FAMILY OF ORIGIN CORRELATES WITH ALEXITHYMIA

by

CARYANNE POPE

Under the Direction of Alan Stewart, Ph.D.

ABSTRACT

Alexithymia is defined as difficulty identifying and expressing emotions and externally oriented thinking (Taylor & Bagby, 1994). It is important to explore the relationship between family emotional expressivity and alexithymia in order to understand factors in the family environment that lead to alexithymia. The present study is based on research by Parker, Taylor, and Bagby (1993), Eisenberg et al. (1998), and Hovestadt et al. (1998), who examined family factors associated with alexithymia. Although investigators have previously assessed individual factors such as family of origin environment, research is lacking in the area of comprehensively assessing family of origin correlates with alexithymia. This study examined family variables that are related to alexithymia, specifically self and family expressiveness and family dysfunction. Moderating and mediating relations are also explored. Results of the study indicated that negative self-expressiveness, negative family expressiveness, family dysfunction, and lack of perceived social support from family were associated with alexithymia.

INDEX WORDS: Alexithymia, Family of Origin, Emotional Expressivity, Family
                 Expressivity, Emotion Regulation

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DEDICATION

This dissertation is dedicated to my parents, Gary and Cory Pope, who were consistently committed to my growth and development, and who love me wholeheartedly and unconditionally. Their devotion to each other, to family, and to me has influenced me profoundly and has provided the foundation for my continuing personal and professional development. Both were blessed with a generosity of spirit that translated into continued support for me to carve out my own path. I am eternally grateful for their love and acceptance.

I would also like to dedicate this body of research to our American active duty soldiers and our veteran population, whom I plan to continue to work with as a career psychologist. These veterans present with high levels of alexithymia associated with posttraumatic stress disorder. My hope is to devote my knowledge, awareness, and skills in the area of psychology to aid them in the process of readjustment to civilian life. My wish is to give supportive services to our soldiers and honor them as they have honored our country.

ACKNOWLEDGEMENTS

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CHAPTER 1

INTRODUCTION

Overview

This paper will review research literature in the areas of alexithymia and family

emotional functioning and provide an overview of the following topics: the history and

defining features of alexithymia, the present view of the construct of alexithymia, and

measuring the construct of alexithymia. This paper will also explore the relationship

between emotional expressiveness and alexithymia, the relationship between emotion

regulation and alexithymia, family emotional expressivity, and negative family

expressivity and its relationship to alexithymia. This paper will provide an overview of

socialization of emotion process and its relationship to alexithymia, and explore family

factors that influence emotional expressivity, such as the family environment. In addition,

this paper will differentiate between parental warmth and emotional expressivity as

protective factors against alexithymia. This paper will also briefly highlight relevant

issues regarding the relationship between language and family expressivity. This paper

will discuss how peer relations, social competence and emotional competence are

influenced by family expressivity and related to alexithymia. Finally, the author will

discuss the relationship between alexithymia and family dysfunction.

Alexithymia, defined as difficulty identifying and expressing emotions and

externally oriented thinking (Taylor & Bagby, 1994), can be a pervasive problem for

many individuals who experience difficulties with emotional expressivity and emotion

regulation. Recently, research (Hovestadt et al. 1998; Yelsma et al. 1998; Yelsma, 2000;

Kench & Irwin, 2000) has explored family emotional expressivity and its link to

alexithymia has developed. It appears that many family-related variables are associated

with alexithymia. For example, research (Halberstadt, 1983; Eisenberg et al. 1998; Eisenberg et al. 2001) indicates that alexithymia is influenced by family of origin factors such as style of emotional expressivity (i.e. negative emotional expressivity), negative parental reactions to children's expression of emotions, and child's inability to regulate his or her emotions.

Crittendon (1994) suggests that when parents are not responsive to the emotional communication of young children and the parents' own emotional expressiveness is blunted, inconsistent, or aversive, then children become insecurely attached and fail to develop a full capacity for emotional communication and self regulation. It is evident that family factors such as parental reactions to children's expression of emotion can affect children's understanding of emotion, style of emotional expressivity (positive or negative) and the child's ability to regulate his or her emotions. When children are unable to develop emotional competence, alexithymia may develop. Thus, it is important to explore family emotional expressivity and the potential implication for individuals' restricted affective expression.

It is important to explore the relationship between family emotional expressivity and alexithymia in order to understand the mediating and moderating factors in the family environment that lead to alexithymia. Family of origin expressiveness is believed to be linked to one's ability to form healthy and capable relationships in later life (Cassidy et al. 1992; Halberstadt, 1999). Thus, understanding how the family of origin impacts the development of alexithymia is critical for both immediate goals of family preservation and long term goals of relationship capability. Further, by understanding

family factors that contribute to alexithymia, therapists will be more prepared to treat clients presenting with alexithymia.

The influence of positive and negative family of origin emotional expressivity is believed to be linked to the presence or absence of alexithymia (Hovestadt, Nilsson, & Paul, 1998). In addition, emotion dysregulation is thought to be linked to the development of alexithymia. Family factors such as family dysfunction and family violence also play a role in whether one experiences negative emotional expressiveness and subsequent alexithymic tendencies. For example, Crittendon (1994) predicted that when parents react negatively to children's expression of emotions, or when disorganized family systems exist, alexithymia may develop. In addition, when variables such as family dysfunction or a high degree of negative expressed emotion within the family environment exists, alexithymia is more likely to be an outcome.

Associated Family Constructs

It is clear that the family of origin plays a significant role in contributing to children's development, and the development of alexithymia in particular. There are many different family structural and process variables that may be related to alexithymia. To understand how alexithymia develops, it is important to consider influencing factors such as self-expressiveness, family of origin expressiveness, emotion regulation, and dysfunction in the family environment. Each of these constructs will be defined below. *Self-expressiveness* is defined as a persistent pattern or style (characterized with respect to valence that ranges from positive to negative) in exhibiting nonverbal and verbal expressions that often appear to be emotion related (Halberstadt et al. 1995). *Family of origin expressiveness* refers to the predominant style or tone of exhibiting nonverbal and

verbal expressions within the family environment (Halberstadt et al. 1995). Emotion regulation is defined as the development of an autonomous self-regulation process and internalization of emotional control, including management of emotional expressions and the development of emotional understanding (Volling et al. 2002). Socialization of emotion is defined as behaviors enacted by socializers (i. e., parents, guardians, siblings, step-siblings, etc.) that (a) influence a child's learning (or lack thereof) regarding the experience, expression, and regulation of emotion and emotion-related behavior, and (b) are expected to affect the child's emotional experience, learning of content, and emotion-related behavior in a manner consistent with socializers' beliefs, values, and goals about emotion and its relation to individual functioning and adaptation in society (Eisenberg, Spinrad, & Cumberland, 1998). *Family dysfunction* is a general construct that refers to abnormal, or impaired functioning in the family system, and can include family violence that may lead to trauma and a restricted range of affective expression, among other symptoms. In some cases, children from dysfunctional families will not exhibit symptoms associated with their family environment. The author will propose that factors such as restricted affective expressiveness, negative expressiveness in the family of origin, and family dysfunction may be correlated with alexithymic tendencies. Thus, a myriad of variables may contribute to alexithymia, including the family atmosphere, or the environment stemming from the family structure.

The family provides the first context for the recognition and communication of affective messages. Halberstadt et al. (1999) hypothesized that family expressiveness predicts a number of aspects of children's functioning, including emotion expressivity and social competence. In addition, research conducted by Boyum and Parke (1995)

focused on the role of family emotion in the development of children's social competence. Boyum and Parke (1995) investigated the connection between emotional expression in the child's family environment and children's social competence with school peers using direct observation of affective dimensions in the family. Fifty families of kindergarten students were videotaped in spontaneous dinner table interactions. Parents completed questionnaires rating the frequency, intensity, and clarity of emotional expressiveness of their own affect. Reported expressiveness and observed parental affect were both found to be meaningful predictors of children's affective expression within the family environment (Boyum & Parker, 1995). These findings support the assertion that parents' emotional expressiveness is an important factor in affecting children's emotional expressivity and social competence.

Recent studies suggest that alexithymia involves deficits in affect regulation and cognitive processing of affect (Taylor et al., 1997). The basic assumption in the literature is that social and emotional competence are in part based on an individual's capacity for regulating emotion and the behavior associated with emotional arousal (Eisenberg, Cumberland, & Spinrad, 1998). Emotion regulation is the ability to modulate the intensity, duration, and frequency of their emotional responses and emotion-related behavior. It can be inferred that individuals with alexithymia, who are lacking the ability to regulate their emotions, may not fully achieve social and emotional competence. Emotional competence is defined as an understanding of one's own and others' emotions, the tendency to display emotion in a situationally and culturally appropriate manner, and the ability to inhibit or modulate experienced and expressed emotion and emotionally derived behavior as needed to achieve goals in a socially acceptable manner (Eisenberg,

Cumberland, & Spinrad, 1998). Parental socialization of emotion is believed to contribute to children's adjustment and social competence in many ways, including modeling and teaching children methods to manage their experience and emotional expressivity. These findings are important in understanding the relationship between socio-emotional competence, emotion regulation, and how these factors are associated with alexithymia. This literature (Boyum & Parker, 1995; Taylor et al., 1997; Eisenberg, Cumberland & Spinrad, 1998) lends support to the author's hypothesis that expressiveness in the family environment is associated with the degree of alexithymia.

It is important to explore the relationship between family emotional expressivity and alexithymia in order to understand the mediating factors in family environment that lead to alexithymia. In hopes of preserving family stability, it is important to assess family of origin expressiveness. In addition, family of origin expressiveness is believed to be linked to one's ability to form healthy and stable relationships in later life (Cassidy et al. 1992; Halberstadt, 1999). Thus, understanding how the family of origin impacts the development of alexithymia is critical for both immediate goals of family preservation and long term goals of relationship capability. Further, by understanding family factors that are associated with alexithymia, therapists will be more prepared to treat clients presenting with affective problems related to the processing of emotions.

Purpose of the Study

The purpose of the study was to empirically explore how particular family of origin variables are related to alexithymia. Specifically, the author explored emotional self-expressivity, family expressivity, family dysfunction and the family environment to assess how these variables are associated with the facets of alexithymia. The author

explored how the type of emotional expressivity (positive or negative in valence)

demonstrated within the family of origin affects the development of alexithymia. The

author explored aspects of positive and negative emotional expressivity to determine

what types of emotional expressivity are related to alexithymia.

Although investigators have assessed individual factors such as family of origin

environment, research is lacking in the area of assessing family of origin correlates with

alexithymia. The present study is based on research by Parker, Taylor, and Bagby (1993),

Eisenberg et al. (1998), and Hovestadt et al. (1998) who examined family factors that

were associated with alexithymia. This study comprehensively examined the family

variables that are theoretically-related to alexithymia in a way that has not been

undertaken by previous researchers.

This study assumes a somewhat Adlerian developmental approach that

emphasizes family of origin environmental influences upon the emerging personality

(Adler, 1927; Adler 1931; Adler 1956). The measures used in this study were chosen

from different theoretical heritages as they broadly assessed contributions of the family

environment that can affect emotional processing (Adler, 1927; Adler 1931; Adler,

1956). This pantheoretical choice of measures was utilized because the author is

assessing several family factors (i.e. self-expressiveness, family expressiveness, and

family dysfunction) simultaneously which have not been previously assessed in the

literature.

Expected Results

Figure 1 is a pictorial representation of author's hypotheses, specifically, that high

levels of negative self-expressiveness as measured by the Self-Expressiveness in the

Family Questionnaire Negative Scale (SEFQ NEG), negative family expressiveness as measured by the Positive and Negative Expressiveness in the Family Questionnaire Negative Scale (PNEFQ NEG), and characteristics of a dysfunctional family environment as measured by the Family Assessment Device (FAD), the Family of Origin Scale (FOS), and the Perceived Social Support From Family (PSSFA) will be related to high levels of alexithymia as measured by the twenty-item Toronto Alexithymia Scale (TAS-20). It is predicted that the FOS will be related to self-expressiveness in the family in that individuals will show higher levels of positive expressiveness if raised in a generally healthy family environment as measured by the FOS. It is predicted that the FAD will be related to self-expressiveness in the family in that individuals will show lower levels of positive expressiveness if raised in a dysfunctional family environment as measured by the FOS. The FOS and the FAD are believed to be related to self-expressiveness as measured by the Positive and Negative Expressiveness in the Family Questionnaire (PNEFQ)'s two domains: positive expressiveness and negative expressiveness. The PNEFQ and the SEFQ are believed to be related to alexithymia in that high scores on positive expressiveness as measured by the PNEFQ and the SEFQ will be related to a decreased level of alexithymia as measured by the TAS-20. The FOS is believed to be related to alexithymia as measured by the TAS-20 in that a high level of family dysfunction as measured by the FOS will lead to a higher likelihood of alexithymic traits as measured by the TAS-20. The FAD is believed to be related to alexithymia as measured by the TAS-20 in that a high level of family dysfunction as measured by the FAD will lead to a higher likelihood of alexithymic traits as measured by the TAS-20 (See Figure 1).

Figure 1
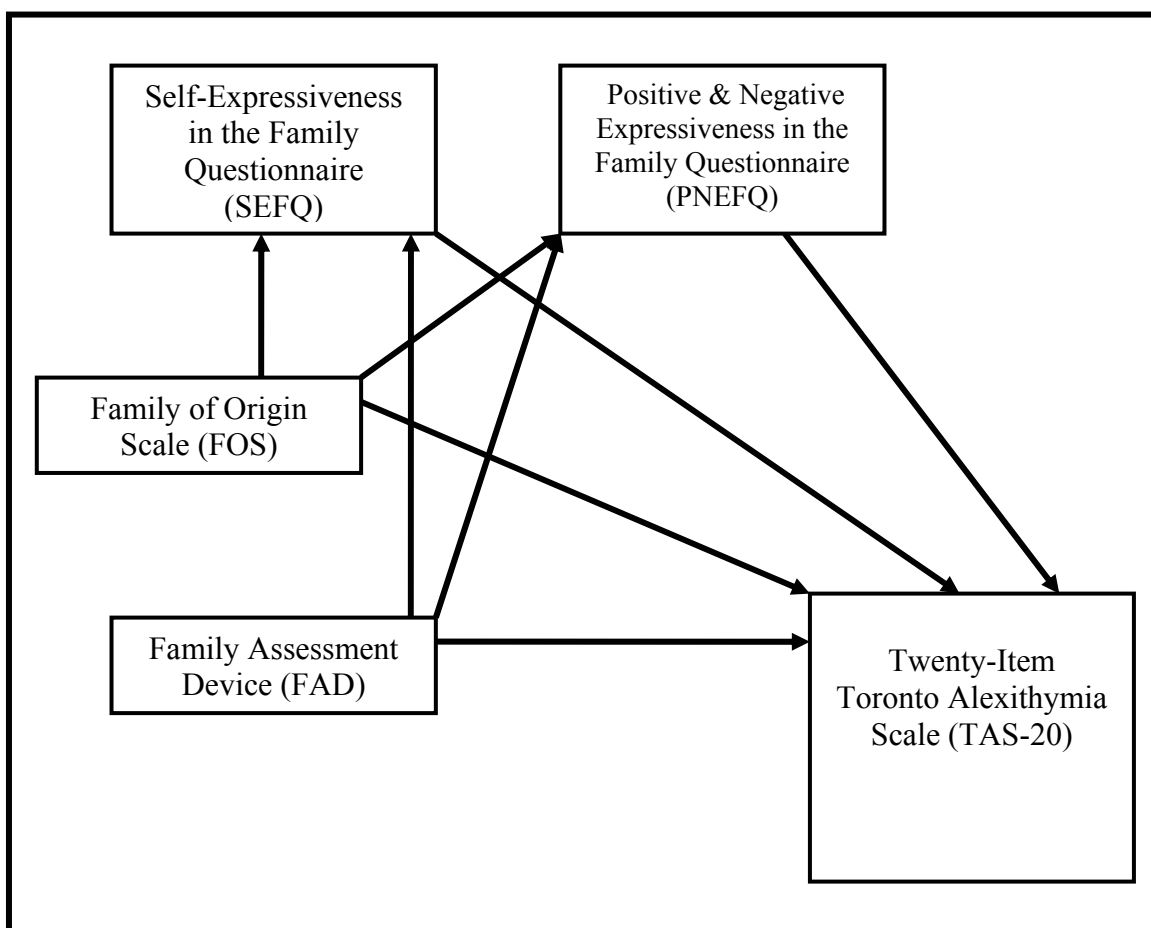
This study examined the following research questions and corresponding hypotheses:

1. *What family environment variables are statistically associated with*

   alexithymia?

Hypothesis: Negative self-expressiveness as measured by the SEFQ NEG will be

significantly positively associated with alexithymia total score (TOT) and subscales (DIF,

DDF, and EOT). It is hypothesized that the more negative self-expressiveness one

reports, the higher the scores on alexithymia total score (TAS TOT) and TAS subscales

(DIF, DDF, and EOT) will be.

Hypothesis: Positive self-expressiveness as measured by the SEFQ POS will be

negatively correlated with alexithymia total score (TAS TOT) and TAS subscales (DIF,

DDF, and EOT). It is hypothesized that the more positive self-expressiveness one reports, the lower the alexithymia scores.

Hypothesis: Negative family expressiveness as measured by the PNEFQ NEG will be significantly positively associated with alexithymia total score (TAS TOT) and TAS subscales (DIF, DDF, and EOT). It is hypothesized that the more negative family expressiveness one reports, the higher the alexithymia scores.

Hypothesis: Positive family expressiveness as measured by the PNEFQ POS will be significantly negatively associated with alexithymia total scores (TAS TOT) and TAS subscales (DIF, DDF, and EOT).

Hypothesis: Perceived social support from family as measured by the PSSFA will be negatively associated with alexithymia in that the more social support one receives from family members, the less likely one is to develop alexithymia.

Hypothesis: Family dysfunction as measured by the FAD and the FOS will be positively correlated with alexithymia. It is hypothesized that the more family dysfunction one reports, the higher the alexithymia scores.

2. *How does expressed emotion (positive or negative in overall valence) in the family contribute to alexithymia?*

Hypothesis: Negative family expressiveness as measured by the PNEFQ NEG will be significantly positively associated with alexithymia total score (TAS TOT) and TAS subscales (DIF, DDF, and EOT). It is hypothesized that the more negative family expressiveness one reports, the higher the alexithymia scores.

Hypothesis: Positive family expressiveness as measured by the PNEFQ POS will be significantly negatively associated with alexithymia total scores (TAS TOT) and TAS subscales (DIF, DDF, and EOT).

    3. *What is the predominant tone of expressiveness in the family that is associated with alexithymia?*

Hypothesis: Negative self-expressiveness as measured by the SEFQ NEG will be significantly positively associated with alexithymia total score (TAS TOT) and TAS subscales (DIF, DDF, and EOT). It is hypothesized that the more negative self-expressiveness one reports, the higher the scores on alexithymia total score (TAS TOT) and TAS subscales (DIF, DDF, and EOT) will be.

Hypothesis: Positive self-expressiveness as measured by the SEFQ POS will be negatively correlated with alexithymia total score (TAS TOT) and TAS subscales (DIF, DDF, and EOT).

Hypothesis: Negative family expressiveness as measured by the PNEFQ NEG will be significantly positively associated with alexithymia total score (TAS TOT) and TAS subscales (DIF, DDF, and EOT). It is hypothesized that the more negative family expressiveness one reports, the higher the alexithymia scores.

Hypothesis: Positive family expressiveness as measured by the PNEFQ POS will be significantly negatively associated with alexithymia total scores (TAS TOT) and TAS subscales (DIF, DDF, and EOT).

    4. *To what extent is level of overall family dysfunction correlated with alexithymia?*

Hypothesis: Family dysfunction as measured by the FAD will be associated with alexithymia. High scores on the FAD indicate poor family functioning and are expected to be positively associated with alexithymia. Family dysfunction as measured by the FOS will be associated with alexithymia. High scores on the FOS indicate a lack of perceived healthy expressive family atmosphere and are expected to be positively associated with alexithymia.

Hypothesis: Family dysfunction as measured by FOS will moderate the relationship between positive family expressiveness as measured by the PNEFQ POS and alexithymia (subscales and total score). Specifically, positive family expressiveness will be associated with healthy emotional expression (e.g., LOW alexithymia), but that relationship will be attenuated by a dysfunctional family environment.

Hypothesis: Family dysfunction as measured by FOS will moderate the relationship between negative family expressiveness as measured by the PNEFQ NEG and alexithymia (total scores and subscales). Specifically, negative family expressiveness will be associated with problematic emotional expression (e.g., HIGH alexithymia) and that relationship will be enhanced by high dysfunctional family.

Hypothesis: Family dysfunction as measured by FOS will moderate the relationship between positive self-expressiveness as measured by the SEFQ POS and alexithymia. Specifically, positive self-expressiveness will be associated with healthy emotional expression (e.g., LOW alexithymia), but that relationship will be attenuated by a dysfunctional family environment.

Hypothesis: Family dysfunction as measured by FOS will moderate the relationship between negative self-expressiveness as measured by the SEFQ NEG and alexithymia.

Specifically, negative self-expressiveness will be associated with problematic emotional expression (e.g., HIGH alexithymia), and that relationship will be enhanced by a highly dysfunctional family environment.

5. *Does expressiveness mediate or moderate family dysfunction effects upon alexithymia? Does family dysfunction lead to negative emotional expressiveness, which then could be causally related to alexithymia?*

Hypothesis: Positive family expressiveness as measured by the PNEFQ POS will moderate the relationship between social support from family as measured by the PSSFA and alexithymia (total score and subscales). Specifically, positive family expressiveness will be associated with healthy emotional expression (e.g., LOW alexithymia), but that relationship will be attenuated by low perceived social support from family.

Hypothesis: Negative family expressiveness as measured by the PNEFQ NEG will moderate the relationship between perceived social support from family as measured by the PSSFA and alexithymia (total scores and subscales). Specifically, negative family expressiveness will be associated with problematic emotional expression (e.g., HIGH alexithymia) and that relationship will be attenuated by high perceived social support from family.

Hypothesis: Positive self-expressiveness as measured by the SEFQ POS will moderate the relationship between perceived social support from family as measured by the PSSFA and alexithymia. Specifically, positive self-expressiveness will be associated with healthy emotional expression (e.g., LOW alexithymia), but that relationship will be attenuated by low perceived social support from family.

Hypothesis: Negative self-expressiveness as measured by the SEFQ NEG will moderate the relationship between perceived social support from family as measured by the PSSFA and alexithymia (total scores and subscale scores). Specifically, negative self-expressiveness will be associated with problematic emotional expression (e.g., HIGH alexithymia), but that relationship will be attenuated by high levels of perceived social support from family. If moderational models will not explain these relationships, mediating models will also be tested. However, if moderating models explain the relationships between these variables; linear mediation models would be incomplete and thus would not be tested here.

CHAPTER 2

FAMILY OF ORIGIN CORRELATES WITH ALEXITHYMIA

Introduction

The author will first define alexithymia and discuss its history and development as a measurable construct. Then the author will explore the literature on self-expressivity and family expressivity and their relationship to alexithymia. The author will review literature relevant to the relationship between emotion dysregulation and alexithymia. Family styles of emotional expressivity will be reviewed. The difference between parental warmth and parental expressivity will be addressed. The relationship between negative family expressiveness and alexithymia will be highlighted. The socialization of emotion process and its relationship to alexithymia will be discussed. The author will also briefly review the relationship between type of language used in the family environment and family expressivity. The author will explore the relationship between peer relationships and family expressivity. The author will address emotional expressivity and its relationship to family dysfunction, family violence and alexithymia. Finally, the author will discuss how family expressiveness, self-expressiveness, the family environment, and family dysfunction might be influencing factors on the development of alexithymia.

History and Definition of Alexithymia

Alexithymia is a precisely-defined and extensively investigated construct that has primarily found application in the fields of psychosomatic medicine, general psychiatry, personality psychology, and counseling psychology (Taylor & Bagby, 1994). Nemiah and Sifneos (1970) investigated the cognitive and affective styles of patients who suffered from psychosomatic diseases. Results of their study confirmed that many

psychosomatic patients had difficulty in describing subjective feelings, exhibited an impoverished fantasy life, and a very concrete, literal cognitive style that is externally-oriented (Taylor & Bagby, 1994). Externally-oriented thinking can be described as constricted imaginal processes, or one's tendency to engage in concrete thinking. Individuals who engage in externally-oriented thinking tend to lack a vivid imagination and the capacity to create an interesting inner world. In 1973 Sifneos coined the term *alexithymia* (from the Greek: *a* meaning *lack*, *lexis* meaning *word*, and *thymos* meaning *emotion*) to signify this cluster of cognitive characteristics. In 1976 presentations and debates on alexithymia at the 11th European Conference on Psychosomatic Research held in Heidelberg, Germany, led clinicians and researchers to agree on a precise definition of the alexithymia construct. Since the Heidelberg Conference, there has been a general consensus in the literature regarding the defining characteristics of alexithymia (Taylor & Bagby, 1994).

The alexithymia construct consists of a cluster of cognitive and affective characteristics that were first observed in patients exhibiting classic psychosomatic disorders and later among patients with substance use disorders, posttraumatic stress disorders, and eating disorders (Taylor, 2000). Although the alexithymia construct is viewed as a multidimensional construct, a body of empirical research is accruing that supports the view that alexithymia reflects deficits in cognitive processing and regulation of emotion (Nemiah, 1996; Taylor, 2000). It has become apparent that alexithymic individuals have a deficit in both their capacity to experience, differentiate, and describe feelings, and their ability to create fantasy (Nemiah, 1996). As a result of those deficits, stressful arousal can be more readily transformed into somatic problems (Nemiah, 1996).

