

2009-01-01

Is Alexithymia a Predictor of College Student Alcohol Abuse?

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IS ALEXITHYMIA A PREDICTOR OF
COLLEGE STUDENT
ALCOHOL ABUSE?

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Diane Arms

2009

Dedication

First and foremost, I would like to dedicate this to my parents whose unconditional love and support have carried me along the way. Thank you for valuing my education. Mom, you always have the right words to say. There were plenty of times when I was down you made me feel good enough. Dad, your faith in me never wavered, I believe in myself because of you.

Jackie, thank you for teaching me to be a strong and independent person and Eddie, thank you for teaching me to never lose hope.

My family, you are what got me here, thank you.

And to Joseph, thank you.

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by

DIANE ARMS, B.A.

THESIS

Presented to the Faculty of the Graduate School of
The University of Texas at El Paso
in Partial Fulfillment
of the Requirements
for the Degree of

MASTER OF ARTS

Department of Psychology
THE UNIVERSITY OF TEXAS AT EL PASO
December 2009

Acknowledgements

I would like to acknowledge the hard work and excellent mentoring of Dr. Osvaldo F. Morera, for if it weren't for him the completion of this project would not have been possible. I would also like to acknowledge Dr. Cooper, Dr. Wood, and Dr. Johnson for agreeing to sit on my committee and sharing their precious time and expertise.

I would like to thank the faculty and staff of the Department of Psychology for their hard work and dedication to their students.

To Dr. Monica Skewes, even miles away your guidance still leads me. I would not be here if it weren't for you. Dr. Dirk de Heer, thank you for sharing your time and knowledge. Patti Fernandez, thank you for your wisdom. Thanks to Laura Guillen-Gomez and Sarah Sargedine for your assistance in the data collection of this project.

Abstract

Alexithymia, as defined by Sifneos (1973), literally means “no words for emotions.” It is characterized by the following three domains: 1) the incapacity to identify feelings, 2) inability to describe feelings and 3) the tendency to think in externally oriented ways (Salminen, Saarijarvi, & Aarela, 1995; Sifneos, 2000). Although alexithymia is not a diagnosable disorder, it has been shown to be related to a wide variety of other constructs (e.g. alcohol use, depression and parenting styles). This study examined the interrelationships between alexithymia and student alcohol use, while controlling for sex, perceived parental alcohol use, perceived parenting styles and student depression. The fit of a hypothesized path model which described the relationships among the variables in the model indicated adequate model fit. Contrary to prior research, sex was not predictive of depression, and sex did not predict two of the three domains of alexithymia. Student Depression was predictive of the all three subscales of alexithymia. Depression, student sex, mother’s alcohol use, father’s permissive parenting style and the difficulty describing feelings scale of alexithymia were all predictive of student alcohol use. Parenting styles had indirect effects on student alcohol use. Strengths and limitations of this study are addressed and implications, along with future directions, of these findings are discussed.

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Chapter 1: Introduction

1.1 ALEXITHYMIA

Alexithymia as defined by Sifneos (1973) literally means “no words for emotions.” It is taken from the Greek words *alexis* (no words) and *thymos* (no emotion). Since the emergence of this construct, researchers and clinical psychologists have characterized alexithymia by three different domains. These domains consist of: 1) the incapacity to identify feelings (DIF), 2) inability to describe feelings (DDF) and 3) the tendency to think in externally oriented ways (EOT) (Salminen, Saarijarvi, & Aarela, 1995; Sifneos, 2000). Difficulty Identifying Feelings occurs when a person is having trouble distinguishing between feelings. Difficulty Describing Feelings is when a person cannot express what they are emotionally feeling. Lastly, Externally Oriented Thinking is when a person has the tendency to think of things extrinsically as opposed to intrinsically.

Prevalence rates of alexithymia in the general population vary from 13% to 19%. Although, alexithymia is not a diagnosable disorder through the Diagnostic and Statistical Manual (DSM; American Psychiatric Association, 2000), it has been associated with disorders ranging from depression (Mattila, Poutanen, Koivisto, Salokangas & Joukamaa, 2008; Speranza et al., 2004) to alcoholism (Evren, Sar, Evren, Semiz, Dalbudak, & Cakmak, 2008; Finn, Martin & Pihl, 1987; Sakuraba, Kubo, Komoda & Yamana, 2005). Some studies even report that alexithymia may be a gender specific construct as males have higher prevalence rates than females (Honkalampi, Hintikka, Tanskanen, Lehtonen, & Viinamäki, 2000; Kokkonen, Karvonen, Veijola, Läksy, & Jokelainen, 2001). Although these relationships are interconnected, many of these relationships have been investigated in a pairwise fashion (e.g., investigating the relationship between depression and alexithymia without the consideration of substance use). This study seeks to investigate the relationship between alexithymia and student alcohol use while also accounting for hypothesized relationships among variables that are also related to student alcohol use. The following sections of the document briefly describe the interrelationships between alexithymia, mental disorders, parental influences, and sex. In addition, relationships between alcohol use and mental disorders, parental influences and sex are briefly described. Finally, the relationship between depression, parental influences and sex is briefly described.

1.2 Alexithymia and Mental Disorders

As mentioned above alexithymia is not diagnosable. However, it is related to diagnosable mental disorders such as alcohol abuse and depression. Alcohol users are said to have prevalence rates of alexithymia ranging between 42% to 79%, which is substantially greater than that of the general population (Rybakowski, Ziolkowski, Zasadzka, & Brzezinski (1988). Taylor, Bagby, and Parker (1997) also suggest that alexithymics are suffering and consequently resort to alcohol to lessen their uncontrollable sensations and to try to self-regulate their disruptive emotions. Not only is alexithymia related to alcohol abuse, but it is also related to alcohol use. Uzun, Ates, Canseyer, and Ozsahin (2003) found an association between scores on the Toronto Alexithymia Scale (TAS-20) and scores on the Michigan Alcohol Screening Test (MAST), $r=.63$, $p<.0001$).

Along with alcohol abuse, people suffering from alexithymia are also at higher risk for depression. Rief, Heuser and Fitcher (1996) found that when testing for somatic symptoms, there is a significant correlation with alexithymia, $r=.30$, $p<.001$. Honkalampi, Hintikka, Laukkanen, Lehtonen and Viinama, (2001) found that in a sample of 540 people from the general population, 9% were alexithymic, which was lower than the 45% prevalence of alexithymia in a comparison group of 137 outpatients with Major Depressive Disorder (MDD). The authors also found that the severity of depression among patients with major depressive disorder increases the risk of being alexithymic, relative to the general population. Greenberg, Shepard, Chuick, and Cochran (2009) studied the differences between a clinical sample of male students diagnosed with depression, Dysthymia, or depression not otherwise specified and a non-clinical sample of male students denying ever receiving counseling services. These authors found that individuals in the clinical sample reported significantly higher levels of alexithymia than the non clinical sample (clinical group $M=57.78$, $SD=9.91$, non-clinical group $M=44.65$, $SD=10.84$). Both of these mental disorders, Alcohol Abuse and Depression, are related to alexithymia. The proposed model will allow for the direct effects of depression on alexithymia and the direct effect of alexithymia on student alcohol use.

