IV					
Emotions and Feelings					
During the past 2 weeks how often did you. . .	Rarely or Never	Hardly Ever	Sometimes	Often	Very Often
1. Fell regret, sorry about something you did	1	2	3	4	5
2. Feel sheepish, like you do not want to be seen	1	2	3	4	5
3. Feel glad about something	1	2	3	4	5
4. Feel like something stinks, puts a bad taste in your mouth	1	2	3	4	5
5. Feel you can't stand yourself	1	2	3	4	5
6. Feel embarrassed when anybody sees you make a mistake	1	2	3	4	5
7. Feel unhappy, blue, downhearted	1	2	3	4	5
8. Feel surprised, like when something suddenly happens you had no idea would happen	1	2	3	4	5
9. Feel like somebody is a low-life, not worth the time of day	1	2	3	4	5
10. Feel shy, like you want to hide	1	2	3	4	5

Continued, next page.

Appendix B.3 (continued).

During the past 2 weeks how often did you. . .	Rarely or Never	Hardly Ever	Sometimes	Often	Very Often
11. Feel like what you're doing or watching is interesting	1	2	3	4	5
12. Feel scared, uneasy, like something might harm you	1	2	3	4	5
13. Feel mad at somebody	1	2	3	4	5
14. Feel mad at yourself	1	2	3	4	5
15. Feel happy	1	2	3	4	5
16. Feel like somebody is a good-for-nothing	1	2	3	4	5
17. Feel so interested in what you're doing that you're caught up in it	1	2	3	4	5
18. Feel amazed, like you can't believe what's happened, it was so unusual	1	2	3	4	5
19. Feel fearful, like you're in danger, very tense	1	2	3	4	5
20. Feel like screaming at somebody or banging on something	1	2	3	4	5
21. Feel sad and gloomy, almost like crying	1	2	3	4	5
22. Feel like you did something wrong	1	2	3	4	5

Continued, next page.

Appendix B.3 (continued).

During the past 2 weeks how often did you. . .	Rarely or Never	Hardly Ever	Sometimes	Often	Very Often
23. Feel bashful, embarrassed	1	2	3	4	5
24. Feel disgusted, like something is sickening	1	2	3	4	5
25. Feel joyful, like everything is going your way, everything is rosy	1	2	3	4	5
26. Feel like people laugh at you	1	2	3	4	5
27. Feel like things are so rotten they could make you sick	1	2	3	4	5
28. Feel sick about yourself	1	2	3	4	5
29. Feel like you are better than somebody	1	2	3	4	5
30. Feel like you ought to be blamed for something	1	2	3	4	5
31. Feel the way you do when something unexpected happens	1	2	3	4	5
32. Feel alert, curious, kind of excited about something	1	2	3	4	5
33. Feel angry, irritated, annoyed with somebody	1	2	3	4	5
34. Feel discouraged, like you can't make it, nothing's going right	1	2	3	4	5

Continued, next page.

Appendix B.3 (continued).

During the past 2 weeks how often did you. . .	Rarely or Never	Hardly Ever	Sometimes	Often	Very Often
35. Feel afraid	1	2	3	4	5
36. Feel like people always look at you when anything goes wrong	1	2	3	4	5
37. Feel lonely	1	2	3	4	5
38. Feel empty	1	2	3	4	5
39. Feel that you love yourself	1	2	3	4	5
40. Feel that your family loves you	1	2	3	4	5
41. Feel like you have no feelings	1	2	3	4	5
42. Feel that many people love you	1	2	3	4	5
43. Feel like nothing affects you	1	2	3	4	5

Appendix B.4.

Description of Video Film Clips.

- 1) Sadness. Two boys visit their mother in the hospital and then leave.
- 2) Joy. A stand-up comedian does a routine on stomach noises that one makes while sitting quietly, hoping to be unnoticed, in the dentist office waiting room.
- 3) Fear. A man enters a darkened house, opens a cupboard, and a bird flies out at him.
- 4) Anger. An adolescent bully taunts another adolescent boy who is shown sitting on a motorcycle. The bully punches the victim, who falls down, then hits the motorcycle with a tire iron.
- 5) Sadness. A boy realizes his father has died, cries, and is comforted.
- 6) Anger. There is a bicycle race with several older adolescents. After one young man expends a great deal of energy catching up with the others one of the leaders jams a bicycle pump into his spikes, throwing him off his bike. He is frustrated but not injured.
- 7) Joy. Household appliances come to life and go haywire as a father valiantly (and comically) rescues his three children from their zaniness. A baby is shown eating a can of chili straight from the can.

Appendix B-5.