The condition of alexithymia appears to be a relatively stable, information-processing attribute, normally distributed in the general population (Taylor, 1994; Yelsma, Hovestadt, Anderson, & Nilsson, 2000).

Present View of the Construct of Alexithymia

The current consensus is that alexithymia is a personality construct characterized by three factors: (1) difficulty identifying feelings, (2) difficulty expressing feelings, and (3) externally oriented thinking. (Bagby, Parker & Taylor, 1994; Taylor, 2000; Taylor, Bagby, & Luminet, 2000). The first two factors of alexithymia, difficulty identifying emotions and difficulty describing emotions, are straightforward. The third factor, externally-oriented thinking, however, is more complex. Taylor (1994) defined externally-oriented thinking as a "form of dispassionate thinking or the inability to access and communicate feelings to others" (p.67). This construct assesses the cognitive perspective individuals experience in processing and expressing their emotions. Empirical research has provided considerable support for the validity of this construct and for its association with certain anxiety and psychosomatic disorders (Taylor, 1994). The Toronto Alexithymia Scale 20-item version (TAS-20) has emerged as the standard for use in measuring these three facets of alexithymia.

Measuring the Construct of Alexithymia

The measurement of alexithymia is commonly conducted with self-report questionnaires like the TAS-20. In measuring the construct of alexithymia, Linden, Wen, & Paulhus (1995) examined seven different instruments: (a) the Beth-Israel Questionnaire, (b) the Schalling-Sifneos Personality Scale, (c) the Alexithymia Provoked Response Questionnaire, (d) the Minnesota Multiphasic Personality Inventory

Alexithymia scale, (e) the Archetypal Test, (f) the Toronto Alexithymia Scale, and (g) the

Analog Alexithymia Scale. The authors concluded that the Beth-Israel Questionnaire,

which requires a standardized interview, and the Toronto Alexithymia Scale (TAS),

which is a self-report scale, represents the best measures of alexithymia. In addition, the

two measures were found to correlate well (r = .62) despite their different methods of

administration.

A more recent measure of alexithymia, the Bermond-Vorst Alexithymia

Questionnaire (BVAQ) was designed by Müller, Bühner, and Ellgring (2004) to

comprehensively assess the alexithymia construct, measuring five dimensions of

alexithymia: (1) (Difficulty) *Emotionalizing:* the degree to which an individual is

emotionally aroused by emotion-inducing events, (2) (Difficulty) *Fantasizing* about

virtual matters: the degree to which an individual is inclined to fantasize, imagine, day-

dream, etc., (3) (Difficulty) *Identifying* the nature of one's own emotions: the degree to

which one is able to define one's arousal states, (4) (Difficulty) *Analyzing* one's own

emotional states: the degree to which one seeks out explanations of one's own emotional

reactions, and (5) (Difficulty) *Verbalizing* one's own emotional states: the degree to

which one is able or inclined to describe or communicate about one's emotional reactions

(Vorst & Bermond, 2001).

The five subscales of the BVAQ are considered to load on two higher order

factors, an affective factor (F2) consisting of subscales "Emotionalizing" (1) and

"Fantasizing" (2), and a cognitive factor (F1) consisting of the subscales "Identifying"

(3), "Analyzing" (4) and "Verbalizing" (5). Each item is rated on a 5-point Likert scale

from 1 to 5. The total score of the BVAQ-40 range from 40-200 points, with high scores indicating high proneness to alexithymia (Vorst & Bermond, 2001).

The psychometric properties of the BVAQ were investigated in a clinical sample of 370 inpatients (Müller, Büller, & Ellgring, 2004). The proposed 5-factor structure was tested using confirmatory factor analysis and the fit of the data was found to be acceptable for the 5-factor model of the BVAQ-40. However, the internal consistencies of the scale were acceptable only for the total score and the factors, "Verbalizing," and "Identifying." The results showed evidence for the convergent validity of the BVAQ with the TAS-20 and the "Openness to experience," "Extraversion," and "Neuroticism" dimensions of the NEO-FFI. The BVAQ appears to be a promising instrument and is preliminarily recommended for the assessment of alexithymia, but its reliability must be improved (Müller, Büller, & Ellgring, 2004).

The measurement of the alexithymia construct remained one of the major problems for researchers until the development of the Toronto Alexithymia Scale, especially in its 20-item version (TAS-20). Although some researchers criticized the TAS-20, stating that the scale did not provide a comprehensive operationalization of alexithymia (Vorst & Bermond, 2001), the TAS-20 has been shown to provide adequate validity and reliability (Taylor, Bagby, & Luminet, 2000).

When Taylor, Ryan, & Bagby (1985) sought out to develop a new self-report measure of alexithymia, the goal was to design a scale which would meet acceptable standards of test development procedures, demonstrate adequate internal consistency, and create a measure with a factor structure congruent with the clinical descriptions of the alexithymia construct. In their preliminary study, Taylor et al. (1985) developed a 26-

item self-report scale (i. e., the TAS) that provided a reliable estimate of 4 factors

congruent with the alexithymia construct. This first version of the TAS was found to be

an internally consistent instrument with good test-retest reliability over 1-week and 5-

week periods. All 26 items demonstrated strong item-total correlations, and every item

loaded significantly on at least one of the four factors (Taylor et al. 1985).

Researchers have also assessed the criterion validity of the TAS by employing

clinical ratings derived from observed interviews as the criterion. TAS scores were found

to be significantly higher for the group of patients identified by two out of three raters as

"alexithymic" than for the group categorized as "nonalexithymic." The results from this

study and from previous investigations assessing the reliability and construct validity of

the TAS suggested that it was the psychometrically best-validated measure of alexithymia

(Taylor, Bagby, Ryan & Parker, 1988).

Bagby, Taylor and Ryan (1986) assessed the construct validity of the scale by

examining the relationship between the TAS and several personality and

psychopathology measures. The TAS was found to correlate strongly and positively with

a measure of hypochondriasis but negatively with measures of psychological mindedness

and "need for cognition" (Bagby, Taylor, & Ryan, 1986). In addition, people who scored

higher on the externally-oriented thinking subscale evidenced a greater decrease in

psychological mindedness. These results suggest that the TAS was adequately assessing

the theoretical domain of alexithymia. It is important to note that the psychometric

properties of the revised version of the TAS, the twenty-item Toronto Alexithymia Scale

(TAS-20), have provided strong support for the validity of alexithymia as a multifaceted

construct (Taylor & Bagby, 1994).

The result of the first Bagby et. al. (1986) study was the construction of a new twenty-item version of the scale, the TAS-20. The TAS-20 demonstrated good internal consistency, test-retest reliability and a three-factor structure that was theoretically sound with the alexithymia construct. In the second study confirmatory factor analysis revealed that the three-factor structure of the TAS-20 demonstrated stability and replicability in both clinical and nonclinical populations (Bagby, Parker, & Taylor, 1994).

In 1994 Bagby, Parker, & Taylor conducted a study to evaluate the convergent, discriminant, and concurrent validity of the TAS-20. Results of the study provided strong support for the convergent and concurrent validity of the TAS-20 as a measure of the alexithymia construct, and moderate discriminant validity of the scale (Bagby, Parker, & Taylor, 1994). The TAS-20 correlated negatively with psychological mindedness and the need-for-cognition. In addition, negative correlations of the TAS-20 with openness to experience support the idea that the scale is related to deficits in emotional awareness and imaginal activity, which are considered to be salient features of the alexithymia construct. The TAS-20 was found to be positively related to neuroticism and negatively correlated with the positive emotions facet of the extraversion dimension of the NEO-Personality Inventory, further adding support to the use of the scale as a measure of alexithymia. Results of this study also suggest that the TAS-20 is related to not only a reduced ability to feel pleasurable emotions but also one's susceptibility to experiencing poorly differentiated emotional distress (Bagby, Parker, & Taylor, 1994).

To confirm the stability of the three-factor structure of the TAS-20, researchers assessed the replicability of the factor structure of the TAS-20, the reliability of the scale, and the influence of gender, age, and education on TAS-20 scores (Taylor, Bagby, &

Parker, 2003). The factor structure of the scale was assessed using confirmatory factor

analysis (CFA) and was replicable in the entire community sample, and also separately in

men and women. The TAS-20 and its three factors demonstrated internal reliability, and

the variables of gender, age, and education accounted for relatively small or modest

amounts of variability in total TAS-20 and factor scale scores. Results provide strong

support for the reliability and factorial validity of the TAS-20 and indicate the importance

of using CFA when assessing the replicability and theoretical integrity of the factor

structure of the scale (Taylor, Bagby, & Parker, 2003).

Parker et. al. (1993) assessed the psychometric properties of the TAS-20, and

preliminary investigations indicated that the TAS-20 has good internal consistency

(Cronbach's alpha = 0.81) and test-retest reliability (r = 0.77; p<0.01) over a three-week

period. When cross-validating the TAS-20 Bagby, Parker, & Taylor, (1994) demonstrated

acceptable internal consistency (Cronbach's alpha = 0.81) with the derivation sample,

and for each of the three factors as well (F1 = 0.78; F2 = 0.75; F3 = 0.66. Test-retest

reliability of the TAS-20 three weeks apart was 0.77 (p<0.01) (Bagby, Parker, & Taylor,

1993).The literature on the TAS-20 suggests that it is a reliable and valid measure of the

construct of alexithymia. At present, the TAS-20 remains the most frequently used

measure of alexithymia.

Emotional Expressiveness and Alexithymia

To understand the relationship between alexithymia and emotional

expressiveness, it is important to make explicit the distinction between self-

expressiveness and family expressiveness. Self-expressiveness is defined as a persistent

pattern or style in exhibiting nonverbal and verbal expressions that often but not always

appear to be emotion related (Halberstadt, et al., 1995). This pattern is usually measured in terms of frequency of occurrence. Family expressiveness is defined as the predominant style of exhibiting nonverbal and verbal expressions within a family (Halberstadt, et al., 1995).

Expressiveness in one's childhood family environment has been shown to be associated with alexithymia in adulthood. Kench and Irwin (2000) suggested that alexithymic tendencies in adulthood may be associated with a childhood family environment that tended not to foster spontaneous emotional expression and involvement. Parental alexithymic tendencies might be passed down to children and may be reflected in the child's family environment. For example, when family members are not given opportunities to express their feelings openly with one another, alexithymic traits may be more likely to develop. Kench and Irwin (2000) surveyed 92 university students to determine if features of the childhood family environment could predict the level of alexithymic tendencies. The TAS-20 was used to measure alexithymia. Using Bloom and Naar's Family-Functioning scale, Kench and Irwin (2000) also surveyed dimensions of the childhood family environment such as the family's level of cohesion, expressiveness, conflict, disengagement, sociability, enmeshment, organization, and parenting style. In the Family-Functioning scale, the Expressiveness dimension assessed the extent to which family members were allowed and encouraged to express their opinions and their feelings to each other. Kench and Irwin (2000) found that the sole family variable predictive of global alexithymic tendencies as measured by the total TAS-20 was expressiveness in the family, although other family variables were predictive of individual components of alexithymia. Kench and Irwin's (2000) findings are consistent with the view that the

childhood family environment has an impact on the development of alexithymic

tendencies in adulthood. In this author's current study it is hypothesized that a family

environment which encourages positive expression of emotion will lead to a decreased

tendency for alexithymia, and vice versa.

Emotion Regulation and Alexithymia

The childhood family environment can be associated with children's emotional

expressiveness as it is within the family that children first learn messages about

emotional expressivity. Thus, it is important to consider how emotional expressiveness in

the family environment can lead to deficits in emotion regulation. Emotion regulation

refers to the processes by which individuals influence which emotions they have, when

they have them, and how they experience and express these emotions (Gross, 1998).

Emotion regulatory processes may be automatic or controlled, conscious or unconscious,

and may have their effects at one or more points in the emotion generative process

(Gross, 1998). The ability to manage one's emotions in various circumstances and in a

flexible, adaptive manner is a key developmental task of the early years of childhood

(Volling, McElwain, Notaro, & Herrera, 2002). Youth with early signs of emotion

dysregulation are at risk for developing later internalizing and externalizing disorders

(Volling et al. 2002). This could mean that emotion dysregulation might be related to

alexithymic tendencies, or affective and cognitive difficulties experiencing and

expressing emotions, including the inability to appropriately internalize and externalize

emotions.

The family is likely the initial context that provides children with the opportunity

to learn about and cope with emotions. Emotion regulation processes, or the ability to

manage emotional expressions and the development of emotional understanding, begin in infancy. Parents play a critical role in helping infants learn to self-soothe and maintain emotional and physiological arousal (Volling et al. 2002). Emotional development in the early years such as early emotional expressiveness, emotion regulation, and emotional understanding is linked to the supportive role of the caregiving environment (Volling et al. 2002). One-year-old infants (N = 62) and their mothers and fathers were observed in free play and teaching sessions in order to examine parents' emotional availability and the infants' emotional competence (Volling et al. 2002). Parental emotional availability was reflected as parental sensitivity and positive affect, which appeared to have an organizing influence on infant emotions and attention (Volling et al. 2002). Similar relations between parent emotional availability and infant emotional competence were found for mother-infant and father-infant dyads (Volling et al. 2002). Results of the Volling et al. (2002) study highlight the importance of the supportive role of emotionally available parents in organizing an infant's emotional competence, and stress the significance of emotional development in the early years of life as a preventative measure against the development of alexithymic tendencies. Further, it appears that when parents are emotionally expressive with their children, displaying sensitivity and positive affect, emotion dysregulation is less likely to occur.

There is increasing evidence that children's emotion regulation, considered to be a component of coping, is related to parents' expression of emotion (Eisenberg et al., 2001). In a study conducted by Valiente, Fabes, Eisenberg, and Spinrad (2004) the relations of parents' emotional expressivity, mother's support, and children's daily stress to children's constructive coping were examined in a sample of ninety-four 7-12 year-old

children. Over the course of two weeks, children, together with their mothers, completed daily diaries of their stressful events. Mothers and fathers reported on their expression of positive, negative, submissive, and negative dominant emotion using Halberstadt's Self Expressiveness in the Family Questionnaire (SEFQ; Halberstadt et al., 1995). The SEFQ consists of three scales, and items are rated on a 9-point Likert scale (where 1 = rarely expresses feeling and 9 = frequently expresses feeling). Parental positive expressiveness refers to positive emotional expressions such as praising someone, demonstrating admiration, and/or expressing gratitude. Negative dominant expressiveness involves the display of emotions that threaten individuals and expressions of anger. Negative submissive expression involves emotional displays such as sulking, expressing sorrow, and/or crying (Halberstadt et al., 1995).

By assessing children's' scores on the SEFQ, Valiente et al. (2004) found that although fathers' expressivity was not related to children's constructive coping, mothers' expression of negative emotion, particularly, negative dominant emotion (e.g., anger, hostility), was negatively related to children's constructive coping. This relation was stronger for children exposed to low levels of parents' positive emotion and mothers' expression of negative submissive emotion. Children's constructive coping was positively related to mothers' supportive strategies (Valiente et al., 2004). The Valiente et al. (2001) findings are consistent with the Volling et al. (2002) findings indicating that positive expressivity and support may foster more flexible and adaptive control of emotion regulation processes and understanding of others' emotions. These findings also indicate that exposure to high levels of negative emotion undermines children's opportunities to learn about emotions (Dunn & Brown, 1994). Exposure to intense,

hostile negative emotions may be too arousing for children to learn how to cope with and regulate their emotions successfully. This might lead children to learn methods to hide or inhibit their emotions and may result in a restricted range of affective expression. Valiente et al. (2004) provided evidence that family expressivity is related to children's ability to regulate emotions in order to cope constructively, engage in emotion regulation, and understand others' emotions.

It is believed that emotional expressivity in the family environment is linked to not only the child's emotion regulation but also externalizing behaviors. Eisenberg, Losoya, Fabes, Guthrie, Reiser, Murphy, Shepard, Poulin and Padgett (2001) examined the relationship between parents' warmth, emotional expressivity, and discussion of emotion to 2nd to 5th graders regulation of emotional expressivity, externalizing problem behaviors, and expressivity. Parents and children's facial expressions to evocative slides were observed, as was parents' discussion of the slides. In addition, parents and teachers provided information on children's regulation of expressivity and problem behavior. The Eisenberg et al. (2001) findings suggested that parents' emotion-related behaviors are linked to children's regulation of expressivity and externalizing behaviors. Eisenberg et al. (2001) concluded that parents' discussion of emotion, in addition to parental warmth and positive emotion in interactions with their children is related to children's regulation of the expression of emotion or externalizing problem behavior. The Eisenberg et al. (2001) findings are consistent with Volling et al. (2002) and Valiente et al. (2001) findings that parents' positive affect was related to a decrease in children's emotion dysregulation. This means that when parents can engage in warm interactions with their

children and model healthy emotion regulation, children may be less likely to develop alexithymic traits and externalizing behaviors.

Family environments in which deficits in communication exist may be associated with children's impaired abilities to regulate their own affective expressions. Berenbaum and James (1994) provide evidence suggesting that children who grew up in families where there is minimal positive communication tend to be alexithymic, meaning that they have affective and cognitive difficulties experiencing and expressing emotions. Family expressiveness has been associated with alexithymic tendencies in adulthood. Berenbaum and James (1994) examined the relationship between alexithymia and 1) family environment; 2) discomfort and ambivalence experiencing and expressing emotion; and 3) dissociation. The TAS was used to assess the ability to identify and communicate emotion in this sample of undergraduates (N = 363).

In the Berenbaum and James (1994) study, alexithymia was found to be significantly correlated with ambivalence concerning expression of emotion (measured using the Ambivalence over Emotional Expressiveness Questionnaire) and with discomfort concerning negative emotional states (measured using the Emotional Experience Discomfort Scale). Higher levels of alexithymia were associated with retrospective reports of diminished family expressiveness (measured using the Expressiveness subscale of the Family Environment Scale) and with feeling less emotionally safe during childhood (measured using the Childhood Experiences Questionnaire). These results imply that alexithymia is linked to negative emotional expressiveness in the family environment. Alexithymia was also found to be significantly correlated with dissociative experiences (measured using the Dissociative Experiences

Scale). On the Family Expressiveness Questionnaire, high levels of dissociation were associated with increased negative dominant family communication; however, high levels of alexithymia were associated with low levels of positive family communication (Berenbaum & James, 1994). It appears that the family environment moderates children's ability to regulate their emotions and an environment consisting of diminished family expressiveness is linked to the development of alexithymic tendencies. In sum, it appears that family factors such as parental warmth, sensitivity, and positive affective expression are protective factors against emotion dysregulation processes that may lead to alexithymia.

Family Styles of Emotional Expressivity

Various family styles of emotion expressivity exists that influence individuals' skill level in understanding and expressing emotion. For example, Halberstadt and Eaton (2002) assessed associations between family styles of expressing emotion and children's expressive styles and skills in understanding emotion. In a meta-analytic study Halberstadt and Eaton (2002) examined moderating variables of emotion valence and age in the relationship between family expressiveness and positive outcomes in children. For emotional expressiveness, positive family expressiveness and positive children's expressiveness were associated across age; however, negative family expressiveness and negative children's expressiveness were linearly and curvilinearly related across age (Halberstadt & Eaton, 2002). Halberstadt and Eaton's (2002) narrative review asserted that positive family expressiveness is associated with individuals' positive expressiveness across the lifespan. Negative family expressiveness was found to be associated with negative expressiveness in older children as they move into adolescence and adulthood.

The authors distinguished between negative emotions that tended to be more submissive (e.g. sadness, apology, not handling tension well, embarrassment) and those emotions that tend to be more dominant (e.g. anger, contempt, blaming, expressing dislike, criticizing). Because children's expression of negative-submissive emotion tends to be more socially acceptable than expression of negative-dominant emotions, children may model their parents' negative submissive style more than their negative-dominant style (Halberstadt & Eaton, 2002).

Halberstadt and Eaton (2002) analyzed the effect of family expressiveness on children's understanding of their own and others' emotions using constructs of global, positive, and negative expressiveness. For *emotion understanding*, positive family expressiveness and children's understanding were not found to be related at any age. Negative and negative-submissive family expressiveness and children's emotion understanding tended to be related across age, both linearly and curvilinearly (Halberstadt & Eaton, 2002). Positive expressiveness in the family was related to children's emotion understanding, but negative expressiveness in the family was not consistently related to children's emotion understanding. Negative-submissiveness in the family was negatively related to emotion understanding. Halberstadt and Eaton (2002) argued that young children, when presented with clear and frequent displays of prototypical expressions of emotion, would develop recognition skills more quickly, in comparison to children in less expressive homes, where emotion expression is less frequent and less fully displayed. Thus, children in family environments in which negative emotional expression is the predominant tone may develop skills at recognizing negative styles of emotional expressivity.

The Halberstadt and Eaton (2002) study demonstrated the significant effects of family expressiveness of emotion on children's development of emotional expressivity. Children in expressive families were themselves more expressive, and for negative expressiveness, the relationships between family and child were strongest when children were young and again when they reach young adulthood (Halberstadt & Eaton, 2002). Halberstadt and Eaton's (2002) meta-analyses on emotional expressiveness confirmed relationships between emotional expressiveness in the family and children. The effects for global and positive expressiveness were moderate in size and quite robust. For global and negative-submissive emotions, familial expressiveness was related to poorer emotion understanding in children over time. The meta-analyses demonstrated that the relationship of negative expressiveness between the families who participated in the study was significant, but small.

Halberstadt and Eaton (2002) suggested that familial positive expressiveness has robust associations with children's positive expressiveness, and that familial negative expressiveness has age related associations with children's negative expressiveness. Familial positive expressiveness was not found to be related to children's emotion understanding; however, familial negative expressiveness was found to have age-related associations with children's emotional understanding (Halberstadt & Eaton, 2002). Thus, it can be concluded that the style of expressiveness exhibited in the family environment is an important factor in how children learn to comprehend, regulate, and express their emotional experiences. These childhood emotional experiences have long term implications for how individuals comprehend, regulate and express emotions in adulthood. Consistent with Halberstadt and Eaton's (2002) study in which parents'

modeling of positive expressiveness was related to positive expressiveness in children, it appears that parents' reactions to children's emotional expressivity also affect children's style of emotional expressivity.

Parental reaction to children's emotions is believed to be linked to children's expression and interpretation of emotional experiences. For example, parents' reactions to children's emotions, parents' discussions of emotion with their children, and parents' own personal styles of expressing emotions all have implications for children's emotional experiences (Halberstadt & Eaton, 2002). These parent-child emotional experiences influence both how children express their emotional experiences, and how they interpret others' emotional experience and expressions (Halberstadt, 1991). Thus, individuals whose family of origin encouraged discussion and expression of emotion would be less likely to develop alexithymic tendencies.

In addition to parental reactions to children's emotions, parental expression of emotion is shown to be associated with individuals' emotional expressiveness and understanding of emotion. After reviewing the literature on parental expression of emotion, Halberstadt et al. (1999) found that children in expressive families were themselves emotionally expressive. Family expressiveness was also found to be related to individual's emotionality, understanding of emotion, social competence, intra-familial relationships and adult interpersonal relationships, self-esteem and personal adjustment, and academic achievement (Halberstadt, 1999).

It appears that family expressiveness is a strong influencing factor on several dimensions affecting individuals' emotionality, familial and social relationships, educational experiences, and level of self-esteem. Further, it can be assumed that self-

expressivity is influenced by family expressivity. In sum, it appears that children learn how to understand and express emotions by modeling their parents' style of emotional expressivity.

Parental Warmth versus Parental Expressivity

Not only parental expressivity but also parental warmth is viewed as a factor in children's emotion expressivity, or lack of alexithymia. According to Eisenberg et al. (2001), parental *warmth* or responsivity is typically viewed as an aspect of parenting style that is displayed in interactions with the child. *Warmth* reflects parents' general tendencies to be supportive and affectionate, to express approval, and to direct positive emotion and behaviors toward the child. Although family expressivity and warmth overlap in that positive emotion directed at the child can reflect both expressivity and warmth, *warmth* refers to the quality of interactions toward the child, whereas *expressivity* refers to parents' expression of emotion, even when the emotional expression in general is not directed toward a child (Eisenberg et al. 2001). It is believed that warm parents are relatively likely to express appropriate positive emotion in the presence of their children (Eisenberg et al. 2001). Thus, it is hypothesized that individuals whose parents demonstrated warmth and expressed positive emotions are less likely to develop alexithymic tendencies. In sum, it appears that parental warmth and parental positive expressivity are protective factors against the development of alexithymia in adulthood.

Negative Family Expressiveness and Alexithymia

Research supports a correlation between negative expressiveness in the family environment and later development of alexithymic tendencies. Alexithymia, or lack of emotional expressiveness, is negatively associated with various communication processes

in social relationships (Yelsma, Hovestadt, Nilsson, & Paul, 1998). Persons with high levels of alexithymia tend to have diminished abilities to describe their emotions and create fantasies, and are preoccupied with minute details of external events (Taylor, 1994). These individuals experience low levels of positive self-expressiveness and high levels of negative self-expressiveness in their family environments (Yelsma et al. 1998); and frequently grew up in homes where there was minimal positive communication (Berenbaum & James, 1994).

Negative expressiveness in the family environment is believed to be linked to the development of alexithymic traits in adulthood. Yelsma, Hovestadt, Nilsson, and Paul (1998) administered the Self-Expressiveness in the Family Questionnaire and the 20-item Toronto Alexithymia Scale to 49 prospective clients who sought services at a university training clinic. Yelsma et al. (1998) found that positive self-expressiveness scores were significantly negatively correlated with scores on alexithymia (r = .52), and the negative self-expressiveness scores were significantly positively correlated with alexithymia (r = .34). These results support the notion that mental health clients' self-reported lack of positive expressiveness and abundance of negative expressiveness within their family context may be attributes associated with alexithymic tendencies (Yelsma et al., 1998).