1.3 Alexithymia and Parental Influences

Alexithymia in an individual can also be attributed, in part, to parental influences. In particular, alexithymia in an individual may be a function of the parenting styles of their parents and other behaviors that the parent may exhibit. For example, studies have shown that the type of parenting style that a parent chooses to follow may affect a child's emotional development. Baumrind (1966) identified three parenting styles that affect children's behavior. These three parenting styles are 1) permissive parenting, 2) authoritarian parenting, and 3) authoritative parenting (also known as flexible parenting). A permissive parent is one who allows his/her child to make most of his/her own decisions with little regulating. Baumrind (1966) describes a permissive mother as one who avoids the exercise of control and allows the child to control his/her own activities. An authoritarian parent is the opposite of a permissive parent. The parents tend to be less warm and expect his/her child to be obedient to his/her every word. Baumrind (1966) suggests that an authoritarian parent will often use forceful measures to control his/her child. An authoritarian parent also restricts autonomy and believes that the child should listen and obey each word the parent says. On the other hand, an authoritative/flexible parent falls somewhere in between, allowing his/her child to experience some freedom but as well as monitoring his/her actions. Baumrind asserts that an authoritative parent is rational and firm in control but does not restrict the child to the point where autonomy is threatened.

Kench and Irwin (2000) found a significant correlation between adult children who perceived their parents as permissive with high total composite alexithymia scores ($r=.27, p<.05$). In addition, the Difficulty Identifying Feelings (DDF) subscale ($r=.31, p<.01$) and the Difficulty Describing Feelings (DIF) subscale of the TAS-20 ($r=.21, p<.05$) were associated with permissive parenting. The Externally Oriented Thinking (EOT) subscale scores were not correlated with permissive parenting ($r=.03$). Authoritarian parenting was not statistically correlated with alexithymia scores in this study. Similarly, Pedrosa, Weigl, Wessels, Irnich, Baumüller, and Winkelmann (2008) found that father permissiveness was predictive of higher alexithymic scores, while controlling for scores on the Beck Depression Inventory II and the Global Severity Index from the Symptom Checklist-90-Revised ($\check{R}^2 = .729, p<.001$). Evidently both parenting styles may predict alexithymia scores. The model proposed will allow for the direct effects of parenting styles on alexithymia, but will also allow for the indirect effects of

parental alcohol use on alexithymia, such that parental alcohol use will be predictive of parenting styles, which will also be hypothesized to be predictive of alexithymia. Also this model will allow for the indirect effect of parenting styles and parental alcohol use on alexithymia, as both variables will predict depression which will in turn predict alexithymia.

1.4 Alexithymia and Student Sex

As described earlier, alexithymia is the difficulty identifying and describing feelings, as well as having an externally oriented type of thinking. This construct has been assumed to be related gender, in which males often have higher scores on alexithymia measures. In a study done by Kokkonen et al. (2001) males were almost twice as likely to be alexithymic as women. A meta-analysis performed by Levant, Hall, Williams, and Hasan (2009) found an effect size of $d=.22$ (95% CI .160 to .304) across 41 studies concerning sex differences and alexithymia. This meta analysis was done on 33 non-clinical and 9 clinical samples. The majority ($n=34$) of these studies used the TAS-20 as the measure for alexithymia. Although the effects size was not large, it was statistically significant and reported that men are more alexithymic than women. This model proposes the direct effect of sex on alexithymia, as well the indirect effect sex on alexithymia through depression.

1.5 Alcohol Use and Mental Disorders

As mentioned above, both alcohol use and depression are associated with alexithymia. However, they are also intercorrelated. In a meta analysis of eight studies examining the relationship between alcoholism and depression, Hartka, Johnstone, Leino, Motoyoshp, Temple, and Fillmore, K. (1991) found that consumption of alcohol predicted subsequent depression scores at a later point in time. Gonzalez, Bradizza, and Collins (2009) also hypothesized that drinking was often a means of coping for those suffering from depression. In fact, these authors found that higher levels of depression was predictive of greater scores of drinking to cope ($R^2=.16$, $p\leq.001$). Thus, drinking may be a way people try to manage their depression. The proposed model will examine the direct effect of depression on student alcohol use. In addition, this model will also allow for the indirect effect of depression on student alcohol use, through alexithymia. Depression scores will be predictive of alexithymia, which in turn will predict student alcohol use.

1.6 Alcohol Use and Parental Influences

Parental alcohol use is also a predictor of an offspring's alcohol use. Heath (1995) performed a meta analysis of twin and adoption studies and report that alcoholism has a genetic influence. Anda et. al. (2002) also report that the occurrence of alcoholism was higher in adults that reported having parents who abused alcohol. In another twin study, Slutske et al. (2008) report that offspring with parents who had two or more lifetime symptoms of Alcohol Use Disorder had a higher number of symptoms of Alcohol Use Disorder. Although this effect was small, $d=.24$ (95% CI: .12, .35) it is still evident that children who have parents that use alcohol are more likely to use alcohol themselves.

Parenting styles are also related to student's alcohol use. Kusmierski, Nichols, and McDonnell (2009) found that students who perceived their parents as authoritative (compared to those who perceived their parents to be authoritarian or neglectful) had fewer binge drinking episodes (authoritarian $M=.35$ times in a two week period, authoritative $M=.89$ times in a two week period, and neglectful $M=1.59$ times in a two week period).

Some studies also suggest the relationship between parental alcohol use and the child's alcohol use is said to be mediated by parenting styles (White, Johnson, & Buyske, 2000). The proposed model will allow for both the direct effects of parental alcohol use and parenting styles on student alcohol use, but the model will also examine the indirect effect of parent alcohol use on student alcohol use, such that parent alcohol use will be predictive of parenting styles, which will also be hypothesized to be predictive of student alcohol use.

1.7 Alcohol Use and Student Sex

Alcohol use can be predicted by several factors. One specific factor that has been predictive of alcohol use is sex. According to the Diagnostic and Statistical Manual of Mental Disorders-IV-TR (APA; 2000), males are at a higher risk of alcohol abuse or dependence. This male-to-female ratio of alcohol consumption (DSM-IV-TR; 2000) is said to be at 5 to 1. Benningfield, Trucco, Barreira and Greenfield (2009) recently reported that college women are drinking less, having fewer drinks when they drank (4.8% of women to 25% of men reported at least seven drinks on one typical day of drinking), and reported fewer binge drinking episodes than college men (67.4% of females to 97.3% of

males reported having at least one binge episode). The proposed model allows for the direct effects of sex on alcohol use, and the model will also examine the indirect effect of sex on student alcohol use, such that sex will be predictive of depression and alexithymia, which will both be predictive of student alcohol use.

1.8 Depression and Parental Influences

A parent's alcohol use can also predict depression (Tarter, 1984). Steinhausen, Nestler, and Huth (1982) found that children of alcoholics (COA's) were more likely to have emotional disorders. In another study, Henderson, Albright, Kalichman, and Dugoni (1994) report that the offspring of substance abusers were more likely to be neurotic and depression prone. Tubman (1993) also found a correlation of $r=.77$, $p<.001$, between a father's alcohol dependency score and child's depression. This strong association suggests that parents who drink often have children who have higher scores of depression.