Statements Derived from the Differential Emotions Scale-IV
to Rate Strongest Emotion when Depressed.

- 1) Interest. Feel so interested in what you're doing,
caught up in it.
- 2) Joy. Feel happy.
- 3) Surprise. Feel like you feel when something unexpected
happens.
- 4) Sadness. Feel unhappy, blue, downhearted.
- 5) Anger. Feel angry, irritated, annoyed.
- 6) Disgust. Feel disgusted, like something is sickening.
- 7) Contempt. Feel like somebody is a "good-for-nothing."
- 8) Fear. Feel fearful, like you're in danger, very tense.
- 9) Shyness. Feel shy, like you want to hide.
- 10) Guilt. Feel like you did something wrong.
- 11) Inward Hostility. Feel mad at yourself.
- 12) Shame. Feel like people laugh at you.
- 13) Detached. Feel like I have no feelings.

APPENDIX C
DESCRIPTIVE DATA

Table C.1. Means, Standard Deviations, and Ranges for Childhood Depression Inventory (CDI) and Discrete Emotions Scale-IV (DES-IV) Data by Depression-related Research Group

Research Group	CDI ^a	Interest	DES-IV ^a	
			Joy	Surprise
Non-Clinical ^b				
Mean	6.2	11.7	12.0	7.7
Standard Dev.	4.1	1.4	1.8	2.6
Range	{ 0 - 15 }	{ 10 - 14 }	{ 9 - 15 }	{ 3 - 13 }
Clinical Low Depressed ^c				
Mean	8.7	9.0	9.4	8.0
Standard Dev.	2.9	2.1	2.7	1.9
Range	{ 2 - 12 }	{ 5 - 13 }	{ 5 - 15 }	{ 5 - 11 }
Clinical High Depressed ^d				
Mean	21.5	8.4	8.1	8.0
Standard Dev.	7.3	2.7	2.8	2.9
Range	{ 13 - 37 }	{ 3 - 12 }	{ 4 - 14 }	{ 3 - 15 }

Continued, next page.

^adata are not adjusted for socioeconomic status

^b $\bar{n} = 22.$

^c $\bar{n} = 19.$

^d $\bar{n} = 20.$

Table C.1 (continued).

Research Group	<u>DES-IV</u>			
	Sadness	Anger	Disgust	Contempt
Non-Clinical				
Mean	5.7	8.9	5.7	6.2
Standard Dev.	1.9	3.5	2.0	2.7
Range	{3 - 9}	{3 - 15}	{3 - 10}	{3 - 12}
Clinical Low Depressed				
Mean	8.7	9.3	7.7	7.3
Standard Dev.	3.4	3.2	2.3	2.8
Range	{3 - 14}	{3 - 15}	{4 - 13}	{3 - 12}
Clinical High Depressed				
Mean	11.6	12.3	9.8	7.1
Standard Dev.	2.5	2.4	3.4	3.0
Range	{5 - 14}	{7 - 15}	{3 - 15}	{3 - 14}

Continued, next page.

Table C.1 (continued).

Research Group	DES-IV			
	I-Hostility	Fear	Shame	Shyness
Non-Clinical				
Mean	4.7	5.2	5.6	5.4
Standard Dev.	1.9	1.9	1.8	1.8
Range	{3 - 10}	{3 - 8}	{3 - 8}	{3 - 10}
Clinical Low Depressed				
Mean	6.1	7.2	6.0	6.1
Standard Dev.	2.9	3.3	2.4	2.5
Range	{3 - 11}	{3 - 15}	{3 - 11}	{3 - 13}
Clinical High Depressed				
Mean	9.9	10.2	9.3	8.1
Standard Dev.	4.0	3.7	3.1	3.3
Range	{3 - 15}	{3 - 15}	{3 - 15}	{3 - 13}

Continued, next page.

Table C.1 (continued).

Research Group	Guilt	<u>DES-IV</u> Loved	Detached
Non-Clinical			
Mean	6.2	11.6	5.6
Standard Dev.	2.5	2.6	2.0
Range	{3 - 12}	{6 - 15}	{3 - 10}
Clinical Low Depressed			
Mean	7.1	10.4	7.5
Standard Dev.	2.8	3.4	2.6
Range	{3 - 13}	{3 - 15}	{3 - 12}
Clinical High Depressed			
Mean	10.0	7.7	8.3
Standard Dev.	2.5	3.0	2.3
Range	{6 - 15}	{3 - 13}	{6 - 14}

^adata are not adjusted for socioeconomic status

^b $n = 22$.

^c $n = 19$.

^d $n = 20$.

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