Yelsma et al. (1998) proposed two conclusions. First, clients' perceptions of their own positive expressiveness within the family context have a significant negative association with their tendency to be alexithymic. Second, clients' perceptions of their negative expressiveness within the family context also have a significant positive association with their tendency to demonstrate alexithymia. More specifically, the lack of positive self-expressiveness is associated with a person's difficulties describing their

feelings. Lack of positive self-expressiveness is also associated with externally oriented thinking, whereas negative self-expressiveness is significantly associated with difficulty identifying feelings. Mental health professionals working with clients having impoverished intrapersonal or interpersonal skills may want to examine their clients' lack of positive expressiveness and excess of negative self-expressiveness in family relationships (Yelsma et al., 1998).

Overall, the Yelsma et al. (1998) study indicated that clients' scores of positive self-expressiveness within their families were negatively correlated with alexithymia, whereas clients' scores of negative self-expressiveness within their families were positively correlated with alexithymia. It is hypothesized that alexithymia is positively correlated with negative self-expressiveness in the family.

Affective expression is an essential component of family communication (Yelsma, Hovestadt, Anderson and Nilsson, 2000). Family of origin expressiveness is linked to relationship capability in later life. It is important to assess family of origin expressiveness in order to preserve family stability by understanding communication styles. In addition, it is important to assess functional versus dysfunctional families in relation to emotional sharing. Members of dysfunctional families tend to either withhold or not verbalize their feelings, wants, likes, and dislikes with each other. In contrast, members of functional families tend to share a wider spectrum of emotional information with each other. The established patterns of emotional expressiveness typically learned in families influence virtually every relationship that people have with others both inside and outside of their family environment. Understanding the influence that effective

emotional expression has within families of origin is a critical step for comprehending functional relationships with other individuals (Yelsma, et al. 2000).

A personality construct such as alexithymia appears to be linked to the childhood family environment. For example, results from previous studies have indicated that alexithymic individuals frequently fail to engage in affective social interaction with others, and thus, do not receive affective comfort or support from others (Dunn & Brown, 1994; Taylor et al. 1997). The manner in which affect, cognition and attachment behaviors are integrated and mentally represented during one's formative years strongly influences the organization of personality and accounts for important, individual differences in adult life (Taylor et al. 1997). Thus, an individual's family of origin plays an integral role in their development of emotional expressivity and tendency to engage in social interactions with others. Further, alexithymia might impede the ability to receive and provide social support.

Socialization of Emotion and Alexithymia

Emotion expressivity is a socialization of emotion process that appears to begin in the child's family environment and is thought to be linked to the development of alexithymia, or a lack of emotional expressiveness. It is believed that an individual's expressiveness is in part determined by the socialization of emotion process, which includes factors such as family expressiveness discussed above. The socialization of emotion process in the family environment appears to be an organizing factor in the development of an individual's style of emotional expressivity. Socialization plays a central role in coordinating multiple family influence variables.

Parental socialization of emotion involves parenting behaviors that reflect parental beliefs, goals, and values in regard to their children's experience, expression, and modulation of emotion. Family of origin factors such as the socialization of emotion are believed to play a role in the development of alexithymia. Investigators have become increasingly concerned with the study of the socialization of emotion, particularly, how parents affect the socialization of children's understanding, experience, expression, and regulation of emotion (Eisenberg, Cumberland, & Spinrad, 1998).

It is important to differentiate between direct socialization of emotion and indirect socialization of emotion, which includes interactions and behaviors that do not particularly reflect a socializer's beliefs, values, and goals in relation to emotion, but have effects on children's emotional experience, expression, and understanding. Therefore, direct socialization includes socializers' behaviors that reflect their emotion-related cognitions and goals, whereas indirect socialization includes other interactions involving, observed by, or communicated to the child that affect the child's experience, expression, understanding, or modulation of emotion (Eisenberg, Spinrad, & Cumberland, 1998).

In researching the socialization of emotion, Eisenberg, Cumberland, and Spinrad (1998) proposed a heuristic model of factors that contribute to the socialization of emotion. The model proposed that emotion-related socialization behaviors (ERSBs) are influenced by child characteristics (e.g. age, sex, temperament; reactions to discipline), parental characteristics (e.g., values, childrearing philosophy, parental regulation, and emotionality), and characteristics of the culture (e.g., cultural values about the expression of emotion or the role of parental child-rearing practices in development). In addition,

aspects of the specific context also contribute to parental emotion-related socialization behaviors (Eisenberg, Cumberland & Spinrad, 1998).

Eisenberg, Cumberland, and Spinrad (1998) reviewed the literature relevant to the socialization of children's emotion and emotion-related behavior by parents, including (a) parental reactions to children's emotions, (b) socializers' discussion of emotion, and (c) socializers' expression of emotion. Research literature supported the view that parental socialization practices have effects on children's emotional and social competence and that the socialization process in bidirectional, meaning that children's emotion-related behavior affects parents' emotion-related behavior and vice versa. Further, parental negative emotionality and negative reactions to children's expression of emotion were found to be associated with children's negative emotionality and low social competence (Eisenberg, Cumberland, & Spinrad, 1998).

In addition to the role of children's understanding of emotions, children's affective expression plays a role in emotion socialization. Children's affective expressions are found to be associated with the amount of information, level of intensity, and types of emotions shared in their families, as well as with the quality of relationships among family members. Children from highly expressive families show higher levels of unrestricted expressiveness, express more negative affect, and communicate better nonverbally than children from low expressiveness families (Halberstadt, 1986).

Halberstadt (1986) hypothesized that when the family environment is low in expressiveness, individuals become sensitive to subtle displays of emotion in order to relate effectively with other family members. As a consequence of family inhibition, these individuals become less skilled in expressing emotion but more skilled in

perceiving emotion. When the family environment is high in expressiveness in both positive and negative values, individuals do not have to work hard to perceive the emotional states of family members. Thus, these individuals become more skilled in expressing emotion but less skilled in perceiving emotion. Halberstadt's (1986) findings lend support to the socialization hypothesis that family expressiveness has a differential effect on individuals' nonverbal behavior and skill. Halberstadt (1986) concluded that style of expression and skill in communication are influenced by the emotional expressiveness of the family environment. It is hypothesized that limited expression and communication skills in the family environment will be associated with alexithymic tendencies.

It is important to assess parents' and children's level of empathy in order to fully comprehend the socialization of emotion process and its impact on emotional expressivity. Strayer and Roberts (2004) examined the link between parent-child socialization of emotion and empathy. Empathy is strongly linked with emotional expressiveness, including anger, sadness and fear (Strayer & Roberts, 2004). Strayer and Roberts (2004) examined how child emotional factors were related to parental factors including empathy, emotional expressiveness, encouragement of children's emotional expressiveness, warmth and control. Although a direct link between parents' emotional expressivity and children's self-reported expressiveness of negative and positive emotions was not found, the study by Strayer and Roberts (2004) highlighted the link between parents' and children's empathy, lending support to the notion that children model their parents' style of emotional expressivity. This is significant in that one's ability to identify emotions in others is a key component of emotional socialization.

Individuals with alexithymic tendencies have more difficulty identifying emotions and expressing empathy toward others.

As stated earlier, emotional expression in the family environment appears to be associated with children's understanding of emotions. In a sample of 50 second-born children, Dunn and Brown (1994) examined the relationship between three general domains: emotional expression in the family, children's understanding of emotions as assessed in a task situation, and their social understanding as reflected in conflict management and pretend play. Dunn and Brown (1994) highlighted the importance of taking into consideration both the general level of expression of negative affect in the family (which was associated with poorer performance on emotion understanding tasks, less negotiation in conflict, and less role enactment in pretend play) and the significance of children's affective state for particular interactions. Dunn and Brown (1994) found that discourse about feelings, linked to later emotional understanding, was more common when children were expressing negative affect. It is hypothesized that family factors such as parental reactions to children's expressing of emotion, parental expression of emotions and children's understanding of emotions are related to alexithymia. Specifically, parents who react negatively to children's expression of emotion, parents who tend not to express positive emotion, and parents who tend not to discuss emotions with their children may be associated with alexithymic tendencies in children, or the child's potential deficit in emotional expressivity.

Language and Family of Origin Expressivity

In addition to styles of emotional expressivity exhibited in the family environment, it is possible that the type of language a family utilizes may affect their

level of emotional expressivity. For example, unexpressive language styles such as those in which parents do not share emotional experiences with their children may be associated with higher levels of alexithymia. Families that encourage shared verbal expression of emotional experiences may be associated with lower levels of alexithymia.

The language a family uses to describe family of origin experiences may impact families' psychological health. Stewart (2001) examined how family of origin narratives differed according to levels of psychological health in family systems. Stewart (2001) suggested that family characteristics such as sharing of emotional experiences may be associated with healthy and positive family experiences. Stewart (2001) hypothesized that family of origin experiences play an integral role in lifestyle development and in the manner in which language is used to construct meanings. Participants were selected based on their scores on the Family Environment Scale (FES; Moos & Moos, 1986). This subscale assesses the extent to which family members are encouraged to express themselves in both verbal and behavioral manners. Participants were included if their scores on the expressiveness subscale of the FES were one standard deviation above or below the mean. Participants included 30 men (20 in the low family expressiveness group and 10 in the high family expressiveness group) and 70 women (30 in the low family expressiveness group and 40 in the high family expressiveness group). Fifty people were randomly selected from each group to form a sample of 100 used in the study. Next, the Family of Origin Scale (FOS; Hovestadt, 1985) was administered to estimate the overall level of dysfunction in the participants' family of origin. Higher scores in the FOS indicate a greater level of dysfunction.

According to Stewart (2001) significantly higher levels of overall family dysfunction on the FOS was associated with persons from unexpressive, unhealthy families in addition to significantly higher levels of control and conflict within families. Persons from relatively expressive families reported significantly greater levels of cohesion, independence, and intellectual and cultural orientations in their family system, in addition to greater levels of social support from friends and families relative to individuals from unexpressive families (Stewart, 2001). Further, persons from unhealthy families tended to use a greater range of negative descriptors in their narratives, while those from healthy families tended to utilize a larger number of positive descriptors. These findings suggest that the language families use to describe their experiences is correlated with family dysfunction, which in turn, reflects one facet of emotional expressivity. In sum, it appears that family environments which lack a wide range of affective expression are related to deficits in emotional expressivity, which may be associated with alexithymia in adulthood.

Peer Relations and Family of Origin Expressivity

Emotional expressiveness within the family is an important component of family functioning, and families appear to be important contexts in which children learn about emotions. In addition to the relationship between parental expressivity and children's expressivity, research suggests that healthy parental expressiveness is also related to healthy child functioning (Cassidy, Parke, Butkovsky, & Braungart, 1992). Experiences within an expressive family may offer children specific skills and global characteristics to form peer relations (Cassidy, et al. 1992).

Emotions are a key component to successful social interaction. Despite extensive theoretical proposals that the understanding of emotions develops within a social context, only recently has the family context been examined in investigating the socialization of emotional understanding (Cassidy et al. 1992). It is likely that expressive parents provide their children with opportunities to understand the meaning of particular expressions of emotion, such as emotion recognition skills (Cassidy et al. 1992). There is evidence to suggest that understanding of emotions may be acquired through parent-child interaction and/or parent modeling of expressivity, and that it is important for successful social interaction. Children of expressive parents may also be provided with opportunities for increased understanding of the emotional reactions that their own behaviors elicit from other individuals (Cassidy et al. 1992).

In sum, it appears that emotional expressivity is linked to individuals' ability to understand emotional experiences and interact successfully in social situations. When children reside in family environments which harbor family dysfunction, they may be less successful at identifying and describing their emotional experiences, and may tend to engage in externally-oriented thinking.

Family Dysfunction and Alexithymia

In families that are dysfunctional, chaotic, or violent, opportunities to learn how to healthily emote are minimized and emotional expressivity and the socialization of emotion process is harmed. Family dysfunction refers to abnormal, or impaired functioning in the family system. It has been demonstrated that factors of family dysfunction such as negative family expressiveness and emotion dysregulation can lead to alexithymia. It may be that one of the defining features of family dysfunction is

negative expressed emotion, which may give rise to emotion dysregulation. Family dysfunction has been shown to play a role in the development of alexithymic tendencies in adulthood. In a sample of clients and nonclients, alexithymia was positively associated with family dysfunction and negatively associated with aspects of a healthy family environment such as emotional expression and family cohesion (King & Mallinckrodt, 2000). King and Mallinckrodt (2000) examined self-reported alexithymia (Toronto Alexithymia Scale), retrospective ratings of family dysfunction (Family Structure Scale), and healthy family environment (Family Environment Scale). The authors found that clients recalled significantly more family dysfunction and reported a trend toward higher alexithymia than non-clients. When the sample of 33 counseling clients and 32 non-clients were combined, alexithymia was positively associated with retrospective reports of family dysfunction, including parent-child role reversal, fear of separation, and parental enmeshment. The authors found that memories of healthy family environments, including cohesion, emotional expression, and encouragement of independence were negatively correlated with alexithymia (King & Mallinckrodt, 2000). It appears that one's perception of growing up in a dysfunctional family environment is linked to alexithymic tendencies in adulthood. In sum, it appears that children require a family environment in which parents model positive expressivity in order to avoid family dysfunction.

It appears that many family variables are associated with alexithymia including family dysfunction, which affects the socialization of emotion process and determines the nature and style of emotional expressivity in the family environment. It is proposed that levels of alexithymia may be mediated by several family variables including the following: self-expressiveness, family expressiveness, family environment and family

dysfunction. It is critical to understand how the family environment serves as an agent fostering various styles of emotional expressivity. When the family environment is unhealthy, dysfunctional, or violent; children tend to experience restricted affective expression and emotion dysregulation. This can result in a higher probability of increased symptoms or characteristics of alexithymia.

In sum, the author hypothesizes that negative self-expressiveness, negative family expressiveness, dysfunctional family environments, and a lack of perceived social support from the family will be positively associated with alexithymia. It is predicted that negative expressed emotion in the family environment will be associated with alexithymia. It is predicted that negative expressivity will be associated with family dysfunction. It is predicted that expressiveness modulates family dysfunction, and that family dysfunction leads to negative emotional expressiveness, which could contribute to alexithymia. It is believed that factors such as negative emotional expressiveness lead to problems with emotion regulation, externalizing behaviors, one's inability to experience and express emotions appropriately, restricted range of affect, and poor relationship capability.

CHAPTER 3

METHOD

Sample

Data were collected over several semesters in a large, ethnically heterogeneous sample of undergraduates (N = 222) at a university in Southeastern United States. Of the 222 participants 30% were male (N = 65) and 70% were female (N = 154). Of the 222 participants 73% reported no prior individual counseling experience (N = 160) and 26% reported having prior counseling experience (N = 58). Of the 222 participants 85% reported no prior family counseling experience (N = 185), and 14% reported having prior family counseling experience (N = 31).

Procedure

Participants in introductory psychology courses completed packets of measures including the following instruments: the twenty-item Toronto Alexithymia Scale (TAS-20), the Family Assessment Device (FAD), the Self-Expressiveness in the Family Questionnaire (SEFQ), the Family of Origin Scale (FOS), the Perceived Social Support From Family Scales (PSSFA) and the Positive and Negative Expressiveness in the Family Questionnaire (PNEFQ). These instruments were administered in a large classroom setting for course credit.

Instrumentation

Alexithymia was assessed using the TAS-20. Family-related emotional expression and atmosphere variables including self-expressiveness, family expressiveness, family dysfunction, and family environment were assessed using the FAD, the SEFQ, the FOS, the PSSFA and the PNEFQ.

Twenty-Item Toronto Alexithymia Scale (TAS-20)

The Toronto Alexithymia Scale-20 (TAS-20; Bagby, Parker, & Taylor, 1994) is the most recent version of a self-report scale designed to assess alexithymia. The 20 items are rated on a 5-point scale (*1 = strongly disagree to 5 = strongly agree*) and from three subscales to measure 1) difficulty identifying feelings (seven items, such as "I have feelings that I can't quite identify"); 2) difficulty describing feelings (five items, such as "It is difficult for me to find the right words for my feelings"); and 3) externally-oriented thinking (eight items, such as "I prefer talking to people about their daily activities rather than their feelings"). Considerable evidence exists supporting the three-factor structure, as well as internal reliability, test-retest reliability, and construct validity (Bagby, Parker, & Taylor, 1994). Confirmatory factor analysis reveals that the three-factor structure of the TAS-20 demonstrated stability and replicability in both clinical and nonclinical populations (Bagby, Parker, & Taylor, 1994). In 1994 Bagby, Parker, & Taylor conducted a study to evaluate the convergent, discriminant, and concurrent validity of the TAS-20. Results of their study provided strong support for the convergent and concurrent validity of the TAS-20 as a measure of the alexithymia construct, and moderate discriminant validity of the scale (Bagby, Parker, & Taylor, 1994). Parker et. al. (1993) assessed the psychometric properties of the TAS-20, and preliminary investigations indicate that the TAS-20 has good internal consistency (Cronbach's alpha = 0.81) and test-retest reliability (r = 0.77; p<0.01) over a three-week period. When cross-validating the TAS-20 Bagby, Parker, & Taylor, 1993 demonstrated acceptable internal consistency (Cronbach's alpha = 0.81) with the derivation sample, and for each of the three factors as well (F1 = 0.78; F2 = 0.75; F3 = 0.66. Test-retest reliability of the TAS-20 three weeks apart was 0.77 (p<0.01) (Bagby, Parker, & Taylor, 1993).The literature on the TAS-20

suggests that it is a reliable and valid measure of the construct of alexithymia High scores on the TAS-20 indicate high levels of alexithymia, while low scores on the TAS-20 indicate low levels of alexithymia.

Measuring the Construct of Family Dysfunction

Family Assessment Device (FAD)

The Family Assessment Device (FAD) is based on the McMaster Model derived from systems, roles, and communication theories, and it evolved from work with nonclinical families (Epstein, Baldwin, & Bishop, 1983). The FAD is comprised of six subscales: problem solving, communication, roles, affective responsiveness, affective involvement, and behavior control (Epstein, Baldwin, & Bishop, 1983). The FAD includes a 12-item general functioning subscale that has been used as a global assessment of general health of a family. A 4-point Likert-type scale, ranging from *strongly agree to strongly disagree*, is utilized to evaluate a family member's perception of the family. An average score for each subscale is used to measure family functioning in a specific domain, such as problem solving. Low scores correspond to family dysfunction and problems whereas high scores correspond to family health.

The McMaster Family Assessment Device (Epstein, Baldwin, & Bishop, 1983) is a 53-item questionnaire designed to evaluate families according to the McMaster Model of Family Functioning (MMFF), a clinically oriented conceptualization of families. The MMFF describes structural and organizational properties of the family group and the patterns of transactions among family members which have been found to distinguish between healthy and unhealthy families. The FAD was developed on a sample of 503 individuals, including 209 students in an introductory psychology course, and 294

individuals from a group of 112 families. The FAD measures people's perceptions of their families and is comprised of seven scales which measure *Problem Solving*, or the families' ability to resolve problems; *Communication*, or the exchange of information among family members; *Roles*, or whether the family has established patterns of behaviors for handling a set of family functions which include provision of resources, providing nurturance and support, supporting personal development, maintaining and managing the family system and providing adult sexual gratification; *Affective Responsiveness*, or the extent to which individual family members are able to experience appropriate affect over a range of stimuli; *Affective Involvement*, or the extent to which family members are interested in and place value on each other's activities and concerns; *Behavior Control*, or the way in which a family expresses and maintains standards for the behavior of its members; and *General Functioning*, which assesses the overall health/pathology of the family (Epstein, Baldwin, & Bishop, 1983). Several studies have reported concurrent validity of the FAD as ranging from 0.48 to 0.53 with reliabilities ranging from 0.69 to 0.86 (Kabakoff, Miller, Bishop, Epstein & Keitner, 1990; Miller, Bishop, Epstein, & Keitner, 1995).

Results of the current study were consistent with previous research conducted by Lumley et al. (1996), who found that the TAS-20 demonstrated a significant correlation with the FAD. General family pathology was significantly related to the TAS-20 total and its three factors. In the current study, significant and negative correlations were found between the TAS-20 subscales, the TAS Total scale and the FAD. A significant and negative correlation was found for the TAS DIF and the FAD (r = -.527, p < .01), the TAS DDF and the FAD (r = -.613, p < .01), the TAS EOT and the FAD (r = -.338, p <

.01), the TAS Total and the FAD ($r = -.600$, $p < .01$) (See Table 2). This pattern of correlations suggests that low scores on the FAD, which indicate high levels of family dysfunction, are related to higher levels of alexithymia.

Family of Origin Scale (FOS)

More than a dozen studies report clear commonalities between family expressiveness and people's expressiveness from infancy through adulthood (Halberstadt, 1991; Halberstadt, Fox & Jones, 1993). Family expressiveness also appears to influence people's social skills and peer relations. However, the initial experience one has with emotional expressivity occurs in the family of origin. Thus it is important to assess individual's perceived level of global expressive atmosphere within his or her family of origin, which may be done by utilizing the FOS. The FOS was found to be significantly correlated with the total scores of alexithymia and each of the three factors: impaired ability to identify feelings, impaired ability to describe feelings, and externally-oriented thinking processes (Yelsma, Hovestadt, Anderson, & Nilsson, 2000). These finding are important as they stress the link between impaired family expressiveness and its potential association with family dysfunction.

Yelsma, Hovestadt, Anderson and Nilsson (2000) presented two studies addressing the need for research instruments to assess the impact of affective expressiveness within the family. In the first study, the original 40-item Family of Origin Scale was administered to 416 students to determine those items that constitute the factor structure. Results from a confirmatory factor analysis indicated that the FOS has one major factor, global expressive atmosphere. Face validity of this 22-item construct indicated that it assesses an individual's perceived level of global expressive atmosphere

within the family of origin. The revised 22-item Family-of-Origin Expressive

Atmosphere Scale (FOEAS) utilizes a 5-point Likert scale that ranges from *1 – strongly*

agree to 5 = strongly disagree. Total scores for the 22 items can range from 22 (low) to

110 (high), providing an assessment of an individual's perceived level of global

expressive atmosphere within his or her family of origin (Yelsma, et al. 2000). Thus, high

scores mean lack of expressiveness in the family atmosphere and low scores mean

perceived healthy expressive family atmosphere.

In the second study, the new FOEAS and the 20-item Toronto Alexithymia Scale

were administered to 295 students (Yelsma, et al. 2000). College students' perceptions of

expressive atmospheres in their family-of-origin were significantly negatively correlated

with the total scores of alexithymia and each of the three factors: difficulty identifying

feelings, difficulty describing feelings, and externally oriented thinking processes

(Yelsma et al. 2000). The Yelsma et al. (2000) study lends support to the hypothesis that

children who have experienced emotionally expressive family atmospheres tend to be

less alexithymic than those raised in unexpressive families.

The Family of Origin Scale (FOS) is a 40-item instrument designed to assess two

essential and interwoven concepts of family life – autonomy and intimacy (Hovestadt,

Anderson, Piercy, Cochran, & Fine, 1985). The FOS measures individuals' perceived

levels of health and expressive atmosphere within the family of origin. It is believed that

the FOS may be used as a global indicator of the quality of communication in the family

of origin (Yelsma, et al. 2000). The FOS uses a 5-point Likert format and has a range of

scores from 40 to 200 (Hovestadt, et al. 1985). The FOS was chosen in this author's

current study to assess individuals' perceived level of global expressive atmosphere

within his or her family of origin. Yelsma et al. (2000) findings suggest that students'
self-reported expressive atmospheres in the family of origin scores on the FOS were
significantly correlated with the total scores of alexithymia and each of the three factors:
impaired ability to identify feelings, impaired ability to describe feelings, and externally-
oriented thinking processes. These findings are important to the current study because
affective expression appears to be an essential component of family communication.

Perceived Social Support From Friends and Family Scales (PSS-FR; PSS-FA)

The Perceived Social Support From Friends and Family Scales (PSS-FR; PSS-
FA) was designed to measure the extent to which an individual perceives that his/her
needs for support, information, and feedback are fulfilled by friends (PSS-FR) and by
family (PSS-FA) (Procidano & Heller, 1983). The distinction between friend support and
family support is rendered important because different populations rely on or benefit
from friend or family support to different extents. Each scale (PSS-FR and PSS-FA)
consists of 20 items of narrative statements to which the individual answered "Yes,"
"No," or "I don't know." For each item, the response indicative of perceived social
support was scored as +1 so that scores ranged from 0, indicating no perceived social
support, to 20, indicating maximum perceived social support, as provided by friends or
family (Procidano & Heller, 1983). The author included these measures in the current
study because the PSS-FR and PSS-FA are found to be inversely related to symptoms of
distress and psychopathology, and may provide more specific understanding of how an
individual's perceptions regarding lack of support can be associated with alexithymia.
High scores on the PSSFA are associated with high levels of perceived social support in

the family, while low scores on this scale indicate a lack of perceived social support from family.