Depression can also be predicted by parenting styles. Radziszewska, Richardson, Dent & Flay (1996) found a main effect of parenting styles on depressive symptoms. Parents that had an authoritative style had children with fewer depressive symptoms. Children who believed their parents that were not engaged in them were found to have the most depressive symptoms. This relationship is supported by work done by Milevsky, Schlechter, Netter, and Keehn (2007), in which children whose parents were classified as authoritative had the lowest levels of depression (permissive $M=2.0$, $SD=.69$, authoritarian $M=1.97$, $SD=.54$, and authoritative $M=1.70$, $SD=.45$). The model proposed will allow for the direct effect of parental alcohol use and parenting styles on depression but will also allow for the indirect effect of parental alcohol use to depression through parenting styles.

1.9 Depression and Student Sex

Although, men might experience more alexithymia and alcohol use, women are said to experience more depression (Kelly, Kelly, Brown, & Kelly, 1999). According to the DSM-IV-TR (2000), women are more likely to experience Major Depressive Disorder. Studies suggest that women are twice as likely to experience a major depressive disorder as their male counterparts. (Kuehner, 2003). In the proposed model, female sex is hypothesized to predict depression scores.

Chapter 2: Hypothesized Model

According to the literature cited in the last section, one can make a number of hypothesized associations between the following variables. Figure 2.1, depicted on the page 9, generally describe these hypothesized relationships. However, the model does not allow for the testing of the effect of each of three parenting styles on student depression and student alcohol use. It also does not allow for the assessment of the components of alexithymia on student alcohol use, nor does it allow for the testing predictors of these components of alexithymia.

An expanded model, provided in Figure 2.2 depicts model relationships between mother parenting styles, father parenting styles, alexithymia, sex, depression, parental alcohol use and depression. The parameters to be estimated in the model are as follows:

Effects of Exogenous variables:

- (1) Participant sex will predict depression and alexithymia scores, such that men will have higher alexithymia scores and women will have higher depression scores.
- (2) Participant sex will predict participant alcohol use, such that males will have higher scores on the alcohol use measure.
- (3) Parental alcohol use will be positively predictive of a participant's depression score, such that parents who are perceived to drink more will have students who have higher depression scores.
- (4) Parental alcohol use will be positively predictive of student alcohol use. Parents who are perceived to drink more will have students who drink more.
- (5) Parental alcohol use will be positively predictive of authoritarian and permissive parenting styles. Parents who are perceived to drink more will have higher authoritarian and permissive scores.

- (6) Parental alcohol use will be negatively predictive of flexible parenting styles. Parents who are perceived to drink less will have higher flexible parenting style scores.

Effects of Endogenous variables

- (7) Depression will be positively predictive of all aspects of alexithymia, such that increased depression is associated with increased alexithymia
- (8) Depression will be positively predictive of student alcohol use, such that increased depression is associated with increased alcohol use.
- (9) All aspects of alexithymia will be positively predictive of student alcohol use, such that increased alexithymia is associated with increased alcohol use.
- (10) Poor parenting styles (authoritarian and permissive styles) will be positively predictive of student alcohol use.
- (11) A good parenting style (flexible/authoritative parenting style) will be negatively predictive of student alcohol use.

In summary, the hypothesized path model predicts the following direct and indirect effects of each variable on student alcohol use. The direct effects on student alcohol use include: male sex, increased depression, increased alexithymia, increased scores on measures of poor parenting styles, decreased scores on the measure of good parenting style, and increased parental alcohol use. The indirect effects on student alcohol use include: depression (through alexithymia), parental alcohol use (through parenting styles and depression) and parenting styles (through alexithymia).

Finally, the model also allows for various error terms (disturbances) to be correlated. These disturbances represent variability in the outcome measure that is not explained by the variables predicting that measure. The disturbances of the alexithymia scales are all correlated with each other. The error terms of mother's parenting styles are also assumed to be correlated, as are the disturbances for father's parenting styles. In addition, the error term of mother's permissiveness is correlated with the

error term of father’s permissiveness, the error term of mother’s authoritarianism is correlated with the error term of the father’s authoritarianism, and the error term of the mother’s flexible/authoritativeness is correlated with the error term of the father’s flexible/authoritativeness. Furthermore, the error term of the mother’s alcohol use is correlated with the error term of father’s alcohol use.

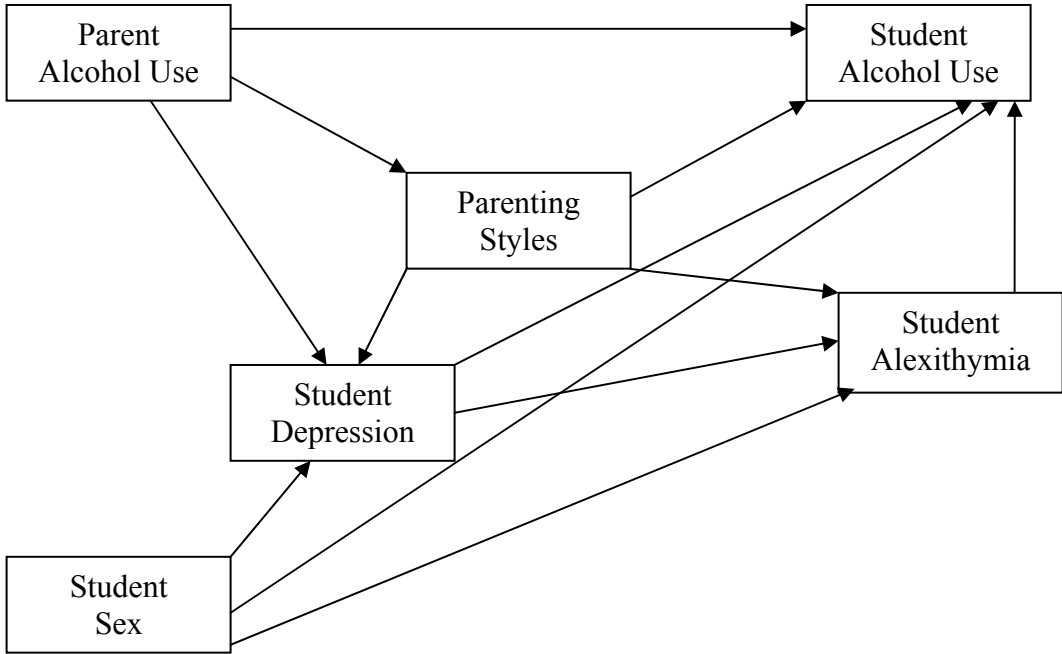


Figure 2.1: General Hypothesized Model.