Measuring the Construct of Expressiveness

Self-Expressiveness in the Family Questionnaire (SEFQ)

The family plays a vital role in one's learning about emotions and how to express them in a social context. Because of this a need exists for reliable and valid measures of emotional expressivity in the family. The Self-Expressiveness in the Family Questionnaire (SEFQ; Halberstadt, Parke, Cassidy, Stifter, & Fox, 1995) is highly internally consistent and stable over time. The SEFQ demonstrated good convergent, discriminant, and construct validity (Halberstadt et al., 1995). The SEFQ is based on the Family Expressiveness Questionnaire (FEQ), an instrument used in nearly all studies reviewed previously in this project (Halberstadt, 1983; Halberstadt, 1986). The FEQ is a retrospective questionnaire designed to be completed by one family member who assigns for each item a collective score about the family as a whole. The questionnaire is internally consistent and reliable over time (Halberstadt, 1983), and parents and college-age students show agreement about their family expressiveness (Halberstadt, 1986). Correlations between family expressiveness and shyness, self-monitoring, affect intensity, and self-expressiveness are small to moderate, suggesting that family expressiveness is a separate and distinct construct that relates to other variables as predicted (Burrowes & Halberstadt; Halberstadt, 1986). The FEQ was originally validated for use with adolescent to adults who report about the overall expressiveness in the family while they were growing up.

The SEFQ examines the frequency of emotional expressivity of an individual within a family context. The 40 hypothetical scenarios depicted in the questionnaire represent a range of emotions in a variety of settings typical of many families (Halberstadt et al., 1995). Test construction was originally based on two dimensions (positivity and dominance) crossed with each other to create four scales: positive-dominance, positive submissiveness, negative-dominance, and negative-submissiveness (Halberstadt et al., 1995); however, the two-scale structure is recommended for most purposes.

The SEFQ appears to be a markedly consistent instrument, in terms of psychological structure, internal reliability, and stability in responses over time (Halberstadt, 1995). Responses to the SEFQ appear to be highly internally reliable and stable over time according to test-retest coefficients ($r = .72$). The SEFQ appears to have reasonable convergent and discriminant validity and promising construct validity with a wide variety of other measures. The strong correlation between the SEFQ scales and the Anger Expression Scale, which directly measures expression independently of experience, provided convergent validity. Discriminant validity was suggested by the lack of a relation with social desirability and with suppression of anger (Halberstadt, 1995).

The SEFQ was included in this study based on sound reliability and validity data. Internal consistency (Cronbach's alpha) of the scales that comprise the SEFQ were .94, .92, and .93 for the positive, negative, and total scales, respectively (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995). Responses to the SEFQ appear to be highly internally reliable and stable over time. Parents' responses were stable over an 8-month period

(mean r = .72), and fathers' reports were stable over a 1-year period (mean r = .57) (Halberstadt, Cassidy, Stifter, Parke, & Fox, 1995). High scores on the SEFQ-POS indicate high positive self-expressiveness, and high scores on the SEFQ-NEG indicate high negative self-expressiveness.

Positive and Negative Expressiveness in the Family Questionnaire (PNEFQ)

The Positive and Negative Expressiveness in the Family Questionnaire (PNEFQ) is an experimental measure designed to measure positive and negative expressiveness in the family of origin (Stewart, 2001). The PNEFQ has a Positive Scale, which measures positive family expressiveness and a Negative Scale, which measures negative family expressiveness. High scores on the PNEFQ-POS indicate high positive family expressiveness and high scores on the PNEFQ-NEG indicate negative family expressiveness.

Statistical Analyses

The author performed correlational analyses between family variables and alexithymia. The author used multiple regression analyses to determine relationships among family variables that were associated with alexithymia. Most parsimonious models were determined. Separate regression analyses were conducted for each of the variables hypothesized to relate to alexithymia. Family dysfunction, family expressiveness and self-expressiveness were the criterion variables. Alexithymia was the outcome variables. Parallel regression models were conducted for each of the alexithymia subscales (DIF, DDF, and EOT) and for the total score (TAS TOT). Only significant results will be presented.

The author also tested primarily for moderation to determine how alexithymia is influenced by family variables. When moderating relationships were not found, mediation was also tested. Mediation and moderation as well as the corresponding hypotheses will be explained next.

A moderating variable affects the direction or the strength of the relationship between the explanatory variable and the criterion. According to Baron and Kenny (1986), a moderation effect can be represented as an interaction between the explanatory variable and the moderator. In other words, like any interaction, moderational paths are conditional relationships whereby the relation between two variables varies as a function of a third.

A moderating relationship can be illustrated in the following way:

B

↓

A ⟶ C
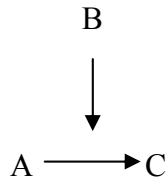
Conceptualizing variables as either moderators or mediators represents a research strategy that depends heavily on previous research findings. According to Baron and Kenny (1986) mediation is best done when a strong relationship between the predictor and the criterion has been shown. Moderator variables on the other hand are typically introduced when there is an unexpectedly weak or inconsistent relation between an explanatory and a criterion variable. In addition, in moderation analyses it is desirable to have minimal covariation between the moderator and both the explanatory and criterion variables. In comparison, in mediation models it is desirable to have high degrees of

covariation between the mediator and both the predictor and criterion variables (James & Brett, 1984). For the purpose of this study, moderating models will be primarily tested. When relationships between variables are not explained through significant interactions, mediation relationships will be tested. If relationships are explained by moderation, testing linear regression models for mediation would be the equivalent of testing incomplete models, and thus will not be performed here.

A mediating variable accounts for the relationship between a predictor and a criterion variable, explaining why and how particular effects occur (Baron & Kenny, 1986; Holmbeck, 1997; James & Brett, 1984; Rogosch, Chassin & Sher, 1990). Several conditions must be attained to establish mediation. For example, if variable B is hypothesized to mediate the relationship between the explanatory variable A and the criterion variable C, the following conditions must be fulfilled: (1) variable A must have a direct effect on variable B, (2) variable B must have a direct effect (i.e., a significant effect while A is in the model) on variable C, (3) variable A must have a direct effect on variable C, (4) the strength of the relationship from variable A to variable C either disappears when variable B is in the model (complete mediation) or becomes weakened by the presence of variable B (partial mediation). A mediating relationship can be represented in the following manner:

$$A -- > B --> C$$

Moderation Analyses for Alexithymia

The moderating role of family dysfunction (FOS) in the relationship between emotion expressiveness variables (self-expressiveness and family expressiveness) and alexithymia (total scores and subscales) was tested. In addition, the moderating role of

social support (PSSFA) in the relationship between emotion expressiveness variables (self-expressiveness and family expressiveness) and alexithymia (total scores and subscales) was tested. It was hypothesized that emotional expressivity interacts with family dysfunction in predicting alexithymia, in that the relationship between emotional expressivity and alexithymia will be stronger for participants who report greater family dysfunction. Similarly, it was hypothesized that emotional expressivity interact with social support in predicting alexithymia, in that the relationship between emotional expression variables will be stronger for participants with less social support.

For the family dysfunction (FOS) moderating models, At Step 1 expressiveness variables (SEFQ; PNEFQ, respectively) and family dysfunction (FOS) variables were entered. Alexithymia (total score and subscales) was the criterion variable. At Step 2, the interaction between expressiveness variables and family dysfunction (SEFQ X FOS; PNEQ X FOS, respectively) was entered. Parallel analyses were tested for each of the alexithymia subscales (DDF, DIF, and EOT) and the total score (TAS-TOT).
For the social support (PSSFA) moderating models, At Step 1 expressiveness variables (SEFQ; PNEFQ, respectively) and social support (PSSFA) variables were entered. Alexithymia (total score and subscales) was the criterion variable. At Step 2, the interaction between expressiveness variables and social support (SEFQ X PSSFA; PNEQ X PSSFA, respectively) was entered. Parallel analyses were tested for each of the alexithymia subscales (DDF, DIF, and EOT) and the total score (TAS TOT).

Mediation Analyses for Toronto Alexithymia Scale

When moderating relationships were not supported, the current study tested a mediating role for emotional expressiveness (positive and negative) in the relationship

between family dysfunction variables (FOS) and alexithymia. A series of regression analyses were performed to test the conditions required for mediation. Parallel models were conducted for TAS DIF, TAS DDF, and TAS EOT. Only significant results derived from the most parsimonious models will be presented.

Model 1. Regression analysis was used to test for a relationship between family expressiveness (PNEFQ) and self expressiveness (SEFQ) variables and alexithymia. Alexithymia was the criterion variable. Family expressiveness variables (positive and negative) and self-expressiveness variables (positive and negative) were entered.

Model 2. Regression analysis was used to test for a relationship between the family dysfunction variable (Perceived Social Support from Family, PSSFA). Alexithymia was the criterion variable. Perceived Social Support from Family was entered as predictor variable.

Model 3. This regression analysis tested for a relationship between the family dysfunction variable, controlling for the effects family expressiveness variables (positive and negative). At Step 1, family expressiveness variables (positive and negative) were entered. At Step 2, the family dysfunction variable was entered. This is the third condition (i.e., PSSFA significant in this model) necessary for mediation. Mediation was examined by a reduction in the PSSFA coefficient at Step 2. This is the final condition necessary to establish the mediating role of family dysfunction in explaining the relationship between family expressiveness and alexithymia. In sum, these analyses tested the hypothesis that family expressiveness variables would mediate the relationship between family dysfunction and alexithymia.

CHAPTER 4

RESULTS

What family environment variables are statistically associated with alexithymia?

Table 1 depicts descriptive statistics for family variables and alexithymia. Table 2

presents correlations between alexithymia and family measures. Results indicated

significant positive correlations between the TAS-20 Total scale and its subscales,

Difficulty Identifying Feelings (DIF), Difficulty Describing Feelings (DDF), and

Externally-Oriented Thinking (EOT). Results of the current study were consistent with

Bagby, Parker, and Taylor's (1994) findings that the TAS DIF and TAS DDF were

significantly positively correlated ($r = .65, p < .05$). Results of the current study indicated

that the TAS DIF was significantly positively correlated with the TAS DDF ($r = .733, p >$

.01). Consistent with Bagby, Parker, and Taylor's (1994) findings that the TAS DIF and

the TAS EOT were significantly positively correlated ($r = .10, p < .05$), results of the

current study indicated that the TAS DIF was significantly positively correlated with the

TAS EOT ($r = .327, p < .01$). Consistent with Bagby, Parker, and Taylor's (1994)

findings that the TAS EOT and the TAS DDF were significantly positively correlated (r

$= .50, p < .05$), results of the current study indicated that the TAS EOT was significantly

positively correlated with the TAS DDF ($r = .512, p < .01$). Results indicated that the

TAS Total was significantly positively correlated with the TAS DIF ($r = .859, p < .01$),

the TAS DDF ($r = .909, p < .01$), and the TAS EOT ($r = .706, p < .01$) (See Table 2).

Results of the current study were consistent with the Yelsma et al. (1998) findings

that the Self-Expressiveness in the Family Questionnaire Positive Scale (SEFQ POS) was

significantly negatively correlated with the TAS-20 Total score ($r = -.52, p < .0001$)

(Yelsma et al., 1998). Significant negative correlations were found between the TAS-20

subscales, the TAS Total scale and the SEFQ POS. A significant negative correlation was found for the TAS DIF and the SEFQ POS ($r = -.345$, $p < .01$), the TAS DDF and the SEFQ POS ($r = -.489$, $p < .01$), the TAS EOT and the SEFQ POS ($r = -.329$, $p < .01$), and the TAS Total and SEFQ POS ($r = -.466$, $p < .01$) (See Table 2). These results indicate that higher scores of positive self-expressivity in the family environment are related to lower levels of alexithymia. Thus, hypothesis 2 that positive self-expressiveness will be negatively correlated with alexithymia was supported.

Results of the current study were consistent with the Yelsma et al. (1998) findings that the Self-Expressiveness in the Family Questionnaire Negative Scale (SEFQ NEG) were significantly positively correlated with the TAS-20 ($r = .34$, $p < .009$). Significant positive correlations were found between the TAS-20 subscales, the TAS Total scale and the SEFQ NEG. A significant positive correlation was found for the TAS DIF and the SEFQ NEG ($r = .301$, $p < .01$), the TAS DDF and the SEFQ NEG ($r = .252$, $p < .01$), the TAS EOT and the SEFQ NEG ($r = .064$, $p < .01$), and the TAS Total and the SEFQ NEG ($r = .258$, $p < .01$) (See Table 2). This pattern of correlations suggests that higher scores of negative self-expressivity in the family environment are related to higher levels of alexithymia. Thus, hypothesis 1 that negative self-expressiveness will be significantly positively associated with alexithymia was supported. The more negative self-expressiveness one reports, the higher the scores were on alexithymia.

Significant negative correlations were found between the TAS-20 subscales, the TAS Total scale and the Positive and Negative Expressiveness in the Family Questionnaire Positive Scale (PNEFQ POS). A significant and negative correlation was found for the TAS DIF and the PNEFQ POS ($r = -.468$, $p < .01$), the TAS DDF and the

PNEFQ POS ($r = -522, p < .01$), the TAS EOT and the PNEFQ POS ($r = -.250, p < .01$), and the TAS Total and the PNEFQ POS ($r = -.507, p < .01$) (See Table 2). This pattern of correlations suggests that higher scores of positive family expressiveness are related to lower levels of alexithymia. Thus, hypothesis 4 that positive family expressiveness will be significantly negatively associated with alexithymia was supported.

Significant positive correlations were found between the TAS-20 subscales, the TAS Total scale and the Positive and Negative Expressiveness in the Family Questionnaire Negative Scale (PNEFQ NEG). A significant and positive correlation was found for the TAS DIF and the PNEFQ NEG ($r = .458, p < .01$), the TAS DDF and the PNEFQ NEG ($r = .513, p < .01$), the TAS EOT and the PNEFQ NEG ($r = .192, p < .01$), and the TAS Total and the PNEFQ NEG ($r = .479, p < .01$) (See Table 2). These results suggest that higher scores of negative family expressiveness are related to higher levels of alexithymia. Thus, hypothesis 3 that negative family expressiveness will be significantly positively associated with alexithymia was supported. The more negative family expressiveness one reports, the higher the alexithymia scores. In summary, family expressiveness variables (SEFQ and PNEQ) were related to alexithymia in the hypothesized direction.

To what extent is level of overall family dysfunction correlated with alexithymia?

Results of the current study were consistent with the Yelsma et al. (2000) findings that the Family of Origin Scale (FOS) was significantly correlated with the TAS-20. In the current study significant and positive correlations were found between the TAS-20 subscales, the TAS Total scale and the FOS. A significant positive correlation was found for the TAS DIF and the FOS ($r = .541, p < .01$), the TAS DDF and the FOS ($r = .629, p$

< .01), the TAS EOT and the FOS ($r = .350$, $p < .01$), the TAS Total and the FOS ($r = .616$, $p < .01$) (See Table 2). This pattern of correlations suggests that high scores on the FOS, which indicate a lack of family expressiveness, are related to higher levels of alexithymia. Thus, hypothesis 6 that family dysfunction will be associated with alexithymia was supported. High scores on the FOS indicated a lack of perceived healthy expressive family atmosphere and were positively associated with alexithymia.

Results of the current study were consistent with previous research conducted by Lumley et al. (1996), who found that the TAS-20 demonstrated a significant correlation with the FAD. General family pathology was significantly negatively related to the TAS-20 total and its three factors. In the current study, significant and negative correlations were found between the TAS-20 subscales, the TAS Total scale and the FAD. A significant negative correlation was found for the TAS DIF and the FAD ($r = -.527$, $p < .01$), the TAS DDF and the FAD ($r = -.613$, $p < .01$), the TAS EOT and the FAD ($r = -.338$, $p < .01$), the TAS Total and the FAD ($r = -.600$, $p < .01$) (See Table 2). This pattern of correlations suggests that low scores on the FAD, which indicate greater family dysfunction, are related to higher levels of alexithymia. These results are consistent with hypothesis 6, that family dysfunction as measured by the FAD would be negatively associated with alexithymia.

Significant negative correlations were found between the TAS-20 subscales, the TAS Total scale, and the Perceived Social Support from Family Scale (PSSFA). A significant negative correlation was found for the TAS DIF and the PSSFA ($r = -.561$, $p < .01$), the TAS DDF and the PSSFA ($r = -.649$, $p < .01$), the TAS EOT and the PSSFA ($r = -.342$, $p < .01$), the TAS Total and the PSSFA ($r = -.632$, $p < .01$) (See Table 2).

These results suggest that a perceived lack of social support from family members is related to higher levels of alexithymia. Thus, hypothesis 5 that perceived social support from family will be negatively associated with alexithymia was supported. The more social support one receives from family members, the less likely one is to develop alexithymia. In summary, family dysfunction variables (FOS and PSSFA) were related to alexithymia in the expected direction.

Regression Analyses

The author conducted a linear regression analysis using expressiveness variables, PNEFQ and SEFQ, as independent variables and each of the TAS-20 subscales and Total Scale as dependent variables. The author utilized three methods that led to potential candidates for the best model: assessing the full model and reducing it to determine the best model fit; assessing the positive scales and adding/deleting predictors to determine the best model fit; and assessing the negative scales and adding/deleting to determine best model fit. The author experimented with entering different independent variables first (e.g. the PNEFQ Positive Scale and the SEFQ Positive Scale, then the PNEFQ Negative Scale and SEFQ Negative Scale) to determine what produced the most meaningful results and to determine what accounts for most of the variance as measured by adjusted R-squared (ΔR^2).

Through exploration, various combinations were entered manually to determine what produced the best and substantially more plausible entry order of variables. Level of significance was used to determine how predictors were selected. Four regression equations were created: one each for the TAS DIF, TAS DDF, TAS EOT and the TAS Total. After performing the regression analysis, a residuals analysis was conducted to see

if model fit could be improved by deleting outlying cases. Outlying data points were deleted if they were more than 3 standard deviations from the mean of 0. The regressions were re-run to determine the final values of the intercept and beta's. (See Tables 3, 4, 5, and 6).

The full model, including all variables, was examined and reduced to determine the most parsimonious model. Thus, the analyses began with the full model, then positive indicators were added (PNEFQ POS and SEFQ POS) and then components were either added or removed to improve model fit. The same analysis was performed using the negative predictors (PNEFQ NEG and SEFQ NEG).

Difficulty Identifying Feelings

Model fits for the unstandardized and standardized coefficients are presented in Table 3. For dependent variable TAS DIF the most parsimonious model was comprised of two significant predictor variables, the PNEFQ POS and the SEFQ NEG ($\Delta R^2 = .233$). When assessing the standardized residuals for the TAS DIF, all the residuals fell within three standard deviations of the mean of 0 (See Table 3). These results suggest that positive family expressiveness and negative self-expressiveness explained most of the variance associated with the difficulty identifying feelings factor of alexithymia.

Difficulty Describing Feelings

For dependent variable TAS DDF the most parsimonious model was comprised of two significant predictor variables, SEFQ POS and PNEFQ NEG ($\Delta R^2 = .342$). When assessing the standardized residuals for the TAS DDF, two outliers were found, observation #114 (Standardized Residual = -3.14) and observation #159 (Standardized Residual = 3.21). These two outliers were deleted and re-run the residuals analysis to

improve the model fit. However, the model fit did not improve significantly by deleting the two observations, so the original model which included predictor variables SEFQ POS and PNEFQ NEG ($\Delta R^2 = .342$) was kept (See Table 4). These results suggest that positive self-expressiveness and negative family expressiveness explained most of the variance associated with the difficulty describing feelings factor of alexithymia.

Externally-Oriented Thinking

For dependent variable TAS EOT the full model was tested and then reduced. The most parsimonious model was comprised of one predictor variable, SEFQ POS ($\Delta R^2 = .104$). When both the SEFQ NEG and the PNEFQ NEG were added, the PNEFQ NEG was found to be a significant predictor variable; however, since the Adjusted R-squared was larger for SEFQ POS, this model was selected as the best fit. When the SEFQ POS and PNEFQ POS indicator variables were added, the same model was obtained, SEFQ POS. When assessing the standardized residuals for the TAS EOT, two outliers, observation #171 (Standardized Residual = 3.25) and observation #186 (Standardized Residual = 3.01) were found. These two outliers were deleted and the residuals analysis was re-run to improve the model fit. The model fit improved after deleting these two observations ($\Delta R^2 = .120$) (See Table 5). These results suggest that positive self-expressiveness in the family explained most of the variance for the externally-oriented thinking factor of alexithymia.

TAS Total Scores

For dependent variable TAS Total, the full model was assessed first and three significant predictor variables were found, SEFQ POS, SEFQ NEG, and PNEFQ POS. Then PNEFQ NEG was dropped to improve model fit. Both the SEFQ POS and the

PNEFQ POS were run and obtained significant results. Both the SEFQ NEG and the PNEFQ NEG were run, and the SEFQ NEG was not a significant predictor variable, so it was dropped from the model. The author then determined that the PNEFQ POS was significant. In the final analysis it was concluded that the most parsimonious model for the TAS Total was comprised of three predictors, SEFQ POS, SEFQ NEG, and PNEFQ POS, ($\Delta R^2 = .316$). When assessing the standardized residuals for the TAS Total, two outliers were found, observation #98 (Standardized Residual = 3.08) and observation #177 (Standardized Residual = 3.03). These two cases were deleted and the residuals analysis was re-run to improve the model fit. These cases were deleted because the data points were more than 3 standard deviations from the mean of 0. However, there was no change in the Adjusted R-squared, so it was determined that there was no justification for deleting those two cases to improve model fit (See Table 6). These results suggest that positive self-expressiveness, negative self-expressiveness, and positive family expressiveness explained most of the variance associated with total alexithymia scores. Further, it should be noted that an absence of positive expressiveness is associated with alexithymia. These results are consistent with hypotheses 1, 2, and 4.

What is the predominant tone of expressiveness in the family that is associated with alexithymia?

By using linear regression analyses, the standard beta's were assessed and the unique variance that positive and negative expressiveness contributes to alexithymia to determine the results of this research question. Results of linear regression analyses indicated that PNEFQ POS and SEFQ NEG were the best predictors of TAS DIF. SEFQ POS and PNEFQ NEG were found to be the best predictors of TAS DDF. SEFQ POS

was found to be the best predictor of TAS EOT. SEFQ POS, SEFQ NEG, and PNEFQ

POS were found to be the best predictors of TAS Total scores. Results are presented in

Tables 3, 4, 5, and 6. These results suggest that a lack of positive self-expressiveness,

negative self-expressiveness and a lack of positive family expressiveness explained most

of the variance associated with alexithymia scores on the TAS-20. These results are

consistent with hypotheses 1, 2, and 4.

To what extent is level of overall family dysfunction correlated with alexithymia?

According to correlational analyses and visual inspection of the scatterplots, a

negative linear relationship was found between family dysfunction variable, FAD, and

the TAS-20. A positive linear relationship was found between family dysfunction

variable, FOS, and the TAS-20. Significant correlations ($p < .05$) of the family

dysfunction variables, FAD, FOS, and PSSFA, with the TAS subscales and TAS Total

scale were found (See Table 2).

Because the relationships were linear, a linear regression analysis was performed

where the independent variables, FAD, FOS and PSSFA were correlated with the

dependent variables, the TAS-20 subscales and TAS Total scale. The variables were

entered manually and explored what variable combinations produced the most

interpretable, substantially meaningful solutions. The process began with the full model

including all family environment variables (FAD, FOS, and PSSFA) and the model was

reduced to determine the most parsimonious model and then components were either

added or removed to improve model fit. After conducting the regressions, a residuals

analysis was performed to determine if the model fit could be improved, and then the

regressions were re-run to obtain final values for the intercept and beta's**.** Results are

presented in Table 7, 8, 9, and 10.

Difficulty Identifying Feelings

For dependent variable TAS DIF the most parsimonious model was comprised of

two significant predictor variables, the FOS and the PSSFA ($\Delta R^2 = .328$). When assessing

the standardized residuals for the TAS DIF, one outlier, observation #164 (Standardized

Residual = 3.07) was found. This case was deleted because it was more than 3 standard

deviations from the mean of 0 and the residuals analysis was re-run to improve the model

fit to arrive at the final model ($\Delta R^2 = .331$) (See Table 7).

Difficulty Describing Feelings

For dependent variable TAS DDF the most parsimonious model was comprised of

two significant predictor variables, FOS and PSSFA ($\Delta R^2 = .442$). When assessing the

standardized residuals for the TAS DDF, the author found one outlier, observation #164

(Standardized Residual = 3.21). This case was deleted because it was more than 3

standard deviations from the mean of 0 and the residuals analysis was re-run to improve

the model fit to arrive at the final model ($\Delta R^2 = .457$) (See Table 8).

Externally-Oriented Thinking

For dependent variable TAS EOT the most parsimonious model was comprised of

one predictor variable, FOS ($\Delta R^2 = .118$). When assessing the standardized residuals for

the TAS EOT, one outlier, observation #186 (Standardized Residual = 3.11) was found.

This case was deleted because it was more than 3 standard deviations from the mean of 0

and the residuals analysis was re-run to improve the model fit to arrive at the final model

($\Delta R^2 = .126$) (See Table 9).

TAS Total Scores

For dependent variable TAS Total the most parsimonious model was comprised of two predictor variables, FOS and PSSFA ($\Delta R^2 = .420$). When assessing the standardized residuals for the TAS Total, all the residuals fell within three standard deviations of the mean of 0 (See Table 10). Thus, most of the variance in predicting alexithymia was explained by a lack of perceived healthy expressive family atmosphere and a lack of perceived social support from family.

Regression Analyses of Expressiveness Variables and Family Dysfunction Variables

Hierarchical linear regression analyses were used to assess the relative amounts of contributions by family atmosphere/environment variables (FOS, FAD, and PSSFA), and the emotional expression variables (PNEFQ and SEFQ) together on the TAS subscales and TAS Total scale. This method of analysis was chosen because hierarchical linear models provide a conceptual and statistical mechanism for investigating and drawing conclusions regarding the influence of different kinds of variables at different levels of analysis. Hierarchical linear regression analyses were performed with the TAS-20 subscales and TAS Total scale as the dependent variables and the collection of family dysfunction and family expressiveness variables as the independent variables. The possibilities of interactions between the variables were then considered.

Difficulty Identifying Feelings

Hierarchical linear regression was used to assess TAS DIF for the full model including all seven family variable predictors (FAD, FOS TOT, PSSFA, PNEFQ POS, PNEFQ NEG, SEFQ POS, and SEFQ NEG). PNEFQ POS was removed from the model because it was not a significant predictor. To improve model fit FOS TOT was removed

from the model because it was not a significant predictor. The final regression model, which was based on the most strenuous level of significance, included two significant predictors, SEFQ NEG and PSSFA ($\Delta R^2 = .339$). These results suggest that negative self-expressiveness and lack of perceived social support from family explained most of the variance for difficulties expressed in identifying one's feelings.

Using regression analyses, higher order interaction terms were conducted and deleted from the model one by one beginning with those that were the least statistically significant predictors. A .05 level of significance was used as the criteria for removing nonsignificant interaction terms. The model was refit by removing four-way interactions first, then three-way interactions, and then removed two-way interactions due to nonsignificance. The final model, which proved to be most statistically significant had three adjustments to the slope based on one single predictor (PSSFA) and a significant two-way interaction term (PNEFQ POS and SEFQ NEG) ($\Delta R^2 = .363$). A residuals analysis was performed, the results of which indicated that all data points fell within 3 standard deviations of the mean of 0 (See Table 11). These results suggest that lack of perceived social support from family and the combined effect of positive family expressiveness with negative self-expressiveness explained most of the variance for difficulty identifying feelings.

Difficulty Describing Feelings

A multiple regression analysis was conducted with TAS DDF for the full model including all seven family variable predictors (FAD, FOS TOT, PSSFA, PNEFQ POS, PNEFQ NEG, SEFQ POS, and SEFQ NEG). Higher order interaction terms were initiated and deleted from the model one by one beginning with the least significant

predictors. A .05 level of significance was used as the criteria for removing nonsignificant interaction terms. The final model, which proved to be the most statistically significant included two significant three-way interaction terms (PNEFQ NEG, SEFQ POS and FOS TOT) and (PNEFQ NEG, FOS TOT, and PSSFA) and four significant predictors (ΔR^2 = .476). These results suggested that the combined effects of negative family expressiveness, positive self-expressiveness, and lack of family expressiveness and the combined effects of negative family expressiveness, lack of family expressiveness, and lack of perceived social support from family explained most of the variance for alexithymia. A residuals analysis was performed, the results of which indicated the presence of three outliers, observation #62 (Standardized Residual = 3.03), observation #157 (Standardized Residual = 3.30), and observation #109 (Standardized Residual = -3.06). The model was re-run deleting these three outliers to improve the model fit (ΔR^2 = .539) (See Table 12). While fit was improved, no decisions concerning predictor adequacy changed from the full data set to the reduced data set (with outliers removed). In other words, those predictors that were found significant in the full data set remained significant when TAS DDF was regressed on the predictors using the reduced data set. Therefore, removing offending outliers was deemed appropriate here and in all subsequent analyses.

Externally-Oriented Thinking

A multiple regression analysis was conducted with TAS EOT as the dependent variable for the full model including all seven family variable predictors (FAD, FOS TOT, PSSFA, PNEFQ POS, PNEFQ NEG, SEFQ POS, and SEFQ NEG) as the independent variables. The analysis started with higher order interaction terms and

deleted them from the model one by one beginning with the least significant predictors. A .05 level of significance was used as the criteria for removing nonsignificant interaction terms. The final model which proved to be most statistically significant had two significant predictors with their significant two way interaction terms (SEFQ POS and FOS TOT) ($\Delta R^2 = .149$). These results suggest that the combined effects of positive self-expressiveness and a lack of an expressive family atmosphere explained most of the variance for alexithymia. A residuals analysis was performed, the results of which indicated one outlier, observation #182 (Standardized Residual = 3.03). The model was re-run to improve model fit, deleting observation #182 because it was more that 3 standard deviations from the mean of 0 ($\Delta R^2 = .155$) (See Table 13).

TAS Total Scores

A multiple regression analysis was conducted with Total TAS-20 scores as the dependent variable for the full model including all seven family variable predictors (FAD, FOS TOT, PSSFA, PNEFQ POS, PNEFQ NEG, SEFQ POS, and SEFQ NEG) as the independent variables. This analysis started with higher order interaction terms and was deleted from the model one by one beginning with the least significant predictors. A .05 level of significance was used as the criteria for removing nonsignificant interaction terms. The final model that proved to be most statistically significant included two significant three-way interactions (SEFQ POS, SEFQ NEG, and FOS TOT) and (SEFQ POS, SEFQ NEG, and PSSFA) and 17 predictors significant at the .05 level ($\Delta R^2 = .470$). A residuals analysis was conducted and one outlier was found, observation #96 (Standardized Residual = 3.12). The model was refit without the outlier; however, the significance of the two three-way interactions did not change, so no more model

reduction could be reached ($\Delta R^2 = .476$). Observation #96 was affecting the regression model adversely because Adjusted R-squared increased, but deleting the outlier did not change the model fit (See Table 14).

Does expressiveness mediate or moderate family dysfunction effects upon alexithymia?

To determine whether expressiveness mediates or moderates family dysfunction effects upon alexithymia, mediation and moderation effects were tested. According to Muller, Judd and Yzerbyt (2005), mediation focuses on the intervening mechanism that produces the treatment effect while moderation focuses on factors that affect the magnitude of the treatment effect. Mediational analyses attempt to identify the intermediary process that leads from the manipulated independent variable to the outcome or dependent variable (Muller, Judd, & Yzerbyt, 2005). Moderation focuses on factors that influence the strength and/or direction of the relation between the treatment variable (in this case, family factors) and the dependent variable (in this case, alexithymia) (Muller, Judd, &Yzerbyt, 2005). Analyses of moderation attempt to identify individual differences or contextual variables that strengthen and/or change the direction of the relationship between the treatment variable and the dependent variable (Muller, Judd, &Yzerbyt, 2005).

Barron and Kenny (1986) were referred to test for moderation/mediation effects of family expressiveness and family dysfunction variables and their relationship to the TAS-20 subscales and TAS-20 Total scale. According to Barron and Kenny (1986) testing for moderation effects suggests three causal paths that feed into the outcome variable of alexithymia as measured by the TAS-20: the predictor variables, the moderator variables, and the interaction between the predictor and moderator variables.

The moderation hypothesis is supported if the interaction between the predictor and the potential moderator variable is significant (Barron & Kenny, 1986).

According to Barron and Kenny (1986) testing for mediation involves estimating the three following regression equations: first, regressing the mediator on the independent variable; second, regressing the dependent variable on the independent variable; and third, regressing the dependent variable on both the independent variable and on the mediator. These three regression equations provide the test of the linkages of the mediational model. To establish mediation, the following conditions must hold: First, the independent variable must affect the mediator in the first equation; second, the independent variable must be shown to affect the dependent variable in the second equation (direct effect); and third, the mediator must affect the dependent variable in the third equation (indirect effect) (Barron & Kenny, 1986). If these conditions all hold in the predicted direction, then the effect of the independent variable on the dependent variable must be less in the third equation than in the second. Perfect mediation holds if the independent variable has no effect when the mediator is controlled (Barron & Kenny, 1986).

To determine whether family expressiveness variables were functioning more as mediators (the intermediary process that leads from the manipulated independent variable to the outcome or dependent variable) or more as moderators (factors that influence the strength and/or direction of the relation between the independent variable and the dependent variable) regression methods were used to test mediation/moderation. One analysis was performed for each of the three TAS-20 subscales and the TAS-20 Total scale.

Difficulty Identifying Feelings

It was hypothesized that family expressiveness and self-expressiveness variables would moderate the relationship between perceived social support from family and one facet of alexithymia, difficulty identifying feelings (Hypotheses 7-10). However, family expressiveness variables (PNEFQ and SEFQ) were not found to be moderating the TAS DIF (See Table 15). These results suggest that family expressiveness variables and self-expressiveness variables are not strengthening or changing the direction of the relation between the independent variables, family expressiveness and self-expressiveness, and the dependent variable, alexithymia. Rather; family expressiveness variable (PNEFQ POS) mediates the relationship between family support variables (PSSFA) and the TAS DIF (See Table 16). Positive family expressiveness leads to social support, which in turn influences ones ability to identify feelings.

Difficulty Describing Feelings

Family expressiveness variables (PNEFQ and SEFQ) were moderators for family dysfunction variables for TAS DDF (See Table 20). These results suggest that family expressiveness and self-expressiveness influence the strength of the relation to difficulty describing feelings. Results suggested that there was a moderator effect for family dysfunction variable, FOS TOT, but not PSSFA. These results suggest that perceived expressive family atmosphere but not perceived social support from family members influences the strength of the relationship with alexithymia. Thus, expressiveness variables act as a moderator for some of the family dysfunction variables but not all. Expressiveness variables were not found to be mediating the relationship between family dysfunction variable, PSSFA, and TAS DDF (See Table 17).

Externally-Oriented Thinking

The family expressiveness variable, SEFQ POS, was a moderator for FOS ($p <$ .05) on the TAS EOT (See Table 19). These results suggest that positive self-expressiveness influences the strength of the relationship between perceived expressive family atmosphere and externally-oriented thinking.

TAS Total Scores

Family expressiveness variables were working as a moderator for family dysfunction variables (PSSFA and FOS TOT) and the TAS TOT. Thus, expressiveness variables moderate the relationship between family dysfunction variables and the Total TAS-20 scale (See Table 20). These results suggest that family dysfunction variables (perceived social support from family and perceived expressive family atmosphere) influence the strength of relationship between family expressiveness and alexithymia.

Does family dysfunction lead to negative emotional expressiveness, which then could be causally related to alexithymia?

The prior analysis where the TAS-20 was regressed on all of the family variables to determine whether expressiveness moderates or mediates the effects of dysfunction was examined to determine whether the family expressiveness variables and family dysfunction variables had independent contributions. Family expressiveness variables were found to moderate family dysfunction variables for the TAS DDF, TAS EOT, and TAS TOT, but were found to mediate family dysfunction variables for TAS DIF. These results suggest that family expressiveness influences the strength of the relation between family dysfunction and TAS-20 variables: difficulty describing feelings, externally-oriented thinking and total alexithymia scores. When regression analyses were run for

each of the family expressiveness variables and the family dysfunction variables independently, the *p* value was significant at the .05 level. These results suggest that the family expressiveness variables and the family dysfunction variables contribute independently to alexithymia.

The Effect of Family Dysfunction on Alexithymia

Hypothesis 6: Family dysfunction as measured by the Family Assessment Device (FAD) will be associated with alexithymia. High scores on the FAD indicate poor family functioning and are expected to be positively associated with alexithymia. Family dysfunction as measured by the Family of Origin Scale (FOS) will be associated with alexithymia. High scores on the FOS indicate a lack of perceived healthy expressive family atmosphere and are expected to be positively associated with alexithymia.

TAS Total score and TAS subscales (DIF, DDF, and EOT) were the outcome variables. FOS and FAD were the predictor variables. As independent predictors, the FAD and the FOS were both associated with alexithymia. However, when both FAD and FOS were in the model, only FOS remained a significant predictor and the full model accounted for 41% of the variance. FOS was predicted to be a moderator between family expressiveness variables (PNEFQ) and alexithymia and between self-expressiveness (SEFQ) and alexithymia. Results of tests of moderation indicated that FOS was significantly associated with the TAS Total score and all of the TAS subscales, thus hypothesis 6 was supported.

Moderating Models for Family Dysfunction

Hypothesis 6a: Family dysfunction as measured by FOS will moderate the relationship between positive family expressiveness as measured by the PNEFQ POS and

alexithymia (subscales and total score). Specifically, positive family expressiveness will be associated with healthy emotional expression (e.g., LOW alexithymia), but that relationship will be attenuated by a dysfunctional family environment. A significant interaction (PNEFQ POS X FOS) was found in predicting total alexithymia scores (TAS TOT) (See Table 20). These result demonstrated that dysfunction in the family of origin moderates the association between positive family expressiveness and alexithymia. At 1 SD above the mean, there is no significant association between positive family expressiveness and alexithymia. Participants in dysfunctional families are characterized by higher levels of alexithymia regardless of how much positive expressiveness occurs in the family. In contrast, for participants whose family of origin is characterized by less dysfunction (-1 SD, there is a significant negative association between positive emotional expression in the family and alexithymia (See Figure 2). The interaction (PNEFQ POS X FOS) was found to be significant for total TAS scores as well as TAS subscales, DDF and EOT. TAS DIF was not a significant outcome variable in this test of moderation.

Hypothesis 6b: Family dysfunction as measured by FOS will moderate the relationship between negative family expressiveness as measured by the PNEFQ NEG and alexithymia (total scores and subscales). Specifically, negative family expressiveness will be associated with problematic emotional expression (e.g., HIGH alexithymia) and that relationship will be enhanced by high dysfunctional family. A significant interaction (PNEFQ NEG X FOS) was found in predicting total alexithymia scores (TAS TOT) as well as TAS subscales, DDF and EOT. Again, TAS DIF was not a significant outcome variable in this test of moderation (See Table 20). These results demonstrated that a dysfunctional family of origin moderates the association between negative expression

within the family and alexithymia total scores. At 1 SD above the mean on family dysfunction there is a significant negative association between negative expressiveness and total scores. For more functional families the association is positive between alexithymia and negative expressiveness, but this was not significant within - 1 SD below the mean (See Figure 3).

Hypothesis 6c: Family dysfunction as measured by FOS will moderate the relationship between positive self-expressiveness as measured by the SEFQ POS and alexithymia. Specifically, positive self-expressiveness will be associated with healthy emotional expression (e.g., LOW alexithymia), but that relationship will be attenuated by a dysfunctional family environment. A significant interaction (SEFQ POS X FOS) was found in predicting total alexithymia scores (TAS TOT) as well as TAS subscales, DIF and EOT. TAS DDF was not a significant outcome variable in this test of moderation (See Table 20). These results demonstrated that dysfunction in the family of origin moderates the association between alexithymia total scores and positive self-expressiveness. In well-adjusted families there is a significant negative association between positive expressiveness and alexithymia. However, this gets attenuated and is non-significant for more dysfunctional families. Participants from more dysfunctional families are characterized by elevated levels of alexithymia regardless of how much positive self-expression they report (See Figure 4).

Hypothesis 6d: Family dysfunction as measured by FOS will moderate the relationship between negative self-expressiveness as measured by the SEFQ NEG and alexithymia. Specifically, negative self-expressiveness will be associated with problematic emotional expression (e.g., HIGH alexithymia), and that relationship will be

enhanced by a highly dysfunctional family environment. A significant interaction (SEFQ NEG X FOS) was found in predicting total alexithymia scores (TAS TOT) as well as TAS subscale TAS DDF. TAS subscales DIF and EOT were not significant outcome variables in this test of moderation (See Table 20). These results demonstrated that FOS moderates the association between negative self-expression and alexithymia. For individuals from more functional families there is a positive association between negative expression and alexithymia. For individuals from more dysfunctional families this is attenuated and non significant. Across all levels of negative expression, individuals from dysfunctional families exhibit high levels of alexithymia. (See Figure 5).

Hypothesis 7: Social support as measured by the PSSFA will moderate the relationship between positive expressiveness from family as measured by PNEFQ POS and alexithymia (total score and subscales). Specifically, positive family expressiveness will be associated with healthy emotional expression (e.g., LOW alexithymia), but that relationship will be attenuated by low perceived social support from family. Significant interactions were not found between PSSFA and PNEFQ POS for the TAS Total scale and the TAS subscales. Total alexithymia scores (TAS TOT) and TAS subscales (DIF, DDF, and EOT) were not significant outcome variables in this test of moderation (See Table 20). Thus, positive family expressiveness was not found to moderate the relationship between perceived social support from family and alexithymia. Rather, family expressiveness variables (PNEFQ and SEFQ) mediate the relationship between family support variables (PSSFA) and TAS DIF (See Table 16).

Hypothesis 8: Social support as measured as PSSFA will moderate the relationship between negative family expressiveness (PNEFQ NEG) and alexithymia

(total scores and subscales). Specifically, negative family expressiveness will be associated with problematic emotional expression (e.g., HIGH alexithymia) and that relationship will be attenuated by high perceived social support from family. A significant interaction (PNEFQ NEG X PSSFA) was found in predicting total alexithymia scores (TAS TOT) as well as TAS subscale EOT. TAS subscales DIF and DDF were not significant outcome variables in this test of moderation (See Table 20). These results demonstrated that when individuals perceive that they are lacking social support in their family environment, they have higher alexithymia scores. Thus, individuals who come from nonsupportive families report higher alexithymia scores than individuals who come from supportive families. In other words, when high levels of social support in the family environment exist and individuals come from healthy family environments, these individuals have lower levels of alexithymia than individuals who come from family environments which are lacking in social support (See Figure 6)

Hypothesis 9: Positive self-expressiveness as measured by the SEFQ POS will moderate the relationship between perceived social support from family as measured by the PSSFA and alexithymia. Specifically, positive self-expressiveness will be associated with healthy emotional expression (e.g., LOW alexithymia), but that relationship will be attenuated by low perceived social support from family. A significant interaction (SEFQ POS X PSSFA) was found in predicting total alexithymia scores (TAS TOT). TAS subscales DIF, DDF, and EOT were not significant outcome variables in this test of moderation (See Table 20). These results indicate that social support moderates the association between positive self-expression and alexithymia. At high levels of social support there is a significant negative association between positive expression and

alexithymia, as social support decreases this gets attenuated and is no longer significant. (See Figure 7) .Thus, it appears that in order to prevent high levels of alexithymia, individuals require both high levels of social support from family as well as high levels of positive self-expressiveness.

Hypothesis 10: Social support as measured by the PSSFA will moderate the relationship between SEFQ NEG and alexithymia (total scores and subscale scores). Specifically, negative self-expressiveness will be associated with problematic emotional expression (e.g., HIGH alexithymia), but that relationship will be attenuated by high levels of perceived social support from family. A small but significant interaction (SEFQ NEG X PSSFA) was found in predicting TAS subscales, DIF and EOT (See Figure 28).TAS Total scale and TAS subscale, DDF were not significant outcome variables in this test of moderation (See Table 20). These results indicate that social support moderates the association between negative self-expression and difficulty identifying feelings. Among individuals with good social support negative expression is positively associated with difficulty identifying feelings. Among individuals with poor social support there is no significant association. Perhaps, within a reasonably supportive environment negative self expression is correlated with difficulties identifying feelings, but in an unsupportive environment difficulty identifying feelings is unrelated to negative self-expression as it is elevated across the board.

Combined Effects of Family Expressiveness, Self-Expressiveness and Family Dysfunction

With regard to the best predictors for individuals' total alexithymia scores, a significant three-way interaction was found between lack of positive self-expressivity (e.g. low SEFQ POS), negative self-expressivity (SEFQ NEG), and lack of perceived

expressive family atmosphere (FOS TOT). These results suggest that the combined effects of a lack of positive self-expressivity, negative self-expressivity, and the perception of a family atmosphere lacking in positive expressivity may be associated with alexithymia. A marginally significant three-way interaction between negative family expressiveness (PNEFQ NEG), lack of positive self-expressiveness (e.g. low SEFQ POS), and lack of perceived expressive family atmosphere (FOS TOT) was found to be the best predictor of difficulty describing feelings. These results suggest that the combined effects of negative family expressiveness, lack of positive self-expressiveness, and lack of perceived expressive family atmosphere (i.e. family dysfunction) explained most of the variance for difficulty describing feelings.

A marginally significant three-way interaction between negative family expressiveness (PNEFQ NEG), lack of perceived expressive family atmosphere (FOS TOT), and lack of perceived social support in the family (PSSFA) were also found to be significant predictors of difficulty describing feelings. These results suggest that the combined effects of negative family expressiveness, lack of perceived expressive family atmosphere, and lack of perceived social support from family explained most of the variance for difficulty identifying feelings.

Lastly, a significant three-way interaction was also found between lack of positive self-expressivity (e.g. low SEFQ POS), negative self-expressivity (SEFQ NEG), and lack of perceived social support in the family (PSSFA). These results suggest that the combined effects of a lack of positive self-expressivity, negative self-expressivity, and lack of perceived social support from family may be associated with alexithymia.

Summary of Findings

Alexithymia Total Scores

 For the total alexithymia scores, the results suggest that positive self-expressiveness, negative self-expressiveness, positive family expressiveness, and negative family expressiveness, explained most of the variance associated with total alexithymia scores. Further, it should be noted that an absence of positive expressiveness is associated with alexithymia. These results are consistent with hypotheses 1, 2, 3, and 4.

 The results also suggest that alexithymia is related to family dysfunction, a perceived lack of a healthy, expressive family atmosphere, and a perceived lack of social support from family members. These results are consistent with hypotheses that perceived lack of social support from family (Hypothesis 5), family dysfunction (Hypothesis 6), and lack of a positive expressive family atmosphere (Hypothesis 6) would be associated with alexithymia. Regression analyses indicated that for dependent variable TAS Total the most parsimonious model was comprised of two predictor variables, FOS and PSSFA ($\Delta R^2 = .420$).

 A significant interaction (PNEFQ POS X FOS) was found in predicting total alexithymia scores (TAS TOT) (See Table 20). These result demonstrated that dysfunction in the family of origin moderates the association between positive family expressiveness and alexithymia. Participants in dysfunctional families are characterized by higher levels of alexithymia regardless of how much positive expressiveness occurs in the family (See Figure 2). Conversely, a significant interaction (PNEFQ NEG X FOS) was found for predicting total alexithymia scores (TAS TOT). At 1 SD above the mean on family dysfunction there is a significant negative association between negative

expressiveness and total scores (See Figure 3). These results are consistent with hypotheses 6a and 6b.

A significant interaction (SEFQ POS X FOS) was found in predicting total alexithymia scores (TAS TOT). These results demonstrated that dysfunction in the family of origin moderates the association between alexithymia total scores and positive self-expressiveness. In well-adjusted families there is a significant negative association between positive self-expressiveness and alexithymia. However, this gets attenuated and is nonsignificant for more dysfunctional families. Participants from more dysfunctional families are characterized by elevated levels of alexithymia regardless of how much positive self-expression they report (See Figure 4). These results are consistent with hypothesis 6c.

A significant interaction (PNEFQ POS X PSSFA) was not found in predicting total alexithymia scores (TAS TOT). These results demonstrated that perceived social support from family did not moderate the association between alexithymia total scores and positive family expressiveness. These results did not support hypothesis 7.

A significant interaction (PNEFQ NEG X PSSFA) was found in predicting total alexithymia scores (TAS TOT). In other words, when high levels of social support in the family environment exist and individuals come from healthy family environments, these individuals have lower levels of alexithymia than individuals who come from family environments which are lacking in social support (See Figure 6). These results are consistent with hypothesis 8.

A significant interaction (SEFQ POS X PSSFA) was found in predicting total alexithymia scores (TAS TOT). These results indicate that perceived social support from

family moderates the association between positive self-expression and alexithymia. At high levels of perceived social support from family, there is a significant negative association between positive self-expression and alexithymia. As social support decreases, this gets attenuated and is no longer significant (See Figure 7). These results are consistent with hypothesis 9. Thus, it appears that in order to prevent high levels of alexithymia, individuals require both high levels of social support from family as well as high levels of positive self-expressiveness.

The final model that proved to be most statistically significant included two significant three-way interactions (SEFQ POS, SEFQ NEG, and FOS TOT) and (SEFQ POS, SEFQ NEG, and PSSFA) and 17 predictors significant at the .05 level ($\Delta R^2 = .470$). The shapes of the interactions have been explained above. These results are consistent with hypotheses 6c, 6d, 9, and 10.

Alexithymia Subscales (DIF, DDF, and EOT)

Difficulty Identifying Feelings

The results suggest that positive family expressiveness explained most of the variance associated with the difficulty identifying feelings factor of alexithymia. For dependent variable TAS DIF the most parsimonious model was comprised of two significant predictor variables, the FOS and the PSSFA ($\Delta R^2 = .328$). These results suggest that positive family expressiveness and perceived social support from family explained most of the variance for difficulties expressed in identifying one's feelings. The family expressiveness variable (PNEFQ POS) mediated the relationship between family support variables (PSSFA) and the TAS DIF (See Table 16). In other words,

positive family expressiveness influences social support in the family, which in turn influences one's ability to identify feelings.

A significant interaction (SEFQ POS X FOS) was found in predicting DIF. These results demonstrated that dysfunction in the family of origin moderates the association between alexithymia DIF scores and positive self-expressiveness. In well-adjusted families there is a significant negative association between positive self-expressiveness and alexithymia. However, this gets attenuated and is nonsignificant for more dysfunctional families. Participants from more dysfunctional families are characterized by elevated levels of alexithymia regardless of how much positive self-expression they report (See Figure 4).

A small but significant interaction (SEFQ NEG X PSSFA) was found in predicting DIF (See Figure 8). These results indicate that perceived social support from family moderates the association between negative self-expression and difficulty identifying feelings. Among individuals with good social support, negative expression is positively associated with difficulty identifying feelings. Among individuals with poor social support there is no significant association. Perhaps, within a reasonably supportive environment negative self expression is correlated with difficulties identifying feelings, but in an unsupportive environment, difficulty identifying feelings is unrelated to negative self-expression as it is elevated across the board.

Difficulty Describing Feelings

The results suggest that positive self-expressiveness in the family and negative family expressiveness explained most of the variance associated with the difficulty describing feelings factor of alexithymia. These results suggest that difficulty describing

feelings is related to general family dysfunction, a perceived lack of a healthy, expressive family atmosphere, and a perceived lack of social support within the family environment. These results are consistent with hypotheses that family dysfunction, lack of social support from family, and lack of a positive expressive family atmosphere would be associated with difficulty describing feelings. For dependent variable TAS DDF the most parsimonious model was comprised of two significant predictor variables, FOS and PSSFA ($\Delta R^2 = .442$).