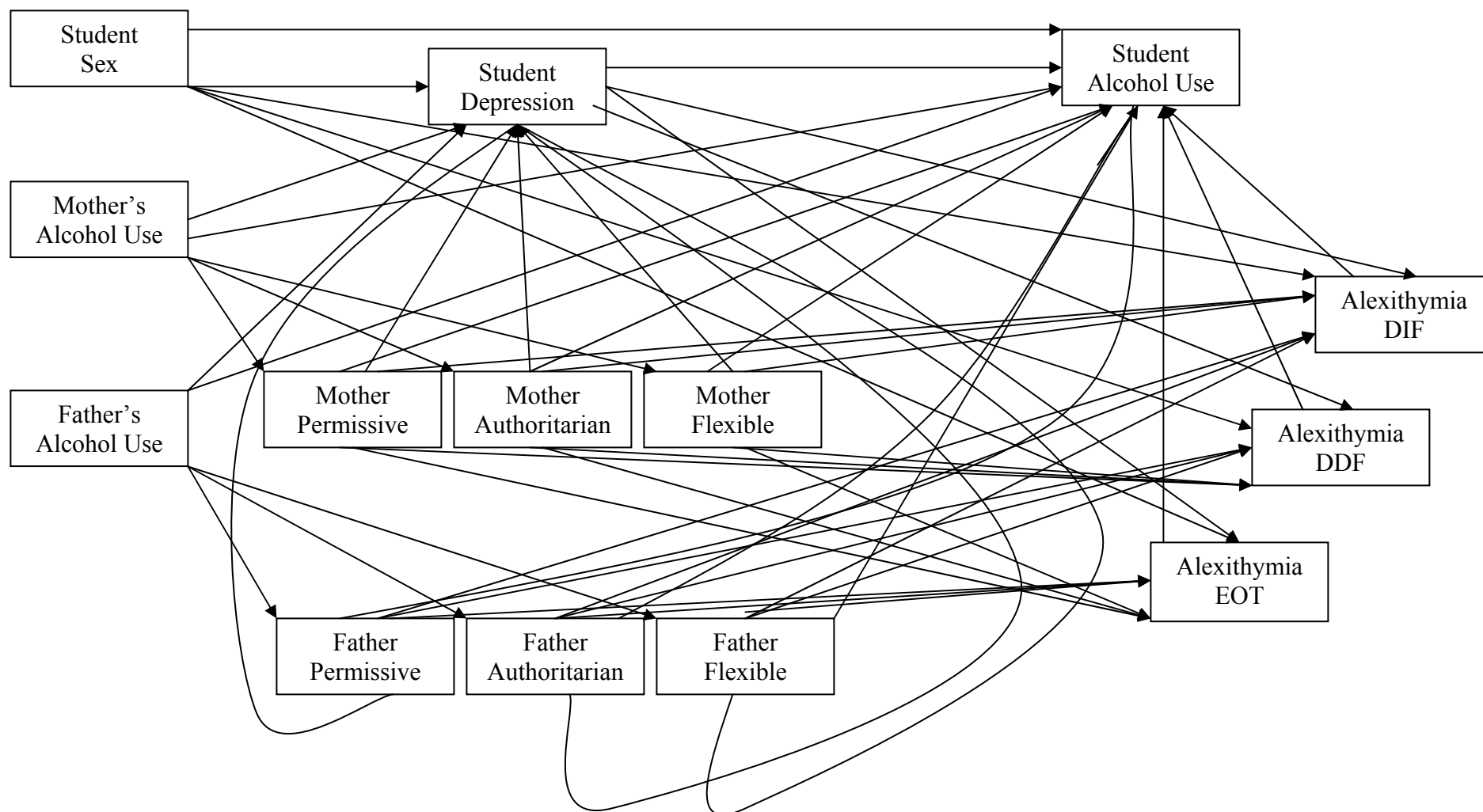


Figure 2.2: Expanded Hypothesized Model.

Chapter 3: Methods

3.1 Participant Characteristics

Thirty-five point percent were male ($n=111$), sixty-four percent were female ($n=202$). Of these 313 participants, 82% were Hispanic, and Whites comprised 9% of the sample. The mean age was 20.4 ($SD=4.46$). The majority of the participants reported they were single (92.3%). Only 7.7% of the sample reported that they were parents. Half of the sample was made up of Freshmen, and one quarter of the sample consisted of Sophomores.

Of this sample, 8.3% were considered to have a probable problem or worse with alcohol use, while 3.8% of them were clearly indicating alcohol problems. In terms of perceived parental alcohol use, 29.8% reported their fathers to have a probable alcohol problem, whereas only 4.2% reported having mothers with probable alcohol problems. In addition, 17.9% of the sample was moderately to severely depressed, and 37.1% of the sample reported being moderately to severely alexithymic. Table 3.1 consists of the means and standard deviations of the demographic characteristics of this sample.

3.2 Design

This study is a cross-sectional design and sought to examine the relationship among the set of variables depicted in Figure 2.1. Exogenous variables in the proposed model are parental alcohol use (mother and father) and student sex, while the endogenous variables are parenting styles (mother permissive, mother authoritarian, mother flexible/authoritarian, father permissive, father authoritarian, and father flexible/authoritarian) depression, student alcohol use, and alexithymia (Difficulty Identifying Feelings, Difficulty Describing Feelings, and Externally Oriented Thinking).

3.3 Measures

Participants completed an Institutional Review Board (IRB) approved consent form before beginning the study. Participants were then asked to complete a series of measures. The presentation of the measures was administered in one of four possible orders to control for fatigue effects.

Table 3.1 Participant Characteristics.

	Male	Female	Total	Mean	Standard Deviation
Sex	111	202	313		
Ethnicity					
Hispanic	87	174	261		
White	12	19	31		
Asian	2	1	3		
Black	6	4	10		
Marital Status					
Single	103	185	288		
Married	6	11	17		
Divorced	0	1	1		
Widowed	1	5	6		
Grade Level					
Freshman	46	110	156		
Sophomore	32	50	82		
Junior	17	17	34		
Senior	15	25	40		
Parental Status					
No	103	185	288		
Yes	7	17	24		
Age				20.43	4.45
SMAST				1.25	1.56
FSMAST				2.56	3.25
MSMAST				0.88	1.57
STRESS				13.00	8.94

ANXIETY				9.40	8.26
DEPRESSION				8.13	8.61
M PERMISSIVE				25.78	6.54
M AUTHORITATIVE				32.46	8.04
M FLEXIBLE				35.10	7.47
F PERMISSIVE				26.38	7.30
F AUTHORITATIVE				34.14	9.37
F FLEXIBLE				33.22	8.76
TOT TAS-20				47.20	12.56
DIF				15.35	6.26
DDF				12.93	4.99
EOT				18.93	4.52

SMAST=Short Michigan Alcohol Screening Test, MSMAST=Mother's Short Michigan Alcohol Screening Test, FSMAST=Father's Short Michigan Alcohol Screening Test, STRESS=Stress Scale, ANXIETY=Anxiety Scale, DEPR=Depression Scale, MPERMISSIVE=Mother's Permissive Parenting Style, MAUTHORITATIVE=Mother's Authoritative Parenting Style, MFLEXIBLE=Mother's Flexible/Authoritative Parenting Style, FPERMISSIVE=Father's Permissive Parenting Style, FAUTHORITATIVE=Father's Authoritative Parenting Style, FFLEXIBLE=Father's Flexible/Authoritative Parenting Style, TOT TAS-20=Total Toronto Alexithymia Scale 20, DIF=Difficulty Identifying Feelings, DDF=Difficulty Describing Feelings, EOT=Externally Oriented Thinking.

Demographics

The participants were asked to complete a form to indicate their age, gender, ethnicity, college grade level, marital status, and parental status. See Appendix A for Demographic form.

Toronto Alexithymia Scale-20 (TAS-20)

The Toronto Alexithymia Scale-20 (TAS-20; Bagby, Parker, Taylor, 1994) is a self report measure of the construct of alexithymia and is the most widely used questionnaire for the alexithymia construct. The TAS-20 measures three components of alexithymia: 1) Difficulty Identifying Feelings, 2) Difficulty Describing Feelings, and 3) Externally Oriented Thinking. The recent measure of the TAS, the TAS-20, was derived from a longer scale, Toronto Alexithymia Scale that consisted of twenty six items. The TAS had a four factor structure. However, upon evaluating the original measure, the authors realized that the factor, reduced daydreaming, was negatively correlated to the Difficulty Identifying Feelings factor and was not coherent with the other subscales of alexithymia, hence its removal.