The final model, which proved to be the most statistically significant included two significant three-way interaction terms (PNEFQ NEG, SEFQ POS and FOS TOT) and (PNEFQ NEG, FOS TOT, and PSSFA) and four significant predictors ($\Delta R^2 = .476$). These results suggested that the combined effects of negative family expressiveness, positive self-expressiveness, and lack of family expressiveness and the combined effects of negative family expressiveness, lack of family expressiveness, and lack of perceived social support from family explained most of the variance for alexithymia. The shape of these interactions will be detailed below.

Family expressiveness variables (PNEFQ and SEFQ) were found to be moderators for family dysfunction variables for TAS DDF (See Table 20). There was a moderator effect for family dysfunction variable, FOS TOT, but not PSSFA. These results suggest that perceived expressive family atmosphere but not perceived social support from family members influences the strength of the relationship with difficulty describing feelings.

The interaction (PNEFQ POS X FOS) was found to be significant for DDF. Conversely, a significant interaction (PNEFQ NEG X FOS) was found in predicting

DDF. Specifically, negative family expressiveness was associated with problematic emotional expression (e.g., HIGH alexithymia) and that relationship was enhanced by a highly dysfunctional family environment.

A significant interaction (SEFQ NEG X FOS) was found in predicting TAS DDF. These results demonstrated that FOS moderates the association between negative self-expression and difficulty describing feelings. For individuals from more functional families there is a positive association between negative expression and DDF. For individuals from more dysfunctional families this is attenuated and nonsignificant. Across all levels of negative expression, individuals from dysfunctional families exhibit high levels of DDF (See Figure 5).

Externally-Oriented Thinking (EOT)

The results suggest that positive self-expressiveness in the family explained most of the variance for the externally-oriented thinking factor of alexithymia. These results suggest that externally-oriented thinking is related to family dysfunction, a perceived lack of a healthy, expressive family atmosphere, and a perceived lack of social support in the family environment. These results are consistent with hypotheses that family dysfunction, lack of social support from family, and lack of a positive expressive family atmosphere would be associated with externally-oriented thinking. For dependent variable TAS EOT the most parsimonious model was comprised of one predictor variable, FOS ($\Delta R^2 = .118$).

The final model which proved to be most statistically significant had two significant predictors with their significant two-way interaction terms (SEFQ POS and FOS TOT) ($\Delta R^2 = .149$). These results suggest that the combined effects of positive self-expressiveness and a lack of an expressive family atmosphere explained most of the

variance for alexithymia. These results demonstrated that dysfunction in the family of origin moderates the association between EOT and positive self-expressiveness. In well-adjusted families there is a significant negative association between positive expressiveness and EOT. However, this gets attenuated and is nonsignificant for more dysfunctional families. Participants from more dysfunctional families are characterized by elevated levels of EOT; regardless of how much positive self-expression they report (See Figure 4).

The interaction (PNEFQ POS X FOS) was found to be significant for EOT. Conversely, a significant interaction (PNEFQ NEG X FOS) was found in predicting EOT, indicating that negative family expressiveness will be associated with problematic emotional expression (e.g., HIGH alexithymia) and that relationship will be enhanced by a highly dysfunctional family environment.

A significant interaction (PNEFQ NEG X PSSFA) was found in predicting EOT. These results demonstrated that when individuals perceive that they are lacking social support in their family environment, they have higher EOT scores. Thus, individuals who come from non-supportive families report higher EOT scores than individuals who come from supportive families. In other words, when high levels of social support in the family environment exist and individuals come from healthy family environments, these individuals have lower levels of EOT than individuals who come from family environments which are lacking in social support (See Figure 6).

A small but significant interaction (SEFQ NEG X PSSFA) was found in predicting EOT. These results indicate that social support moderates the association between negative self-expression and EOT. Among individuals with good social support,

negative self-expression is positively associated with EOT. Among individuals with poor social support there is no significant association. Perhaps, within a reasonably supportive environment negative self-expression is correlated with EOT, but in an unsupportive environment, externally-oriented thinking is unrelated to negative self-expression as it is elevated across the board (See Figure 8).

Summary of Results

Hypothesis 1 that negative self-expressiveness will be significantly positively associated with alexithymia was supported. The more negative self-expressiveness one reports, the higher the level of alexithymia reported.

Hypothesis 2 that positive self-expressiveness will be negatively correlated with alexithymia was supported.

Hypothesis 3 that negative family expressiveness will be significantly positively associated with alexithymia was supported. The more negative family expressiveness one reports, the higher the alexithymia scores.

Hypothesis 4 that positive family expressiveness will be significantly negatively associated with alexithymia was supported.

Hypothesis 5 that perceived social support from family will be negatively associated with alexithymia was supported in that the more social support one receives from family members, the less likely one is to develop alexithymia.

Hypothesis 6 that family dysfunction will moderate the relationship between positive family expressiveness and alexithymia was supported as poor family functioning was found to be associated with higher levels of alexithymia. Family dysfunction was found to moderate the relationship between positive family expressiveness and

alexithymia. Dysfunction in the family of origin moderates the association between positive family expressiveness alexithymia. Persons from dysfunctional families are characterized by higher levels of alexithymia regardless of how much positive expressiveness occurs in the family. Dysfunctional family of origin was also found to moderate the association between negative expression within the family and alexithymia. Dysfunction in the family of origin was found to moderate the association between alexithymia and positive self-expressiveness. Family dysfunction was found to moderate the association between negative self-expression and alexithymia. These findings suggest that individuals from dysfunctional families exhibit higher levels of alexithymia.

Hypothesis 7 was not supported as positive family expressiveness was not found to moderate the relationship between perceived social support from family and alexithymia. Rather, positive family expressiveness mediates the relationship between perceived social support from family and alexithymia. Positive family expressiveness is causing social support, which in turn is influencing ones ability to identify feelings.

Hypothesis 8 that social support from family will moderate the relationship between negative family expressiveness and alexithymia was supported. When individuals perceive that they are lacking social support in their family environment, they demonstrate higher alexithymia scores. Thus, individuals who come from nonsupportive families report higher alexithymia scores than individuals who come from supportive families. In other words, when high levels of social support in the family environment exist and individuals come from healthy family environments, these individuals have lower levels of alexithymia than individuals who come from family environments which are lacking in social support.

Hypothesis 9 that positive self-expressiveness will moderate the relationship between perceived social support from family and alexithymia was supported. Social support moderates the association between positive self-expression and alexithymia. These results indicate that in order to prevent high levels of alexithymia, individuals require both high levels of social support from family as well as high levels of positive self-expressiveness.

Hypothesis 10 that social support will moderate the relationship between negative self-expressiveness and alexithymia was supported. These results suggest that social support from family moderates the association between negative self-expression and alexithymia.

CHAPTER 5

DISCUSSION

This study highlights the contribution of family variables on the development of alexithymia in adults. This study assumes an Adlerian developmental approach that emphasizes family of origin environmental influences upon the emerging personality (Adler, 1927; Adler 1931; Adler 1956). Consistent with previous research findings (Lumley et al., 1996; Yelsma et al., 1998; Yelsma et al., 2000; Kench & Irwin, 2000) increased family dysfunction and negative emotional expressiveness were related to increased levels of alexithymia. In the present study six research questions were posed to determine how family variables, specifically, self-expressiveness, family expressiveness, family environment, and family dysfunction, may be associated with alexithymia. The hypotheses that negative self-expressiveness family environments which harbor negative expression of emotion, lack of positive expressiveness in the family environment, low levels of perceived social support from family, and dysfunctional family environments would be associated with alexithymia were supported. The six sections below correspond to each research question proposed and provide greater detail and discussion regarding the current research findings.

What family environment variables are statistically associated with alexithymia?

The research analyses suggest that aspects of the childhood family environment, particularly, negative expressiveness, do predict alexithymia in adulthood. The essential findings of this study are namely that lack of positive self-expressiveness, lack of positive family expressivity, lack of a positive expressive family atmosphere, family dysfunction, negative family expressiveness and a lack of perceived social support from family members are predictive of total alexithymia scores and of the components of alexithymia:

difficulty identifying feelings, difficulty describing feelings, and externally-oriented thinking. The general hypotheses of the study, therefore, were supported: that is, negative emotional expressivity and dysfunction in the childhood family environment evidently has a bearing on alexithymic tendencies in adulthood (See Table 2). Notably, perceived lack of social support was one of the variables most strongly associated with alexithymia. Results of the current study indicated that individuals' perception that their needs for support, information, and feedback are fulfilled by their family of origin as measured by the Perceived Social Support From Family Scale (PSSFA) was significantly correlated (r = .63) with alexithymia as measured by the TAS-20. Lack of perceived social support was also significantly correlated with difficulty identifying feelings (r = .56), difficulty describing feelings (r = .65), and externally oriented thinking (r = .34). These findings lend support to the notion that when individuals' needs for social support are met by family members this is associated with lower levels of alexithymia.

Thus, it is evident from the current study that a childhood family environment which provides positive social support is a critical preventative factor for alexithymia in adulthood. These findings are consistent with Procidano and Heller (1983) who stressed the importance of perceived social support from family as critical in preventing distress and psychopathology and improving social competence. Namely, when parents provide children with feedback about emotional expressivity in a supportive and stable environment, children learn how to emote in a healthy fashion and alexithymia may be less likely to develop.

How does expressed emotion (positive or negative in overall valence) in the family contribute to alexithymia? What is the predominant tone in the family associated with alexithymia?

A significant negative correlation ($r = -.51$) was found between positive family expressivity as measured by the Positive and Negative Expressiveness in the Family Questionnaire Positive Scale (PNEFQ POS) and alexithymia as measured by the TAS-20. Significant negative correlations were found between positive family expressivity and difficulty identifying feelings ($r = -.47$), difficulty describing feelings ($r = -.52$), and externally-oriented thinking ($r = -.25$). These results support the hypothesis that a family environment which expresses positive emotions was negatively related to alexithymia. These results also suggest that when family environments include individuals who engage in a positive style of emotional expressivity, individuals may be provided with opportunities to learn how to identify and describe emotions, and may be less likely to engage in externally-oriented thinking processes, which may serve to decrease externalizing behaviors.

A significant positive correlation ($r = .48$) was found between negative family expressivity as measured by the Positive and Negative Expressiveness in the Family Questionnaire Negative Scale (PNEFQ NEG) and alexithymia. Significant positive correlations were found between negative family expressivity and difficulty identifying feelings ($r = .46$), difficulty describing feelings ($r = .51$), and externally-oriented thinking ($r = .19$). These results are consistent with the hypothesis that a family environment which fosters negative emotional expressivity was positively related to alexithymia. These results suggest that negative family expressivity may serve as a contributing factor

to difficulties in identification and description of emotion and externally-oriented thinking processes. Specifically, negative expression of emotion in the family environment may send the message to children that it is not safe to identify and describe their emotions, which may lead to later development of inhibited emotional expression. Thus, if family environments are encouraged to decrease negative expression of emotion and increase positive emotional expressivity, individuals may be less likely to develop alexithymia. Again, it is critical that individuals perceive their family environment to be physically and emotionally safe enough to express themselves affectively.

In addition, self-expressiveness in the family was also associated with alexithymia. Results of linear regression analyses with the expressiveness variables as the independent variables and the Total TAS-20 scale as the dependent variables indicated that positive expression of emotion in the family of origin as measured by the PNEFQ POS was negatively associated ($r = -.26$; $p < .001$) with alexithymia as measured by the TAS-20. Thus, it seems that a family environment which does not provide children with exposure to positive expression of emotion may be associated with their tendency to be deficient in positive self-expressiveness and more proficient in primarily negative expression of emotion. Consistent with previous findings by Yelsma et al. (1998), who found a significant negative correlation ($r = -.52$) between positive self-expressiveness and alexithymia, this study found a significant negative correlation ($r = -.47$) between positive self-expressiveness as measured by the Self-Expressiveness in the Family Questionnaire (SEFQ POS) and alexithymia as measured by the TAS-20. Positive self-expressivity was also significantly negatively correlated with difficulty identifying feelings ($r = -.35$), difficulty describing feelings ($r = -.49$) and externally-oriented

thinking (r = -.33). These findings lend support to the idea that a family environment that fosters positive expression of emotion may be a protective factor against the development of alexithymia in adulthood.

These findings combined lend support to the notion that a family environment which fosters positive expression of emotion may serve as a protective factor against the development of alexithymia in adulthood. Thus, if family environments exist in which positive emotional expressivity is the predominant tone; individuals may feel safer and more supported in practicing and eventually learning how to identify and describe emotions and may be less likely to engage in externally-oriented thinking.

Consistent with the Yelsma et al. (1998) findings of a significant positive correlation (r = .34) between negative self-expressiveness and alexithymia, a significant positive correlation (r = .26) was found between negative self-expressiveness as measured by the Self-Expressiveness in the Family Negative Scale (SEFQ NEG) and alexithymia as measured by the TAS-20. Negative self-expressivity was significantly positively correlated with difficulty identifying feelings (r = .30), and difficulty describing feelings (r = .25), but not externally-oriented thinking (r = .06). These findings lend support to the hypothesis that a family environment which harbors negative expressed emotions was related to alexithymia in adults. These results suggest that by decreasing negative expression of emotion in the family environment, one is creating a safer, supportive, and stable environment in which individuals can learn to express their emotions. It is possible that the primarily negative nature of an individual's expressions leads to a general hesitation or resistance in identifying feelings. With regard to difficulty describing feelings, it is possible that negative family expressiveness punishes the

individual's description of their feelings, causing them to inhibit expression of emotion. Externally-oriented thinking, or the tendency to externalize problems, engage in concrete thinking, and lack psychological mindedness, was not found to be significantly positively correlated with negative self-expressivity. A possible explanation for this finding may be that individuals who engage in negative self-expressivity may not tend to externalize problems due to their ability to emote, albeit in a negative manner. Next the associations between expressiveness variables and each of the alexithymia subscales are addressed.

Expressiveness Variables and Difficulty Identifying Feelings

Results of linear regression analyses indicated that positive family expressivity (PNEFQ POS) mediates the relationship between perceived social support from family and difficulty identifying feelings. Thus, positive family expressivity leads to social support which in turn influences participants' ability to identify feelings. These results are consistent with the hypothesis that positive family expressivity would be a protective factor in increasing familial support and foster a safe environment in which individuals feel safe to explore and develop their ability to identify emotions.

Expressiveness Variables and Difficulty Describing Feelings

Results of linear regression analyses indicated that participants' perceptions of a lack of positive self-expressivity (e.g. low SEFQ POS) and negative family expressivity (PNEFQ NEG) were the best predictors of difficulty describing feelings. These results are consistent with the hypotheses that a lack of positive self-expressivity and exposure to negative family expressivity would be predictive of difficulty describing feelings. It is possible that individuals develop a lack of positive self-expressivity when raised in an environment in which negative family expressivity is the predominant tone. One

explanation for these findings may be that exposure to primarily negative expression of emotions in the family environment can lead to individuals' lacking the skills or ability to express their emotions in a positive fashion.

Expressiveness Variables and Externally-Oriented Thinking

Results of linear regression analyses indicated that lack of positive self-expressivity (e.g. low SEFQ POS) was the best predictor of externally-oriented thinking. Negative family expressivity was also found to be a predictor of externally-oriented thinking, but was not included in the final regression model because the Adjusted R-squared (.120) was larger for lack of positive self-expressivity. These results are consistent with the author's hypothesis that individuals who lack positive self-expressivity and are exposed to negative family expressivity would be associated with higher levels of externally-oriented thinking patterns. It is possible that individuals who are lacking in positive self-expressivity may be more likely to engage in externalizing behaviors due to the fact that they are lacking in the capacity for psychological mindedness needed to enhance their ability to engage in positive self-expressivity.

To what extent is level of overall family dysfunction correlated with alexithymia?

Low levels of family dysfunction as assessed by the Family Assessment Device (FAD) was found to be significantly negatively correlated ($r = -.60$) with alexithymia as measured by the TAS-20. These results suggest that a dysfunctional family environment may serve to foster affective deficits characteristic of alexithymia. Low levels of family dysfunction were also significantly negatively correlated with difficulty identifying feelings ($r = -.53$), difficulty describing feelings ($r = -.61$), and externally-oriented thinking ($r = -.34$). These findings were consistent with the hypothesis that family

dysfunction is related to alexithymia. These results are also consistent with previous findings by Lumley et al. (1996) and Berenbaum and James (1994), who found a positive relationship between family dysfunction and alexithymia It is possible that when family dysfunction exists, individuals have limited access to information regarding how to identify and describe feelings, and may engage in externalizing behaviors due to this deficit in emotional processing. It is also possible that when individuals are raised in a dysfunctional family environment, they may inhibit expression of emotion as a protective factor against family violence.

Consistent with previous findings by Yelsma et al. (2000) and Kench and Irwin (2000), who observed a significant correlation between a lack of positive expressiveness in family environment and alexithymia, perceived lack of expressive family atmosphere as measured by the Family of Origin Scale (FOS) was significantly positively correlated ($r = .62$) with alexithymia as measured by the TAS-20. This lack of expressive family atmosphere is a type of family dysfunction that may prevent the learning of healthy methods of cognitive and affective expression. Lack of perceived expressive family atmosphere was also significantly positively correlated with difficulty identifying feelings ($r = .54$), difficulty describing feelings ($r = .63$), and externally-oriented thinking ($r = .35$). These findings were consistent with the hypothesis that individuals who perceived that their family atmosphere lacked positive expressiveness were related to alexithymia.

Results of linear regression analyses where family dysfunction variables (FAD, FOS, and PSSFA) were the independent variables and the TAS-20 subscales and Total TAS-20 scale were the dependent variables indicated that lack of perceived expressive

family atmosphere (FOS TOT) and lack of perceived social support from family (PSSFA) were significant predictors of difficulty identifying feelings and difficulty describing feelings. Lack of perceived expressive family atmosphere (FOS TOT) and lack of perceived social support from family (PSSFA) were found to be the best predictors of participants' total alexithymia scores. These results suggest that when individuals lack social support from family members and are raised in an unexpressive family atmosphere, they may be more likely to develop a limited range of cognitive and affective expression. It is possible that this lack of social support and lack of modeling expression of emotion from family members may inhibit individuals' abilities to learn methods for identifying and describing emotions, and may tend to engage in externally-oriented thinking as a mode of expression.

Lack of perceived expressive family atmosphere (FOS TOT) was also found to be a significant predictor of externally-oriented thinking. These results suggest that when individuals are not raised in an expressive family atmosphere, they may be more likely to inhibit emotional expression and rather, choose to engage in externalizing behaviors as a means of expression. All these findings combined suggest that when individuals perceived that their family atmosphere was not expressive, they tend to have more difficulty identifying and describing feelings and may engage in externally-oriented thinking. It may be that an unexpressive family atmosphere serves to inhibit individuals' ability to learn how to identify and describe their emotions and serve to increase the potential for externalizing behavior. When individuals are raised in an unexpressive family environment and perceive that they lack support from family members, they may

have difficulty learning how to identify and describe emotions or they may perceive that it is not a safe environment in which to identify and describe their emotional experiences.

Moderating Effects of Expressiveness and Family Dysfunction Variables in Predicting Alexithymia

A marginally significant three way interaction between negative family expressiveness (PNEFQ NEG), lack of positive self-expressiveness (e.g. low SEFQ POS), and lack of perceived expressive family atmosphere (FOS TOT) was found to be the best predictor of difficulty describing feelings. These results suggest that the combined effects of negative family expressiveness, lack of positive self-expressiveness, and lack of perceived expressive family atmosphere (i.e. family dysfunction) explained most of the variance for difficulty describing feelings. Thus, when individuals experience negative expressiveness in the family environment coupled with the dysfunction of a lack of positive family expressiveness and lack of social support, difficulty describing feelings may occur. It seems likely that individuals who were raised in an environment whose tone of expressiveness was predominately negative or dysfunctional in that the family environment was lacking in expressiveness altogether, these individuals would be less likely to engage in positive self-expressivity due to lack of exposure to positive expression of emotions.

It is possible that if individuals perceive their family environment to be toxic and they are only exposed to negative expression of emotion, plus, they do not feel supported by family members to express their emotions, they may choose not to describe their emotions for safety purposes. It is likely that even though a family may be dysfunctional in nature and may exhibit negative emotional expressiveness, this appears to be

counteracted by positive self-expressiveness. It is possible that positive self-expressiveness may be acting as a resilience factor for negative family expressiveness and family dysfunction. Positive self-expressiveness may help to buffer individuals against the effects of a toxic family environment with respect to its relationship with alexithymia.

A marginally significant three way interaction between negative family expressiveness (PNEFQ NEG), lack of perceived expressive family atmosphere (FOS TOT), and lack of perceived social support in the family (PSSFA) were also found to be significant predictors of difficulty describing feelings. These results suggest that the combined effects of negative family expressiveness, lack of perceived expressive family atmosphere, and lack of perceived social support from family explained most of the variance for difficulty identifying feelings. Thus, when individuals experience negative expressiveness in their family environment coupled with the perception that their family atmosphere is lacking in positive expressiveness and social support, difficulty describing feelings may occur. This may be due to individuals' lack of exposure to the modeling of appropriate description of feelings by family members, and thus, this ability may be stifled.

A significant two-way interaction between lack of positive self-expressivity (e.g. low SEFQ POS) and lack of perceived expressive family atmosphere (FOS TOT) were found to be the best predictors of externally-oriented thinking. This can be interpreted to mean that the combined effects of a lack of positive self-expressivity and the dysfunctional nature of a lack of perceived expressive family atmosphere may lead to externally-oriented thinking. It is possible that externalizing behaviors may develop as a

means of expression due to individuals' lack of exposure to experiences in the family environment to which they can be exposed and learn how to healthily and positively emote. These results suggest that individuals may develop lack of positive self-expressivity and a lack of psychological mindedness based on their exposure to a dysfunctional family environment which was predominately perceived as unexpressive in nature.

With regard to the best predictors for individuals' total alexithymia scores, a significant three way interaction was found between lack of positive self-expressivity (e.g. low SEFQ POS), negative self-expressivity (SEFQ NEG), and lack of perceived expressive family atmosphere (FOS TOT). These results suggest that the combined effects of a lack of positive self-expressivity, negative self-expressivity, and the perception of a family atmosphere lacking in positive expressivity may be associated with alexithymia. It is possible that individuals raised in an unexpressive family atmosphere may tend to develop negative self-expressivity or a lack of positive self-expressivity due to limited exposure to opportunities to learn healthy, positive expression of emotion. The implications for these findings may be that an unexpressive family atmosphere, which is dysfunctional in nature, may lead to the development of negative styles of self-expression or a lack of positive self-expression.

A significant three-way interaction was also found between lack of positive self-expressivity (e.g. low SEFQ POS), negative self-expressivity (SEFQ NEG), and lack of perceived social support in the family (PSSFA). These results suggest that the combined effects of a lack of positive self-expressivity, negative self-expressivity, and lack of perceived social support from family may be associated with alexithymia. It is possible

that when individuals are raised in a family environment lacking in social support, they may lack the skills to engage in positive self-expressivity or may develop tendencies to engage in negative self-expression due to their experience of not feeling supported by family members to learn how to experience a wide range of affective expression. The implications for these findings may be that individuals may develop alexithymia due to repeated negative styles of self-expression and deficits in positive self-expression.

Does family dysfunction lead to negative emotional expressiveness, which could then be causally related to alexithymia?

Results of the current study indicated that negative family expressiveness moderates the relationship between family dysfunction and alexithymia. These results suggest that negative family expressiveness is a contextual variable that serves to strengthen the relationship between family dysfunction and alexithymia, while positive family expressiveness serves as a contextual variable that serves to strengthen the relationship between a healthy family environment and a lack of alexithymic tendencies. Thus, it appears that family dysfunction can be increased by negative emotional expressiveness, which may lead to alexithymia in adulthood.

In addition, negative family expressiveness and family dysfunction have independent contributions to the development of alexithymia. These results suggest that not only does negative family expressiveness lead to family dysfunction which may cause alexithymia to develop, but also that family dysfunction may lead to negative family expressiveness, and may cause alexithymia to develop. Thus, it appears that family dysfunction can in fact, lead to negative expressed emotion in the family environment, which can lead to later development of alexithymia. However, it also seems that negative

expressed emotions in the family environment can lead to alexithymia independently of the presence or absence of family dysfunction.

The implications for these findings seem to be that if negative family expressiveness were to be prevented, family dysfunction may be less likely to occur. It is also possible that if family dysfunction were addressed and decreased, negative expression of emotion may be less likely to occur. In either case, it seems that prevention of family dysfunction and/or negative family expressiveness may lead to lower levels of alexithymia in adulthood.

Limitations of the Study

Two important limitations of the study should be addressed. First, since this study was based on a population of college students, who tend to be a relatively homogenous group, the results may not generalize similarly to the general population. It is possible that these results may not replicate in a sample of non-college students who are more heterogeneous in nature. Second, due to the self-report nature of the TAS-20, individuals with alexithymia may have had difficulty accurately reporting on their level of emotional expressivity. On the TAS-20 participants were required to evaluate their own abilities to process emotions, and individuals with alexithymia, who have emotion-processing deficits, may have had difficulty on this measure. The reliance on self-reports of family functioning and alexithymia is limiting since it may be difficult for individuals with cognitive and affective deficits to accurately assess their level of emotional expressivity. Inclusion of observational methods of family functioning and parental behaviors and interview-based assessment of alexithymia may lead to more robust conclusions.

Treatment Implications

It is important for therapists to be cognizant of the construct of alexithymia so that clients may be successfully treated. According to Sifneos (1973), clients with high levels of alexithymia are difficult to treat in insight-oriented therapy because of their tendency to externalize problems and their lack of psychological- mindedness. Alexithymia is negatively related to therapy outcome, and even when psychological or psychosomatic symptoms improve, alexithymia tends to remain constant over the course of therapy (Mallinckrodt, King, & Coble, 1998). Crittenden (1994) suggests that even if alexithymia has a neurological basis, it also is associated with severe trauma occurring in adult life. Thus, alexithymia may be caused by dysfunctional family environments, especially if the dysfunction was experienced during critical periods of emotional development in the first few years of life (Crittenden, 1994). Dysfunctional family structures that have marital conflict, coalitions, parent-child over-involvement, and parent-child role reversal can lead children to remain enmeshed in the family system and typically result in impaired emotional development, in addition to difficulty during later attempts to individuate from the family of origin (Mallinckrodt, King, & Coble, 1998). It is significant for therapists to explore family factors such as the family environment, the tone of expressiveness within the family environment, family violence, including trauma, and family dysfunction to address alexithymic traits in clients.

Clinicians who treat individuals who have difficulties with affective expression should consider the following treatment implications. First, alexithymia is difficult to identify due to its lack of presence as a diagnostic category in the Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition (DSM-IV) (2000); however, it is a common problem for individuals who seek therapy (Taylor, 2000). Thus, alexithymia

may be difficult to treat because there is a lack of consensus on how to operationalize the construct in diagnostic terms. Second, alexithymia is frequently a comorbid problem with diagnoses such as posttraumatic stress disorder, trauma, eating disorders, and borderline personality disorder (Taylor, 2000). Thus, clinicians should be aware that when conducting therapy, the client's presenting problem and diagnoses may be affected by the presence of alexithymic traits. Third, clinicians must be cognizant that alexithymia may cause both internalizing and externalizing behaviors. For example, although alexithymia is most commonly known for its association with externalizing behaviors and concrete thinking, in psychosomatic clients, alexithymia tends to cause physical complaints. Thus, therapists must be cognizant of client's tendency to present with somatic problems and see this as a potentially identifying factor for the presence of alexithymia. Finally, alexithymia tends to be cyclic in that it leads to problems in one's family of origin and may be passed down from generation to generation in the form of dysfunctional family environments in which emotions are not expressed in a healthy fashion. For these reasons alexithymia can be difficult to identify and treat appropriately in therapy, but can be a problem that must be explored and addressed nonetheless to foster healthy individuals and family environments.

Exploration of the family environment plays a key role in the treatment of individuals' impaired affective expression and emotion dysregulation. Research findings provide evidence that parents contribute to children's expression of emotion in social situations and externalizing problem behavior (Eisenberg, et al. 2001). Thus, treatment interventions or therapies that focus in part on parental responsivity, expression, and discussion of emotion may provide benefits for children. Parental warmth is especially

important for teaching empathy when interacting with the child. Equally important is parents' discussion of the nature of emotion and how others' situations are similar to those experienced by the child. Warm parents who aid their children in understanding others' (and their own) emotions are likely to help children understand the implications of their behavior for others and how to properly manage their emotions (Eisenberg et al. 2001). This type of open, expressive family environment may serve as a protective factor against the development of alexithymia. Parents serve an important role of educating their children with regard to modeling healthy emotional expressivity and providing a safe environment in which children feel safe to express various types of emotions.

Experts on the treatment of alexithymic clients stress the difficulty of developing a productive therapeutic relationship (Taylor, 1997) and point out that clients who exhibit high levels of alexithymia find close attachments to be aversive. These clients often work to actively prevent forming emotional connections to their therapists. Thus, clients who grew up in dysfunctional families enter therapy with deficits in the competencies needed to form satisfying interpersonal relationships (Mallinckrodt, King, & Coble, 1998). These findings support the belief that a dysfunctional family structure may lead to problems in clients' emotional attachment to their therapists. It is possible that alexithymia is an integral mechanism for transmitting the impact of a poor family environment on the counseling relationship (Mallinckrodt, King, & Coble, 1998). When conducting therapy with alexithymic clients, therapists can address these issues by being sensitive to clients' difficulties forming interpersonal relationships, and by devoting time and care toward development of the therapeutic relationship. In addition, therapist can help clients learn

methods for forming interpersonal connections through the use of healthy expression of emotion.

It appears that family dysfunction can lead to therapeutic issues when working with alexithymic clients. For example, poor client attachment to therapist is clearly an issue in therapy with clients who present with alexithymia. Therapists must remain aware of the possibility that family dysfunction can lead to alexithymia and cause difficulties in forming a strong working alliance. Therapists may first need to address family dysfunction variables such as family violence, lack of positive expressive family atmosphere, and lack of familial support before being successfully able to assist clients in learning to emote in a healthy fashion.

It can be inferred that clients with high levels of alexithymia may have an especially difficult time forming a secure attachment because they do not value exploration of internal experience as a useful activity for solving their presenting problems and they have deficits that limit their ability to identify and describe feelings, tasks that many therapist view as essential for progress in therapy. Mallinckrodt, King, and Coble's (1998) findings provide an empirical basis for the clinical observation that alexithymic clients can be challenging to work with, reject the therapist's efforts to establish an emotional connection, and also stimulate negative countertransference in the therapist. Although research indicates that alexithymic clients may be difficult to treat in therapy, therapists should remain open to spending time developing a strong working alliance so that clients with alexithymia may reap the benefits of therapy.

Specific skills and interventions therapist may utilize in working with alexithymic clients include aiding in the development of a therapeutic environment in which the client

feels safe to express their emotions. Once this type of therapeutic environment is developed, therapists can assist clients in identifying other environments in which it is safe to express emotions. It is possible that at some point in the clients' lives, it was adaptable to inhibit emotions, whether it was not safe to express these emotions for fear of physical or emotional unsafety. Therapists can help clients determine which environments in which it is no longer adaptive to inhibit their emotions. Therapist can help clients evaluate life contexts within which they are now safe to healthily emote. Therapist can also aid clients by modeling healthy expression of emotion to improve affective expression skills. Last, therapist can treat clients with alexithymia by replacing prior coping strategies of inhibiting emotion with healthy methods of emotional expressivity.

It appears that many family variables must be addressed in order to successfully treat alexithymia. First, family dysfunction must be identified and eradicated in order to create a safe and stable environment for individuals to engage in a wide range of affective expressions. Second, family environments must be created in which individuals feel supported by family members in expressing their emotions. Third, families must be encouraged to counterbalance negative expression of emotion with positive emotional expressivity so that individuals feel safe and secure in expressing emotions. Fourth, parents must learn how to identify and express their emotions so that they can model healthy identification and expression of emotion in their children. Last, negative emotional expressivity which leads to family violence must be eradicated by teaching parents how to monitor their affect and behavior so as not to harm their children and to foster an environment in which it is safe and supportive for members to healthily emote.

This study has shed light on the possibility that negative emotional expressiveness in the family environment can lead to family dysfunction, which may result in the development of alexithymia. In turn, family dysfunction, including family violence, can lead to negative emotional expressiveness, which may result in the development of alexithymia. Thus, both family dysfunction and negative emotional expressiveness both serve to foster unsafe family environments in which individuals may not feel physically and emotionally safe to engage in affective expression. Therefore, prevention of family dysfunction, whether it is comprised of family violence, negative emotional expressiveness, a lack of positive emotional expressiveness, or a lack of perceived social support, is a critical piece of the puzzle to solving the problem of alexithymia in adulthood.

Future Studies

Because of the complexity of emotional expressiveness, future studies may be well served by utilizing multiple methods of assessing emotional expressiveness within the family environment (Yelsma et al. 2000). Since the TAS-20 is a self-report measure and individuals with alexithymia have difficulty accurately evaluating their emotional states, it is imperative that other measures are used to verify accuracy in participants' self-report. Future studies should examine differences in affective expression within family atmospheres in diverse ethnic groups, because norms will vary widely across cultures. In the current study, the participants were a relatively homogenous group of college students, and research on more heterogeneous groups is needed to substantiate the current findings. In addition, further research is needed to examine the association between an individual's tendency to be alexithymic and their reported low levels of

affective expression within their families of origin (Yelsma et al. 2000). Last, future research would be beneficial in a veteran population which has a high incidence rate of alexithymia associated with PTSD and somatic patients.

Clearly, inhibited affective expression within the family environment serves some stabilizing function for individuals with alexithymia, but further research is needed to determine what function limiting affective expression serves whether it is to provide safety in a dysfunctional family environment, or whether it serves as a numbing of emotion process to cope with stressful feelings. Future studies should also work toward further clarification regarding whether family dysfunction leads to inhibited emotional expressivity or vice versa. Specifically, research is needed regarding how family dysfunction develops, is maintained, and affects or is affected by the nature and type of emotional expressivity utilized in the family environment.

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Table 1

Descriptive Statistics for Family Variables and Alexithymia

Variable	*N*	*M*	*SD*	*Median*	*Variance*	*Range*
SEFQ POS	220	145.69	29.17	148.50	850.71	60-198
SEFQ NEG	219	73.53	17.41	72	303.19	36-126
PNEFQ POS	218	44.78	11.36	46.50	129.12	15-60
PNEFQ NEG	219	21.83	8.99	20	80.87	9-45
FOS	219	92.47	37.08	85	1374.60	39-194
FAD	215	71.35	15.87	71	251.90	26-96
PSSFA	222	12.69	5.94	14	35.29	0-19
SEIT	219	127.27	17.26	127	297.90	65-164
TASDIF	222	14.24	6.16	13.50	37.98	7-33
TASDDF	222	12.51	5.37	12	28.84	5-25
TASEOT	222	17.31	4.84	17	23.40	8-31
TASTOT	222	44.05	13.60	43	184.81	20-83

Note. SEFQPOS =Self-Expressiveness in the Family Questionnaire Positive Scale;

SEFQNEG=Self-Expressiveness in the Family Questionnaire Negative Scale;

PNEFQPOS =Positive and Negative Expressiveness in the Family Questionnaire Positive

Scale; PNEFQNEG=Positive and Negative Expressiveness in the Family Questionnaire

Negative Scale; FOS=Family of Origin Scale; FAD= Family Assessment Device;

PSSFA=Perceived Social Support From Family; TASDIF = Toronto Alexithymia Scale

Difficulty Identifying Feelings; TASDDF= Toronto Alexithymia Scale Difficulty

Describing Feelings; TASEOT = Toronto Alexithymia Scale Externally-Oriented

Thinking; TASTOT = Toronto Alexithymia Scale Total Score.

Table 2

Correlations Between Family Variables and Alexithymia

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1.SEFQPOS	-											
	220											
2.SEFQNEG	-0.04	-										
	217	219										
3.PNEFQPOS	0.58	-0.34	-									
	216	215	218									
4.PNEFQNEG	-0.52	0.49	-0.78	-								
	217	216	218	219								
5.FOSTOT	-0.66	0.29	-0.74	0.79	-							
	217	216	215	216	219							
6.FADTOT	0.64	-0.23	0.69	-0.72	-0.88	-						
	213	212	214	215	213	215						
7.PSSFA	0.67	-0.26	0.69	-0.68	-0.84	0.80	-					
	220	219	218	219	219	215	222					
8.SEITTOT	0.62	-0.22	0.52	-0.47	-0.63	0.60	0.61	-				
	217	216	218	219	216	215	219	219				
9.TASDIF	-0.35	0.30	-0.47	0.46	0.54	-0.53	-0.56	-0.51	-			
	220	219	218	219	219	215	222	219	222			
10.TASDDF	-0.49	0.25	-0.52	0.51	0.63	-0.61	-0.65	-0.66	0.73	-		
	220	219	218	219	219	215	222	219	222	222		
11.TASEOT	-0.33	0.06	-0.25	0.19	0.35	-0.34	-0.34	-0.60	0.33	0.51	-	
	220	219	218	219	219	215	222	219	222	222	222	
12.TASTOT	-0.47	0.26	-0.51	0.48	0.62	-0.60	-0.63	-0.71	0.86	0.91	0.71	-
	220	219	218	219	219	215	222	219	222	222	222	222

Note. Average sample size = 222. All correlations are statistically significant at p < .01.

SEFQPOS =Self-Expressiveness in the Family Questionnaire Positive Scale;

SEFQNEG=Self-Expressiveness in the Family Questionnaire Negative Scale;

PNEFQPOS =Positive and Negative Expressiveness in the Family Questionnaire Positive

Scale; PNEFQNEG=Positive and Negative Expressiveness in the Family Questionnaire

Negative Scale; FOS=Family of Origin Scale; FAD= Family Assessment Device;

PSSFA=Perceived Social Support From Family; Schutte Emotional Intelligence Test,

SEIT; TASDIF = Toronto Alexithymia Scale Difficulty Identifying Feelings; Toronto

Alexithymia Scale Total; TASDDF= Toronto Alexithymia Scale Difficulty Describing

Feelings; TASEOT = Toronto Alexithymia Scale Externally-Oriented Thinking;

TASTOT = Toronto Alexithymia Scale Total Score.

Table 3

Final Model for Family Expressiveness Variables and the 20-Item Toronto Alexithymia

Scale Difficulty Identifying Feelings (TASDIF)

Unstandardized Coefficients for Final Model for 20-Item Toronto Alexithymia Scale Difficulty Identifying Feelings (TASDIF)				
Predictor	*B*	*SE B*	*t*	*p*
(Intercept)	19.482	2.663	7.313	0.000***
PNEFQ POS	-0.218	0.034	-6.283	0.000***
SEFQ NEG	0.062	0.023	2.749	0.006**

Standardized Coefficients for Final Model for 20-Item Toronto Alexithymia Scale Difficulty Identifying Feelings (TASDIF)				
Predictor	*B*	*SE B*	*t*	*p*
(Intercept)	-0.735	0.277	-2.655	0.008**
PNEFQ POS	-0.402	0.064	-6.283	0.000***
SEFQ NEG	0.010	0.004	2.749	0.006**

Note. PNEFQPOS =Positive and Negative Expressiveness in the Family Questionnaire Positive Scale; SEFQNEG=Self-Expressiveness in the Family Questionnaire Negative Scale. $\Delta R^2 = 0.233$. **p< .01. ***p < .001.

Table 4

Final Model for the Family Expressiveness Variables and the 20-Item Toronto

Alexithymia Scale Difficulty Describing Feelings (TASDDF)

Unstandardized Coefficients for Final Model for 20-Item Toronto Alexithymia Scale Difficulty Describing Feelings (TASDDF)				
Predictor	*B*	*SE B*	*t*	*p*
(Intercept)	17.037	2.340	7.279	0.000***
SEFQ POS	-0.062	0.012	-5.124	0.000***
PNEFQ NEG	0.207	0.039	5.362	0.000***

Standardized Coefficients for Final Model for 20-Item Toronto Alexithymia Scale Difficulty Describing Feelings (TASDDF)				
Predictor	*β*	*SE B*	*t*	*p*
(Intercept)	0.000	0.055	0.000	1.000
SEFQ POS	-0.331	0.065	-5.124	0.000***
PNEFQ NEG	0.346	0.065	5.362	0.000***

Note. SEFQ POS =Self-Expressiveness in the Family Questionnaire Positive Scale;

PNEFQ NEG= Positive and Negative Expressiveness in the Family Questionnaire

Negative Scale. $\Delta R^2 = 0.342$. **p< .01. ***p < .001.

Table 5

Final Model for Family Expressiveness Variables and the 20-Item Toronto Alexithymia

Scale Externally-Oriented Thinking (TASEOT)

Unstandardized Coefficients for Final Model for 20-Item Toronto Alexithymia Scale Externally-Oriented Thinking (TAS EOT)				
Predictor	*B*	*SE B*	*t*	*p*
(Intercept)	25.403	1.514	16.773	<0.000***
SEFQ POS	-0.056	0.010	-5.535	0.000***
Standardized Coefficients for Final Model for 20-Item Toronto Alexithymia Scale Externally-Oriented Thinking (TAS EOT)				
Predictor	*B*	*SE B*	*t*	*p*
(Intercept)	-0.000	0.064	-0.010	0.992
SEFQ POS	-0.353	0.064	-5.535	0.000***

Note. SEFQ POS = Self-Expressiveness in the Family Questionnaire Positive Scale. ΔR^2 = 0.120. ***p < .001.

Table 6

Final Model for Family Expressiveness Variables and the 20-Item Toronto Alexithymia

Scale Total (TAS TOT)

Unstandardized Coefficients for Final Model for 20-Item Toronto Alexithymia Scale Total (TAS TOT)				
Predictor	*B*	*SE B*	*t*	*p*
(Intercept)	71.297	5.882	12.12	<0.000***
SEFQ POS	-0.151	0.034	-4.474	0.000***
SEFQ NEG	0.123	0.049	2.529	0.012*
PNEFQ POS	-0.317	0.091	-3.472	0.000***

Standardized Coefficients for Final Model for 20-Item Toronto Alexithymia Scale Total (TAS TOT)				
Predictor	*B*	*SE B*	*t*	*p*
(Intercept)	-0.000	0.057	-0.000	1.000
SEFQ POS	-0.318	0.007	-4.474	0.000***
SEFQ NEG	0.157	0.062	2.529	0.012*
PNEFQ POS	-0.263	0.076	-3.472	0.000***

Note. SEFQPOS = Self-Expressiveness in the Family Questionnaire Positive Scale;

SEFQNEG = Self-Expressiveness in the Family Questionnaire Negative Scale;

PNEFQPOS = Positive and Negative Expressiveness in the Family Questionnaire

Positive Scale. ΔR^2 = 0.316. *p < .05. ***p < .001.

Table 7

Final Model for the Family Dysfunction Variables and the 20-Item Toronto Alexithymia

Scale Difficulty Identifying Feelings (TAS DIF)

Unstandardized Coefficients for Final Model for 20-Item Toronto Alexithymia Scale Difficulty Identifying Feelings (TAS DIF)				
Predictor	*B*	*SE B*	*t*	*p*
(Intercept)	15.427	2.795	5.519	0.000***
FOS TOT	0.040	0.017	2.340	0.020*
PSSFA	-0.380	0.105	-3.620	0.000***
Standardized Coefficients for Final Model for 20-Item Toronto Alexithymia Scale Difficulty Identifying Feelings (TAS DIF)				
Predictor	*B*	*SE B*	*t*	*p*
(Intercept)	0.009	0.056	0.166	0.868
FOS TOT	0.238	0.102	2.340	0.020*
PSSFA	-0.367	0.101	-3.620	0.000***

Note. FOS TOT = Family of Origin Scale Total; PSSFA = Perceived Social Support

From Family. $\Delta R^2 = 0.331$. *p < .05. ***p < .001.

Table 8

Final Model for Family Dysfunction Variables and the 20-Item Toronto Alexithymia

Scale Difficulty Describing Feelings (TAS DDF)

Final Model for 20-Item Toronto Alexithymia Scale Difficulty Describing Feelings (TAS DDF)				
Predictor	*B*	*SE B*	*t*	*p*
(Intercept)	13.113	2.164	6.061	0.000***
FOS TOT	0.043	0.013	3.255	0.001**
PSSFA	-0.365	0.081	-4.498	0.000***
Standardized Coefficients for Final Model for 20-Item Toronto Alexithymia Scale Difficulty Describing Feelings (TAS DDF)				
Predictor	*β*	*SE B*	*t*	*p*
(Intercept)	-0.006	0.050	-0.119	0.905
FOS TOT	0.297	0.091	3.255	0.001**
PSSFA	-0.408	0.091	-4.498	0.000***

Note. FOSTOT = Family of Origin Scale; PSSFA = Perceived Social Support From Family. $\Delta R^2 = 0.457$. **p< .01. ***p < .001.

Table 9

Final Model for Family Dysfunction Variables and the 20-Item Toronto Alexithymia

Scale Externally-Oriented Thinking (TAS EOT)

Unstandardized Coefficients for Final Model for 20-Item Toronto Alexithymia

Scale Externally-Oriented Thinking (TAS EOT)

Predictor	B	SE B	t	p
(Intercept)	12.992	0.814	15.960	<0.000***
FOS TOT	0.046	0.008	5.675	0.000***

Standardized Coefficients for Final Model for 20-Item Toronto Alexithymia

Scale Externally-Oriented Thinking (TAS EOT)

Predictor	B	SE B	t	p
(Intercept)	0.007	0.064	0.102	0.919
FOS TOT	0.362	0.064	5.675	0.000***

Note. FOSTOT = Family of Origin Scale. $\Delta R^2 = 0.126$. ***$p < .001$.

Table 10

Final Model for Family Dysfunction Variables and the 20-Item Toronto Alexithymia

Scale Total (TAS TOT)

Unstandardized Coefficients for Final Model for 20-Item Toronto
Alexithymia Scale Total (TAS TOT)

Predictor	B	$SE\ B$	t	p
(Intercept)	45.538	5.736	7.939	0.000***
FOS TOT	0.107	0.035	3.084	0.002**
PSSFA	-0.891	0.215	-4.139	0.000***

Standardized Coefficients for Final Model for 20-Item Toronto Alexithymia
Scale Total (TAS TOT)

Predictor	β	$SE\ B$	t	p
(Intercept)	-0.000	0.052	-0.000	1.000
FOS TOT	0.290	0.094	3.084	0.002**
PSSFA	-0.390	0.094	-4.139	0.000***

Note. FOS TOT = Family of Origin Scale; PSSFA = Perceived Social Support From

Family. $\Delta R^2 = 0.420$. **$p < .01$. ***$p < .001$.

Table 11:

TAS DIF Regressed On Family Expressiveness and Family Dysfunction Variables

TAS DIF	*B*	*SE B*	*t*	*p*
(Intercept)	29.618	5.903	5.017	0.000***
PNEFQ POS	-0.309	0.132	-2.334	0.021*
SEFQ NEG	-0.086	0.072	-1.202	0.231
PSSFA	-0.468	0.080	-5.878	0.000***
(PNEFQ POS) X (SEFQ NEG)	0.003	0.002	2.143	0.033*

Note. TAS DIF = 20-Item Toronto Alexithymia Scale Difficulty Identifying Feelings; PNEFQPOS = Positive and Negative Expressiveness in the Family Questionnaire Positive Scale; SEFQNEG = Self-Expressiveness in the Family Questionnaire Negative Scale; PSSFA = Perceived Social Support From Family. ΔR^2 = .363. *p < .05. ***p < .001.

Table 12

TAS DDF Regressed On Family Expressiveness and Family Dysfunction Variables

TASDDF	B	SE B	t	p
(Intercept)	0.122	20.800	0.584	0.560
PSSFA	-2.010	0.852	-2.359	0.019*
PNEFQ NEG X SEFQ POS	-0.011	0.004	-2.752	0.006**
PNEFQ NEG X FOS TOT	-0.009	0.004	-2.165	0.032*
PNEFQ NEG X PSSFA	0.068	0.003	2.622	0.009**
FOS TOT X PSSFA	0.001	0.006	2.043	0.0423*
PNEFQ NEG X SEFQ POS X FOS TOT	0.000	0.000	3.031	0.003**
PNEFQ NEG X FOS TOT X PSSFA	-0.000	0.000	-2.963	0.00342**

Note. PNEFQNEG = Positive and Negative Expressiveness in the Family Questionnaire Negative Scale; SEFQPOS = Self-Expressiveness in the Family Questionnaire Positive Scale; FOSTOT = Family of Origin Scale; PSSFA = Perceived Social Support From Family. $\Delta R^2 = 0.539$. *p < .05. **p< .01.

Table 13

TAS EOT Regressed On Family Expressiveness and Family Dysfunction Variables

TAS EOT	B	SE B	t	p
(Intercept)	28.254	5.178	5.457	0.000***
SEFQ POS	-0.092	0.032	-2.891	0.004**
FOS TOT	-0.060	0.043	-1.391	0.166
SEFQ POS X FOS TOT	0.001	0.000	2.176	0.031*

Note. SEFQPOS = Self-Expressiveness in the Family Questionnaire Positive Scale;

FOSTOT = Family of Origin Scale. $\Delta R^2 = 0.155$. *p < .05. **p < .01. ***p < .001.

Table 14

TAS TOT Regressed On Family Expressiveness and Family Dysfunction Variables

TAS TOT	B	SE B	t	p
(Intercept)	404.000	130.000	3.110	0.002**
SEFQ POS	-2.330	0.926	-2.516	0.013*
SEFQ NEG	-3.680	1.670	-2.210	0.028*
FOS TOT	-1.770	0.740	-2.387	0.018*
PSSFA	-12.200	5.510	-2.220	0.028*
SEFQ POS X SEFQ NEG	0.003	0.011	2.232	0.027*
SEFQ POS X FOS TOT	0.012	0.005	2.342	0.020*
SEFQ NEG X FOS TOT	0.018	0.009	1.985	0.049*
SEFQ POS X PSSFA	0.082	0.039	2.120	0.035*
SEFQ NEG X PSSFA	0.142	0.064	2.208	0.028*
SEFQ POS X SEFQ NEG X FOS TOT	-0.000	0.000	-2.035	0.043*
SEFQ POS X SEFQ NEG X PSSFA	-0.001	0.000	-2.198	0.029*

Note. TAS TOT = 20-Item Toronto Alexithymia Scale Total Score; SEFQPOS = Self-Expressiveness in the Family Questionnaire Positive Scale; SEFQNEG = Self-Expressiveness in the Family Questionnaire Negative Scale; FOSTOT = Family of Origin Scale; PSSFA=Perceived Social Support From Family. $\Delta R^2 = 0.476$. *p < .05. **p < .01.