For Difficulty Identifying Feelings, a person may not understand that the bodily sensation of emotional arousal is due to fear not anger. This scale has seven items. Difficulty Describing Feelings occurs when a person can not express what it is he/she are emotionally feeling. This scale consists of five items; and one of these items is reverse coded. Externally oriented thinking is, “a cognitive style that shows a preference for external detail of everyday life rather than thought content related to fantasies and other aspects of a person’s inner experiences,” (Bagby, Parker, & Taylor, 1994, pg 31). This scale consists of eight items, four of which are reverse coded. Scores are then summed for each subscale as well as a total score. Total scores between 61 and 100 are considered high alexithymia; whereas scores below 51 are considered low alexithymia. Scores in between 51 and 68 are considered moderate levels of alexithymia (Taylor et. al., 1997).

Swift, Stephenson and Royce (2006) demonstrate that the Toronto Alexithymia Scale-20 has shown good internal consistency for the difficulty identifying feelings scale ($\alpha=.85$), and the difficulty describing feelings scale ($\alpha=.78$). The externally oriented thinking scale has not shown adequate reliability across a variety of studies. Bagby, Parker and Taylor found a Cronbach’s alpha of .81 for the entire scale and a 3 week test retest reliability of .77. Culhane, Morera, Watson and Millsap (2009) have

also demonstrated that the TAS-20 is both measurement invariant and predictive invariant for White and Hispanic participants. Due to copyright laws this measure is not printed in this paper.

Short Michigan Alcohol Screening Test (SMAST)

The Short Michigan Alcohol Screening Test (SMAST) was administered to each participant to measure his/her alcohol usage. The SMAST is a thirteen item yes or no questionnaire that can be administered and scored manually with yes responses receiving a score of unity and no responses receiving a score of zero. However, there are two different methods to score the SMAST. In the Seltzer Method, a “no” on questions 1, 4, and 5 receive a score of one instead of zero. This scoring method was used for this study. The appropriate questions are reverse coded and then are summed. Total scores less than or equal to 2 are indicative of a possible problem. A score of 3 is indicative of a probable problem, while scores that are greater than or equal to 4 indicate an alcohol problem. The Short Michigan Alcoholism Screening Test is extensively used to determine whether someone is alcohol dependent. It only takes the participant ten to fifteen minutes to complete the MAST. In terms of its internal consistency, Laux, Newman, and Brown (2004) report a Cronbach’s alpha of $\alpha=.88$. Selzer, Vinokur, and Van Rooijen (1971) found a test-retest reliability coefficient of .95. Among a Hispanic sample, Barrera, Hageman, and Gonzales (2004) found internal consistency reliability for Mexican American men of .64 and for Mexican American women .81. See Appendix B for scale.

F-SMAST and M-SMAST

The adapted short Michigan Alcoholism Screening Test for fathers, F-SMAST, is a thirteen item pencil and paper self administered test. It takes approximately five minutes to complete; the participant assesses their perceived parental history of alcoholism of their father. An example item is, “Has your father’s drinking ever created problems between him and your mother (or step-parent) or another near relative?” The adapted short Michigan Alcoholism Screening Test for mothers, M-SMAST, is the identical to the F-SMAST, with the exception that all masculine words in the item stem have been changed to feminine words. Crews and Sher (1992) found that both the F-SMAST and M-SMAST have good psychometric properties in clinical and research studies. The intraclass correlation coefficient for the F-SMAST was .85, while the intraclass correlation coefficient for the M-SMAST equaled .52. While

these measures have not been validated in a Hispanic population, they are essentially the same items as the SMAST except with the stem of the item has changed to refer to someone's mother or father. See Appendix C and D for these measures.

Depression Anxiety and Stress Scale-21

The Depression Anxiety and Stress Scale-21, DASS-21, is a shortened version of the Depression Anxiety and Stress Scale (Lovibond & Lovibond, 1995). The DASS-21 has three subscales to it, depression, anxiety, and stress. An example of the depression scale is, "I found that I had nothing to look forward to." "I felt scared without any good reason," is an illustration of the anxiety scale and lastly, "I felt that I was rather touchy," is an example of the stress scale. The participant is to rate each statement on a four-point Likert scale, ranging from "did not apply to me at all" to "applied to me very much or most of the time." The anxiety scale is used to detect whether the participant meets criteria for most anxiety disorders. The depression scale is used for measuring mood disorders, and the stress scale measures generalized anxiety disorder.

Henry and Crawford (2005) found internal consistencies of $\alpha=.88$ for the Depression scale, $\alpha=.82$ for the Anxiety scale, and $\alpha=.90$ for the stress scale and $\alpha=.93$ for the total scale. The DASS has been correlated with the Health of the Nation Outcome Scales (HoNOS) and the Mental Health Questionnaire (MHQ-14) $r=.31$ and $r=.75$, respectively (Ng, Trauer, Dodd, Callaly, Campbell & Berk, 2007). Daza, Novy, Stanley, and Averill (2002) found a coefficient alpha for the total scale in a Hispanic population of .96, while the measures of internal consistency reliability for the DASS subscales ranged from .86 to .93 in the Daza et al. (2002) study. Correlations of the subscales with the Beck Depression Inventory and the Beck Anxiety Inventory ranged from $r=.60$ to .82. For this study only the depression scale was used. However, the interrelationships between the depression, anxiety and stress were very strong (lowest correlation was 0.60 between the depression and the anxiety scale). See Appendix E for the DASS-21 scale.

Parental Authority Questionnaire

The Parental Authority Questionnaire (PAQ) was developed to measure Baumrind's parental authority prototypes: permissive, authoritarian, and authoritative (Buri, 1991). As described earlier, a

permissive parent allows their child to make most of their own decisions. An authoritarian parent, however, strictly regulates their child's activity. Lastly, an authoritative (flexible) parent is flexible, but firm.

The PAQ is a self-report measure with thirty questions pertaining to each parent's parenting styles. On a Likert scale the participant will rate a series of questions about each parent from 1 (strongly disagree) to 5 (strongly agree). There are ten items measuring a parent's permissiveness. An example item is, "My mother/father did not view themselves as responsible for directing and guiding my behavior as I was growing up." Ten items are to measure if a parent is authoritarian. An example item is, "As I was growing up my mother/father often told me exactly what they wanted me to do and how they expected me to do it." The last ten items measure a child's perception of their parents' authoritativeness. An example item from authoritativeness reads, "As I was growing up my mother/father gave me clear direction for my behaviors and activities, but they were also understanding when I disagreed with them." The totals are added and the higher the score the more a parent is said to fit that parent prototype (Buri, 1991).

Although the PAQ has not been validated in Hispanic populations, Buri (1991) demonstrates that the measure has good internal consistency reliability and validity scores with a college population. Subscales on this measure have reported Cronbach coefficient alpha ranging from .75 to .87 and two week test-retest reliabilities of .77 to .92. See Appendix F and G for the two versions of the PAQ.

3.4 Procedure

After receiving approval from the IRB, students signed up to participate in this experiment through Experimetrix. When students showed up for their designated time, they were given a consent form and asked to read through it thoroughly. Any questions regarding the study were then addressed. After all participants signed the consent form, demonstrating understanding of their rights, risks, and benefits of the study, they were given a packet of measures to complete. Each packet began with a demographic questionnaire. The additional measures were then randomly assigned to four possible different packets to control for fatigue effects. It took participants approximately one hour to complete

the consent form and packet of measures. Upon completion, each participant was debriefed and given a pamphlet to the counseling center on campus in case it was needed.

3.5 Power Analysis

A conservative approach, based on stepwise regression, was adapted to determine sample size. In the first step of the regression, we entered parental alcohol use, parenting styles, and student depression. Table 1 provides reported correlations of these measures against each other. We conservatively estimated that those three variables would explain 14.4% of the variance in student alcohol use. We obtained 14.4% from the correlation between parenting style and alcohol use.

Next we conservatively estimated that alexithymia will add 3.6% of incremental validity. With these estimates, it was determined that at the .05 level with $\beta = .20$, a minimum of 243 participants would be needed to detect a statistical effect of including alexithymia in a regression model after parental alcohol use, parenting styles and depression was already incorporated in the model. A total of 313 students participated in this study.

3.6 Analytic Methods

All data were entered using SPSS. Imputation for missing values was done by using the computer software NORM (Schafer, 1997). Descriptive statistics were then generated to explore the demographic representation of this sample. Reliability analyses were completed to determine the consistency of the measures in this sample. Identification of the path model was performed. Identification allows one to determine whether the parameter estimates can be uniquely solved. The t-rule, which is a necessary, but not a sufficient condition, insures that the number of model parameters do not exceed the number of variances and covariances among the observed variables in the study. As the proposed model is block-recursive (Rigdon, 1995), we used both Rigdon's block recursive rules and the rank and order condition (Bollen, 1989) to establish the model's identifiability. A path analysis was then done using the computer software LISREL 8.80 (Jöreskog and Sörbom, 2006) with maximum likelihood estimation to test the hypothesized model.

Chapter 4: Results

4.1 Internal Reliability of Measures

The internal reliability for the TAS-20 subscales in this study were DIF, $\alpha = .836$; DDF $\alpha = .802$; EOT $\alpha = .529$; and for the Total Scale, $\alpha = .846$. For the SMAST, the internal reliability was $\alpha = .620$. In this sample, the internal reliability for F-SMAST $\alpha = .887$ and M-SMAST $\alpha = .752$. The reliabilities of each of the DASS-21 subscales were as follows: Depression $\alpha = .86$, Stress $\alpha = .78$, Anxiety $\alpha = .65$, and Total Scale $\alpha = .89$. For this study the reliabilities of the father's subscales of the Parental Authority Questionnaire had good internal reliability, Permissiveness $\alpha = .76$, Authoritarian $\alpha = .90$, Authoritative/Flexible $\alpha = .87$. The reliability for the mother's subscales of the PAQ were also good (Permissiveness $\alpha = .73$, Authoritarian $\alpha = .75$, Authoritative/Flexible $\alpha = .83$, and Total Scale $\alpha = .60$). Table 4.1 describes the interrelationships of these scales.

4.2 Evaluating Goodness of Fit

While no model can perfectly describe the complexity of human behavior (Mac Callum, 2003), fit indices can be used to evaluate the general adequacy of a model. Hu and Bentler (1999) recommend a strategy of reporting a variety of fit indexes. For example, RMSEA (root mean square error of approximation) is a fit index that addresses model complexity or model parsimony, where more complex models will result in worse values on this index. Values that are close to 0.06 would be indicative of an adequate model and a value of 0.00 indicates perfect model fit. The CFI (comparative fit index) is referred to as an incremental fit index, as it compares the hypothesized model to a null model that says there are no relationships among the variables in the model. The CFI is scaled between 0.00 and 1.00, where 1.00 indicates perfect model fit. Values close to 0.90 on the CFI are considered acceptable (Blackburn, Donnelly, Logan, & Renwick, 2004).

Other fit indices that are reported include the SRMR (standardized root mean square residual, which reflects a standardized measure of difference between estimated model parameters and the observed data. Values close to or smaller than 0.08 for the SRMR are considered acceptable (Hu & Bentler, 1999). We also report the value of the overall chi-square statistic, as it is a measure of absolute fit index and tests the null hypothesis that the model perfectly fits the data. As sample size plays a role in

the value of chi-square statistic, even trivial differences between predicted covariance and observed covariances can lead to the rejection of the null hypothesis.

For this study, the fit of this model using the chi-square statistic was $X^2(24) = 50.98, p = .001$. The value of the RMSEA statistic equaled .060 (90% CI: .0371; .0833), the SRMR equaled 0.046 and the CFI equaled 0.97. Clearly, the values of the CFI, RMSEA and the SRMR indices are all indicative of good model fit. This model describes the sample adequately.

4.3 Path Analysis

Table 4.2 and 4.3 depict the standardized coefficients that report the direct effects of all endogenous and exogenous variables on the endogenous variables. For example, one standard deviation increase in mother's permissiveness (denoted MPERM) is associated with a .03 standard deviation increase in depression (denoted DEPR) holding all other variables constant. Tables 4.4 and 4.5 report the indirect effects of endogenous and exogenous variables on all of the endogenous variables.

Depression

As can be seen in Table 4.2, depression is positively predicted by a mother's authoritarian parenting style but negatively predicted by mother's authoritativeness/flexible parenting. No other variable directly predicts depression; nor is depression predicted by student sex (as seen in Table 4.3). In addition, a father's alcohol use predicts increased student depression. In Table 4.5 one can see the indirect effects of the exogenous variables on depression. No exogenous variables had an indirect effect on depression.

Parenting Styles

As shown in Table 4.2, no endogenous variables were hypothesized to predict parenting styles. In Table 4.3 only perceived father alcohol use negatively predicted father's flexible parenting styles. No exogenous or endogenous variables were hypothesized to have indirect effects on parenting styles (see Tables 4.4 and 4.5).

Alexithymia

As seen in Table 4.2, depression predicts all three components of alexithymia. Also mother's authoritarian parenting directly (and positively) predicts DDF scores. Father's permissiveness on the

other hand predicts both the DIF and DDF subscales. Another predictor of alexithymia is sex, however as seen in Table 4.3, sex was only predictive of the EOT subscale. In terms of indirect effects, as seen in Table 4.4 mother's authoritative parenting effects all aspects of alexithymia (through depression). Mother's authoritative/flexible parenting also indirectly effects the DIF, DDF, and the EOT scale of alexithymia. There were no indirect effects from father's parenting to alexithymia. Lastly, father's alcohol use (operating through depression) was indirectly predictive of the DIF and DDF subscales (see Table 4.5).

Alcohol Use

As expected, depression was positively (and directly) predictive of student alcohol use (see Table 4.2). Student alcohol use was not directly predicted from any mother's parenting styles. Father's permissive parenting also directly and positively predicts student alcohol use. As seen in Table 4.3, sex was predictive of student alcohol use, such that men had higher rates of alcohol use. Mother's alcohol use also directly and positively predicted student alcohol use; however, father's alcohol use did not. In Table 4.4, student alcohol use was indirectly effected by mother's authoritarian parenting and negatively predicted by mother's authoritative/flexible parenting style. These indirect effects were through depression. Father's permissive parenting also indirectly (through DIF and DDF) predicts student's alcohol use. More importantly, while DDF and EOT were not predictive of student alcohol use DDF was, as expected a predictor of student alcohol use. Increased DDF was associated with increased student alcohol use.