Table 15

Moderating Effects of Family Expressiveness and Family Dysfunction in Predicting

Toronto Alexithymia Scale-20 Difficulty Identifying Feelings (TAS DIF)

TAS DIF	B	SE B	t	p
(Intercept)	20.764	5.754	3.608	0.000***
PSSFA	-0.709	0.445	-1.593	0.113
PNEFQ POS	-0.052	0.101	-0.520	0.603
SEFQ NEG X SEFQ NEQ X PNEFQ POS	0.031	0.046	0.681	0.497
PSSFA X PNEFQ POS	0.001	0.007	0.160	0.873
PSSFA X SEFQ NEG	0.002	0.003	0.624	0.533

Note. 20-Item Toronto Alexithymia Scale Difficulty Identifying Feelings; PSSFA =

Perceived Social Support From Family; PNEFQPOS =Positive and Negative

Expressiveness in the Family Questionnaire Positive Scale; SEFQNEG = Self-

Expressiveness in the Family Questionnaire Negative Scale. $\Delta R^2 = 0.349$. ***$p < .001$.

Table 16

Mediator Effects of Family Expressiveness and Family Dysfunction in Predicting Toronto

Alexithymia Scale-20 Difficulty Identifying Feelings (TAS DIF)

TAS DIF	B	SE B	T	p
(Intercept)	19.482	2.664	7.313	0.000***
PNEFQ POS	-0.218	0.035	-6.283	0.000***
SEFQ NEG	0.062	0.023	2.749	0.006**
PSSFA				
(Intercept)	-2.259	2.137	-1.060	0.292
PNEFQ POS	0.353	0.279	12.670	<0.000***
SEFQ NEG	-0.010	0.018	-0.570	0.570
TAS DIF				
(Intercept)	18.349	2.451	7.490	0.000***
PSSFA	-0.501	0.079	-6.380	0.000***
PNEFQ POS	-0.041	0.042	-0.980	0.330
SEFQ NEG	0.057	0.021	2.740	0.007**

Note. PNEFQPOS = Positive and Negative Expressiveness in the Family Questionnaire Positive Scale; SEFQNEG = Self-Expressiveness in the Family Questionnaire Negative Scale; PSSFA = Perceived Social Support From Family. First model: $R^2 = 0.240$. $\Delta R^2 = 0.233$; Second model: $R^2 = 0.470$. $\Delta R^2 = 0.465$; Third model: $R^2 = 0.363$. $\Delta R^2 = 0.354$. *p< .05. **p< .01. ***p< .001.

Table 17

Moderating Effects of Family Expressiveness and Family Dysfunction in Predicting

Toronto Alexithymia Scale-20 Difficulty Describing Feelings (TAS DDF)

TAS DDF	*B*	*SE B*	*t*	*p*
(Intercept)	15.900	4.630	3.431	0.001***
SEFQ POS	-0.008	0.029	-2.688	0.008**
FOS TOT	0.001	0.039	0.312	0.755
SEFQ POS X FOS TOT	0.000	0.000	1.995	0.047*
TAS DDF				
(Intercept)	-1.140	1.770	-0.642	0.521
PNEFQ NEG	0.215	0.089	2.423	0.016*
FOS TOT	0.148	0.023	6.489	0.00***
PNEFQ NEG X FOS TOT	-0.002	0.001	-2.634	0.009**
TAS DDF				
(Intercept)	18.309	2.918	6.274	0.000***
SEFQ POS	0.011	0.023	0.457	0.648
PSSFA	-0.132	0.242	-0.545	0.586
SEFQ POS X PSSFA	-0.003	0.002	-1.742	0.083
TAS DDF				
(Intercept)	20.231	2.532	7.991	0.000***
PNEFQ NEG	-0.026	0.085	-0.307	0.759
PSSFA	-0.749	0.154	-4.876	0.000***
PNEFQ NEG X PSSFA	0.009	0.006	1.619	0.107

Note. SEFQPOS = Self-Expressiveness in the Family Questionnaire Positive Scale;

PSSFA = Perceived Social Support From Family; PNEFQNEG =Positive and Negative

Expressiveness in the Family Questionnaire Negative Scale. *p < .05. **p < .01. ***p <

.001.

Table 18

Mediator Effects of Family Expressiveness and Family Dysfunction in Predicting Toronto

Alexithymia Scale-20 Difficulty Describing Feelings (TAS DDF)

TAS DDF	B	SE B	t	p
(Intercept)	26.764	1.612	16.603	<0.000***
SEFQ POS	-0.098	0.011	-9.099	<0.000***
TAS DDF				
(Intercept)	5.241	0.807	6.498	0.000***
PNEFQ NEG	0.328	0.034	9.569	<0.000***
TAS DDF				
(Intercept)	20.255	0.632	32.040	<0.000***
PSSFA	-0.617	0.045	-13.760	<0.000***
TAS DDF				
(Intercept)	22.735	1.442	15.761	<0.000***
SEFQ POS	-0.024	0.012	-1.910	0.058
PSSFA	-0.540	0.060	-8.994	<0.000***
TAS DDF				
(Intercept)	16.941	1.516	11.173	<0.000***
PNEFQ NEG	0.095	0.040	2.399	0.017*
PSSFA	-0.520	0.060	-8.675	0.000***

Note. Self-Expressiveness in the Family Questionnaire Positive Scale (SEFQPOS); Positive and Negative Expressiveness in the Family Questionnaire Negative Scale (PNEFQNEG); Perceived Social Support From Family (PSSFA). *p < .05. ***p < .001.

Table 19

Moderating Effects of Family Expressiveness and Family Dysfunction in Predicting

Toronto Alexithymia Scale-20 Externally Oriented Thinking (TAS EOT)

TAS-20 EOT	*B*	*SE B*	*t*	*p*
(Intercept)	28.254	5.178	5.457	0.000***
SEFQ POS	-0.092	0.032	-2.891	0.004**
FOS TOT	-0.060	0.043	-1.391	0.166
SEFQ POS X FOS TOT	0.001	0.000	2.176	0.031*

Note. SEFQPOS = Self-Expressiveness in the Family Questionnaire Positive Scale;

FOSTOT = Family of Origin Scale. *p < .05. **p < .01. ***p < .001

Table 20

Moderating Effects of Social Support and Family Dysfunction in Predicting Toronto

Alexithymia Scale-20 Total Score (TAS TOT)

TAS TOT	*B*	*SE B*	*t*	*p*
(Intercept)	65.657	3.887	16.891	<0.000***
SEFQ POS	-0.027	0.033	-0.806	0.421
PSSFA	-1.384	0.159	-8.675	0.000***
SEFQ POS X PSSFA	-0.011	0.004	-2.54	0.012**
TAS TOT				
(Intercept)	66.925	2.900	23.075	<0.000***
PNEFQ POS	-0.147	0.085	-1.727	0.086
PSSFA	-1.277	0.163	-7.857	0.000***
TAS TOT				
(Intercept)	53.959	3.924	13.750	<0.000***
SEFQ NEG	0.106	0.042	2.494	0.013*
PSSFA	-1.383	0.122	-11.302	<0.000***
SEFQ NEG X PSSFA				
TAS TOT				
(Intercept)	29.577	6.697	4.417	0.000***
SEFQ POS	-0.037	0.033	-1.104	0.271
FOS TOT	0.215	0.026	8.358	0.000***
SEFQ POS X FOS TOT	0.002	0.001	3.03	0.003***
TAS TOT				

(Intercept)	29.625	6.340	4.673	0.000***
PNEFQ POS	-0.109	0.092	-1.180	0.239
FOS TOT	0.209	0.029	7.341	0.000***
PNEFQ POS X FOS TOT	0.004	0.002	2.29	0.023*

TAS TOT

(Intercept)	16.301	3.247	5.020	0.000***
SEFQ NEG	0.102	0.043	2.361	0.019*
FOS TOT	0.220	0.020	10.929	<0.000***
SEFQ NEG X FOS TOT	-0.002	0.001	-2.33	0.020*

Note. SEFQPOS = Self-Expressiveness in the Family Questionnaire Positive Scale;

PSSFA = Perceived Social Support From Family; PNEFQPOS = Positive and Negative

Expressiveness in the Family Questionnaire Positive Scale; SEFQNEG = Self-

Expressiveness in the Family Questionnaire Negative Scale; FOSTOT = Family of Origin

Scale. *p < .05. **p < .01. ***p < .001.
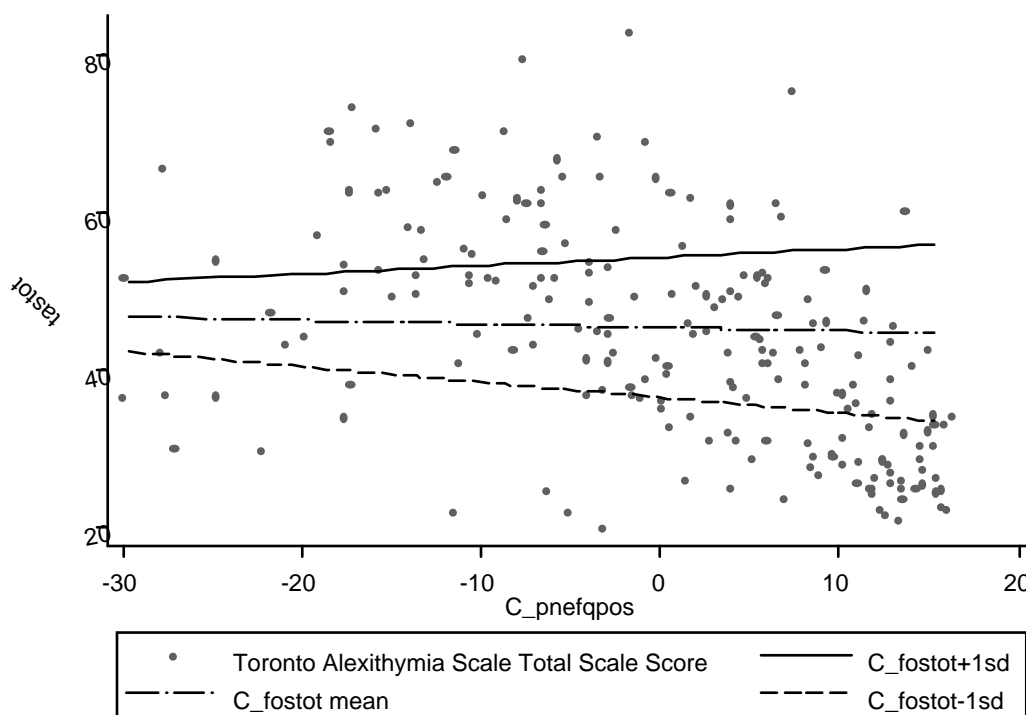
Figure 2. Interaction between family dysfunction and positive family expressiveness in alexithymia regression analysis. High and low family dysfunction are +/- 1 *SD* from the mean. Variables are centered to have a mean of zero.
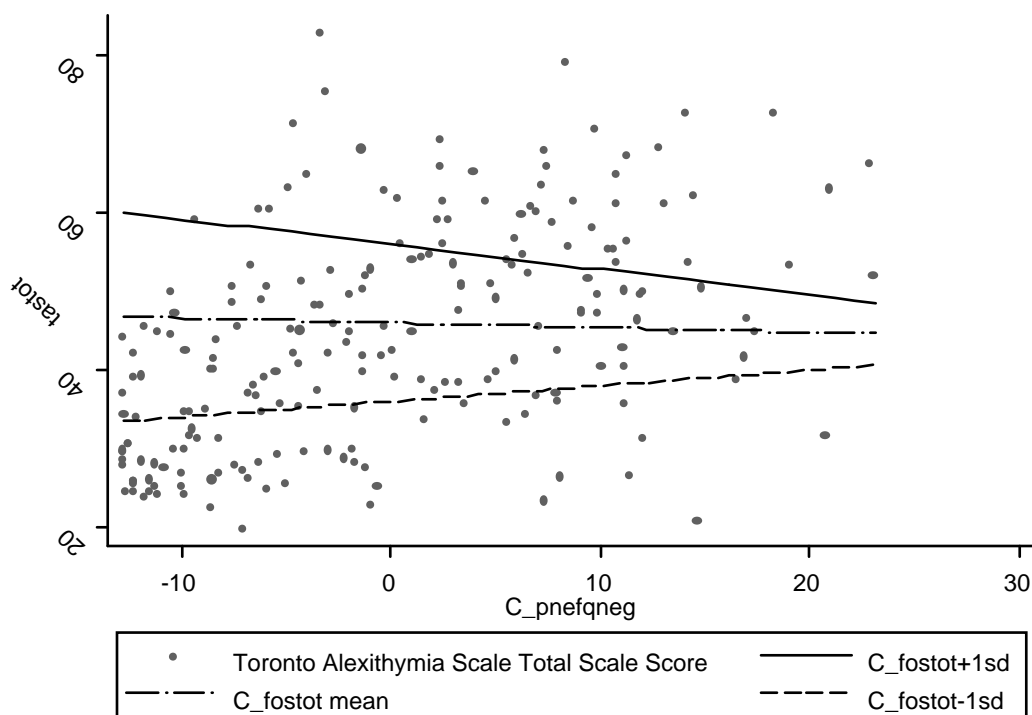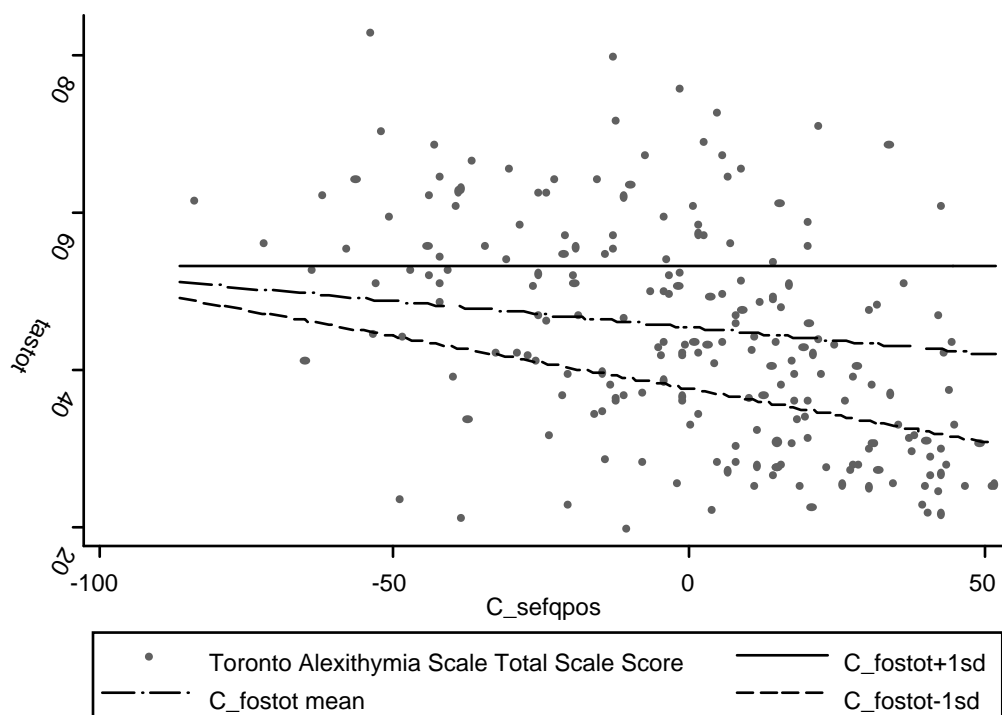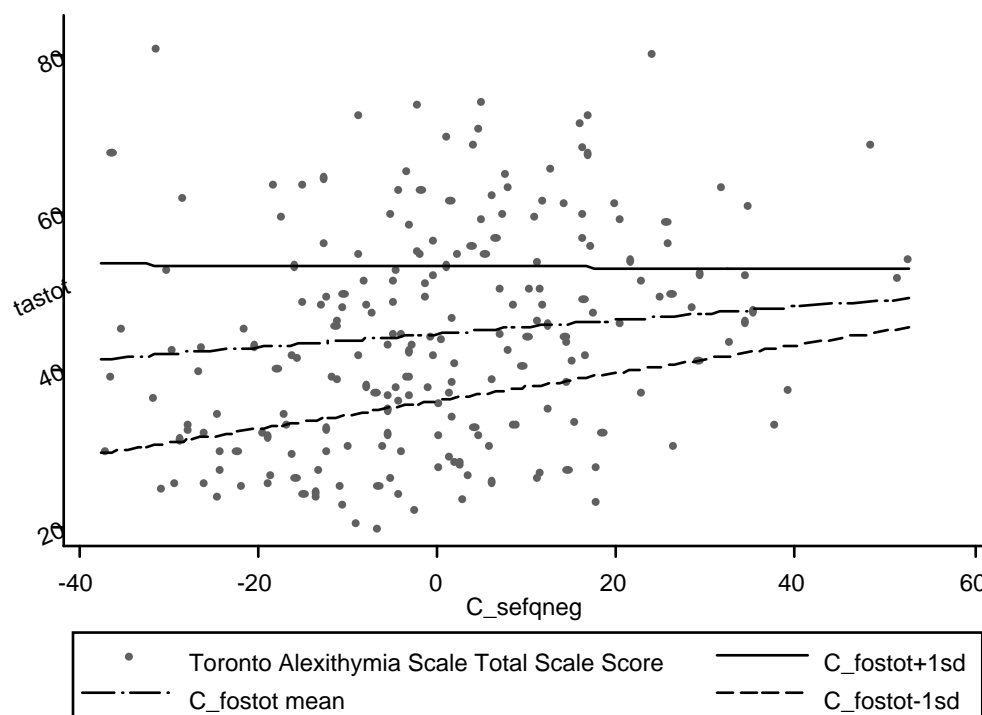
Figure 3. Interaction between family dysfunction and negative family expressiveness in alexithymia regression analysis. High and low family dysfunction are +/- 1 *SD* from the mean. Variables are centered to have a mean of zero.

Figure 4. Interaction between family dysfunction and positive self-expressiveness in alexithymia regression analysis. High and low family dysfunction are +/- 1 *SD* from the mean. Variables are centered to have a mean of zero.
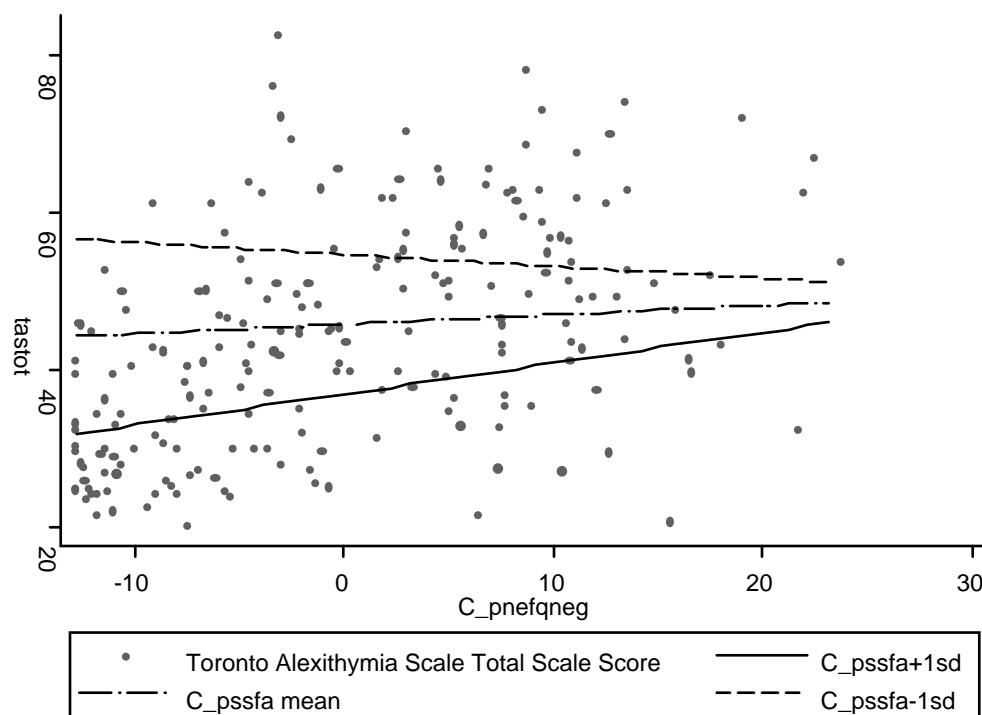
Figure 5. Interaction between family dysfunction and negative self-expressiveness in alexithymia regression analysis. High and low family dysfunction are +/- 1 *SD* from the mean. Variables are centered to have a mean of zero.

Figure 6. Interaction between perceived social support and negative family

expressiveness in alexithymia regression analysis. High and low family dysfunction are

+/- 1 *SD* from the mean. Variables are centered to have a mean of zero.
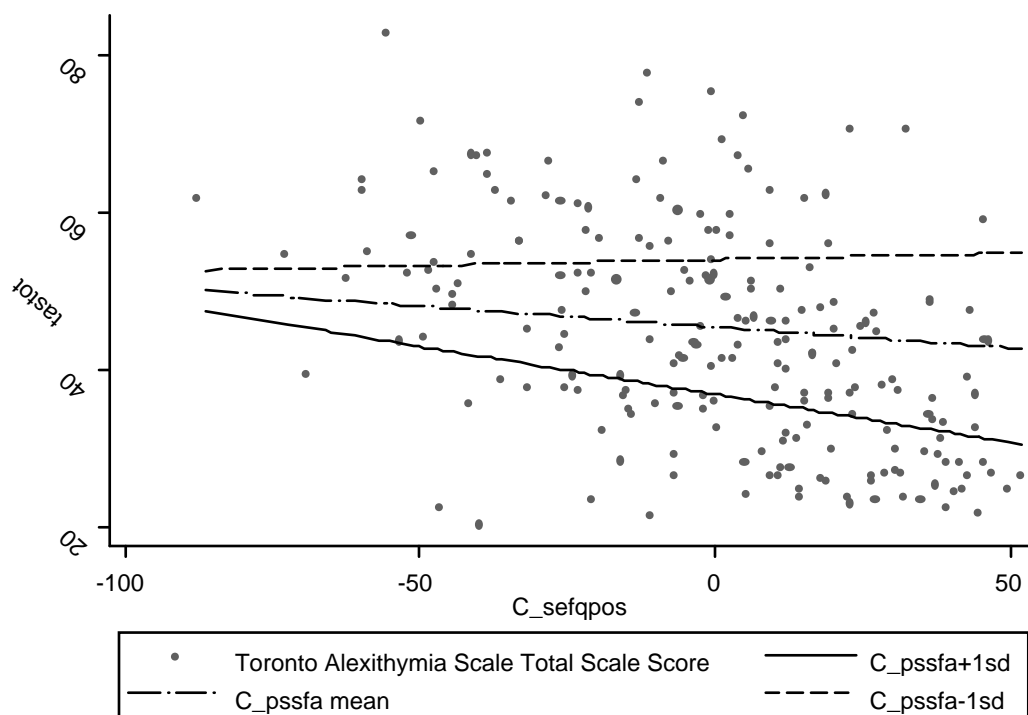
Figure 7. Interaction between perceived social support and positive self-expressiveness in alexithymia regression analysis. High and low family dysfunction are +/- 1 *SD* from the mean. Variables are centered to have a mean of zero.
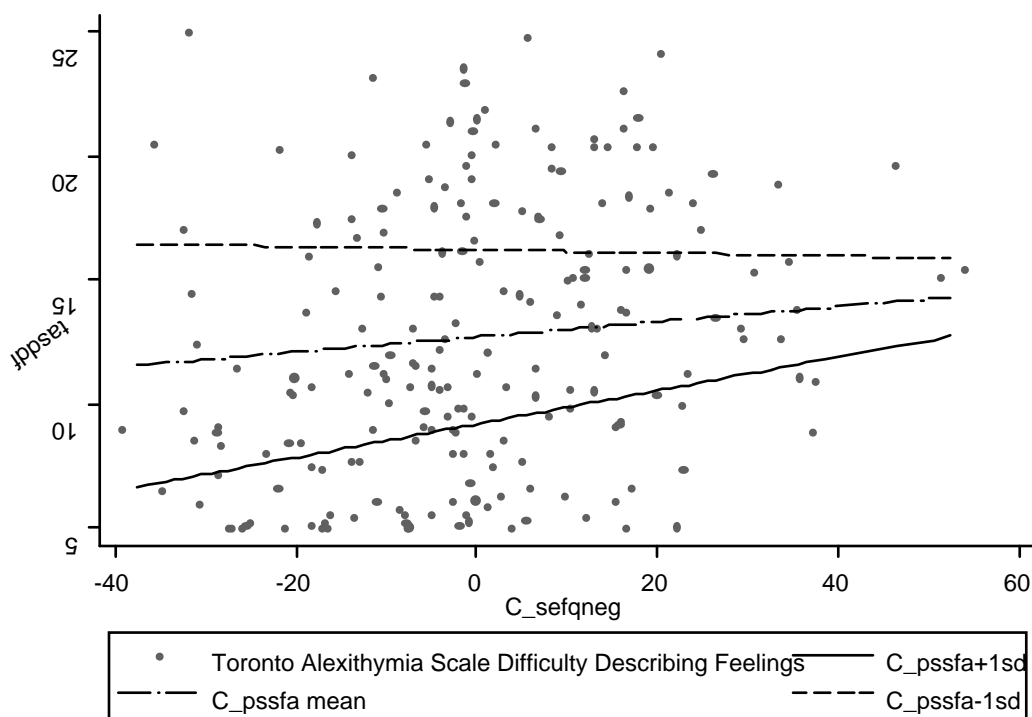
Figure 8. Interaction between perceived social support and negative self-expressiveness in alexithymia regression analysis. High and low family dysfunction are +/- 1 *SD* from the mean. Variables are centered to have a mean of zero.