4.4 Variance Explained by Measures

It was also of interest to determine how much variability in each of the endogenous variables was explained by its predictors. For example, the predictors of depression accounted for 15% of the variance in the depression observed scores. Valentine et al., (2009), found that sex explained 6.3% of the variance in their depression score. Although this study was performed on older adults and only looks at the effect of sex on depression, the ability to account for 15% of the variance in depression demonstrates that these findings are not trivial. As expected, this model accounted for substantial proportions of variability in DIF and DDF observed scores, ($R^2=.31$ and $.23$, respectively). The model was only able to account for

7% of variability in EOT subscale scores. It is worth noting that this measure was the least reliable of the alexithymia subscales. The model also explained 16% of the variance in student alcohol use scores and is similar in magnitude to the proportion of variance explained by Gonzalez, Bradizza, and Collins (2009). The model did not do an adequate job in explaining variability to parenting styles, as the proportion of variance explained ranged from 0% to 5% across all measure of parenting styles. This result simply says that student sex and parental alcohol use are not good predictors of parenting styles.

Table 4.1 Inter-Correlations of Measures

	SMAST	FSMAST	MSMAST	STRESS	ANXIETY	DEPRES	MPERM	MAUTH	MFLEX	FPERM	FAUTH	FFLEX	TAS	DIF	DDF	EOT
SMAST	1.00	0.11	0.17	0.16	0.13	0.24	0.01	0.13	-0.06	0.18	-0.05	-0.02	0.22	0.16	0.24	0.11
FSMAST	0.11	1.00	0.05	0.16	0.18	0.20	-0.01	-0.04	-0.03	-0.05	0.08	-0.24	0.17	0.14	0.14	0.12
MSMAST	0.17	0.05	1.00	0.02	0.06	0.09	0.09	0.08	-0.07	0.02	0.07	-0.08	0.07	0.06	0.05	0.04
STRESS	0.16	0.16	0.02	1.00	0.67	0.67	-0.13	0.22	-0.16	-0.02	0.17	-0.15	0.44	0.48	0.38	0.13
ANXIETY	0.13	0.18	0.06	0.67	1.00	0.60	-0.04	0.19	-0.18	-0.02	0.11	-0.17	0.45	0.46	0.35	0.23
DEPRES	0.24	0.20	0.09	0.67	0.60	1.00	-0.03	0.23	-0.25	0.06	0.08	-0.19	0.49	0.52	0.40	0.20
MPERM	0.01	-0.01	0.09	-0.13	-0.04	-0.03	1.00	-0.31	0.21	0.43	-0.12	0.19	0.02	0.00	-0.02	0.08
MAUTH	0.13	-0.04	0.08	0.22	0.19	0.23	-0.31	1.00	-0.28	0.01	0.28	-0.01	0.25	0.24	0.25	0.10
MFLEX	-0.06	-0.03	-0.07	-0.16	-0.18	-0.25	0.21	-0.28	1.00	0.11	-0.14	0.39	-0.23	-0.19	-0.23	-0.13
FPERM	0.18	-0.05	0.02	-0.02	-0.02	0.06	0.43	0.01	0.11	1.00	-0.54	0.28	0.16	0.14	0.18	0.05
FAUTH	-0.05	0.08	0.07	0.17	0.11	0.08	-0.12	0.28	-0.14	-0.54	1.00	-0.33	0.04	0.05	0.02	0.03
FFLEX	-0.02	-0.24	-0.08	-0.15	-0.17	-0.19	0.19	-0.01	0.39	0.28	-0.33	1.00	-0.10	-0.08	-0.11	-0.05
TOTTAS	0.22	0.17	0.07	0.44	0.45	0.49	0.02	0.25	-0.23	0.16	0.04	-0.10	1.00	0.86	0.85	0.65
DIF	0.16	0.14	0.06	0.48	0.46	0.52	0.00	0.24	-0.19	0.14	0.05	-0.08	0.86	1.00	0.64	0.29
DDF	0.24	0.14	0.05	0.38	0.35	0.40	-0.02	0.25	-0.23	0.18	0.02	-0.11	0.85	0.64	1.00	0.37
EOT	0.11	0.12	0.04	0.13	0.23	0.20	0.08	0.10	-0.13	0.05	0.03	-0.05	0.65	0.29	0.37	1.00

Note. SMAST=Short Michigan Alcohol Screening Test, FSMAST= Father's Short Michigan Alcohol Screening Test, MSMAST=Mother's Short Michigan Alcohol Screening Test, Stress=Stress Subscale of DASS-21, Anxiety=Anxiety Subscales of DASS-21, DEPR=Depression Subscale of DASS-21, MPERM=Mother's Permissive Parenting Style, MAUTH=Mother's Authoritative Parenting Style, MFLEX=Mother's Flexible/Authoritative Parenting Style, FPERM=Father's Permissive Parenting Style, FAUTH=Father's Authoritative Parenting Style, FFLEX=Father's Flexible/Authoritative Parenting Style, TAS= Total Toronto Alexithymia Scale-20, DIF=Difficulty Identifying Feelings, DDF=Difficulty Describing Feelings, EOT=Externally Oriented Thinking

Table 4.2 Standardized Direct Effects of Endogenous Variables Predicting Other Endogenous Variables.

	DEPR	MPERM	MAUTH	MFLEX	FPERM	FAUTH	FFLEX	DIF	DDF	EOT	SMAST
DEPR		0.03	0.19**	-0.16**	0.12	0.03	-0.10				
MPERM											
MAUTH											
MFLEX											
FPERM											
FAUTH											
FFLEX											
DIF	0.47**	0.00	0.10	-0.06	0.15*	0.07	0.01				
DDF	0.31**	-0.03	0.12**	-0.11	0.22**	0.05	-0.05				
EOT	0.17**	0.11	0.07	-0.08	-0.02	-0.03	-0.02				
SMAST	0.17**	-0.08	0.02	0.02	0.15*	-0.02	0.00	-0.07	0.17*	-0.01	

Note. * $p < .05$, ** $p < .01$ DEPR=Depression Scale, MPERM=Mother's Permissive Parenting Style, MAUTH=Mother's Authoritative Parenting Style, MFLEX=Mother's Flexible/Authoritative Parenting Style, FPERM=Father's Permissive Parenting Style, FAUTH=Father's Authoritative Parenting Style, FFLEX=Father's Flexible/Authoritative Parenting Style, DIF=Difficulty Identifying Feelings, DDF=Difficulty Describing Feelings, EOT=Externally Oriented Thinking, SMAST=Short Michigan Alcohol Screening Test.

Table 4.3 Standardized Direct Effects of Exogenous Variables Predicting Endogenous Variables.

	SEX	MSMAST	FSMAST
DEPR	0.04	0.04	0.17**
MPERM		0.06	
MAUTH		0.06	
MFLEX		-0.05	
FPERM			-0.04
FAUTH			0.09
FFLEX			-0.23**
DIF	0.05		
DDF	0.02		
EOT	-0.12*		
SMAST	-0.18**	0.13*	0.08

Note. * $p < .05$, ** $p < .01$ DEPR=Depression Scale, MPERM=Mother's Permissive Parenting Style, MAUTH=Mother's Authoritative Parenting Style, MFLEX=Mother's Flexible/Authoritative Parenting Style, FPERM=Father's Permissive Parenting Style, FAUTH=Father's Authoritative Parenting Style, FFLEX=Father's Flexible/Authoritative Parenting Style, DIF=Difficulty Identifying Feelings, DDF=Difficulty Describing Feelings, EOT=Externally Oriented Thinking, SMAST=Short Michigan Alcohol Screening Test, MSMAST=Mother's Short Michigan Alcohol Screening Test, FSMAST=Father's Short Michigan Alcohol Screening Test.

Table 4.4 Standardized Indirect Effects of Endogenous Variables Predicting Other Endogenous Variables

	DEPR	MPERM	MAUTH	MFLEX	FPERM	FAUTH	FFLEX	DIF	DDF	EOT	SMAST
DEPR											
MPERM											
MAUTH											
MFLEX											
FPERM											
FAUTH											
FFLEX											
DIF		0.02	0.09**	-0.08**	0.05	0.01	-0.05				
DDF		0.01	0.06**	-0.05*	0.04	0.01	-0.03				
EOT		0.01	0.03*	-0.03*	0.02	0.00	-0.02				
SMAST	0.02	0.00	0.05*	-0.04*	0.05*	0.01	-0.03				

Note. * $p < .05$, ** $p < .01$ DEPR=Depression Scale, MPERM=Mother's Permissive Parenting Style, MAUTH=Mother's Authoritative Parenting Style, MFLEX=Mother's Flexible/Authoritative Parenting Style, FPERM=Father's Permissive Parenting Style, FAUTH=Father's Authoritative Parenting Style, FFLEX=Father's Flexible/Authoritative Parenting Style, DIF=Difficulty Identifying Feelings, DDF=Difficulty Describing Feelings, EOT=Externally Oriented Thinking, SMAST=Short Michigan Alcohol Screening Test.

Table 4.5 Standardized Indirect Effects of Exogenous Variables Predicting Endogenous Variables

	SEX	MSMAST	FSMAST
DEPR		0.02	0.02
MPERM			
MAUTH			
MFLEX			
FPERM			
FAUTH			
FFLEX			
DIF	0.02	0.04	0.09**
DDF	0.01	0.03	0.07**
EOT	0.01	0.03	0.04
SMAST	0.01	0.01	0.03

Note. * $p < .05$, ** $p < .01$ DEPR=Depression Scale, MPERM=Mother's Permissive Parenting Style, MAUTH=Mother's Authoritative Parenting Style, MFLEX=Mother's Flexible/Authoritative Parenting Style, FPERM=Father's Permissive Parenting Style, FAUTH=Father's Authoritative Parenting Style, FFLEX=Father's Flexible/Authoritative Parenting Style, DIF=Difficulty Identifying Feelings, DDF=Difficulty Describing Feelings, EOT=Externally Oriented Thinking, SMAST=Short Michigan Alcohol Screening Test, MSMAST=Mother's Short Michigan Alcohol Screening Test, FSMAST=Father's Short Michigan Alcohol Screening Test.

Chapter 5: Discussion

5.1 CONCLUSION

The proposed study sought to examine relationships between alexithymia and student alcohol use. Unlike other studies, a complex model was proposed that accounted for the interrelationships between these variables and student sex, depression, parenting styles, and parental alcohol use.

Depression

Depression was predicted directly by two different parenting styles, mother's authoritarian and mother's flexible/authoritative styles. However, mother's authoritarian parenting was positively predictive while mother's flexible/authoritative parenting style was negatively predictive. This coincides with previous research that flexible parenting is more often the better style to prevent children from suffering from depression (Radziszewska, Richardson, Dent & Flay, 1996). On the other hand, none of the father's parenting styles were predictive of depression, suggesting that the mother's parenting style has more influence on a child's depression. This is supported by the idea that mother's are more influential in a child, even adolescences, life (DiIorio, Kelley, & Hockenberry-Eaton, 1999).

In addition, sex was not predictive of depression in this sample. This is contrary to previous research since depression is more common in women. A possible explanation of this is that only 18% of the sample was considered to be moderately to severely depressed, conceivably this may be too low to find a statistical effect. Moreover, the measure that was used to evaluate depression may not have been measuring depression but rather depressive symptoms.

Moreover, mother's alcohol use was not predictive of depression but father's alcohol use was. The more a father was perceived to drink, the more depressed the student was. Although the father's alcohol use predicting depression is consistent with the previous literature (Tubman, 1993), it is inconsistent that mother's alcohol use was not predictive. This relationship, however, may not be present because the perception of the mother's alcohol use was one fifth of what the father was perceived to drink. Studies have shown that perceptions of parental alcohol use may be skewed, whereas the student perceives the parent to drink much less than they actually do (Smith, Miller, Kroll, Simmons & Gallen, 1999).

Parenting Styles

It was not hypothesized that any endogenous variables would directly predict any of the parenting styles. However, mother's and father's alcohol use were predicted to directly influence parenting styles. Yet, only father's alcohol use was predictive of one parenting style, father's flexible/authoritative parenting style. This relationship was negative, suggesting that the more a father is perceived to drink the less flexible they are perceived to parent. This finding is congruent with previous research. As stated before, a possible explanation for this finding is that perhaps mother's alcohol use was not predictive because the percentage of mother's alcohol use was far below the percentage of what father's were perceived to drink. No variables were hypothesized to indirectly predict parenting styles.

Alexithymia

Supporting one of the hypothesis and compatible with previous research, depression was predictive of all three subscales of alexithymia (Honkalampi, Hintikka, Laukkanen, Lehtonen & Viinama, 2001). The higher the student scored on depression the higher he/she scored on each component of alexithymia.

Only two of the six measures of parenting styles were predictive of alexithymia. Mother's authoritative parenting style was directly and positively predictive of only the Difficulty Describing Feelings subscale. Mother's who exhibit authoritative parenting are often very restrictive on their child. Perhaps, those restrictions influence what a child is and is not allowed to say, hence, deferring their ability to verbalize their feelings. Father's permissiveness was also predictive of alexithymia. This parenting style directly and positively predicted the Difficulty Identifying Feelings and Difficulty Describing Feelings subscales. Although, neither of the other parenting styles are predictive of alexithymia, these two findings are consistent with previous research (Kench & Irwin, 2000).

In addition, sex was predictive of the Externally Oriented Thinking subscale and is similar to previous findings. Larsen, Strien, Eisinga, and Rutger (2006) also found this sex effect on Externally Oriented Thinking scores and is supported by what Levant et al. (2006) calls *pensee operateire*, which is a cognitive style that focuses on external details that men more commonly exhibit.

Indirectly, alexithymia is predicted by two of the mother's parenting styles but none of the father's parenting styles. All three subscales are indirectly positively predicted by mother's authoritarian parenting and all three subscales are predicted by mother's flexible/authoritative parenting, but this relationship is negative. These indirect relationships occur through depression. Increased mother's authoritarian score is associated with increased depression scores which also is associated with increased alexithymia. However, the higher the flexible score, the lower the depression score and in turn the lower the alexithymia scores. None of the father's parenting styles indirectly predicted alexithymia. Again, as mentioned above, mother's may be more influential during this period and this may be the reason why mothers parenting style indirectly predicted alexithymia, while paternal parenting did not associate with alexithymia.

Father's alcohol use indirectly predicted alexithymia through depression. Increased paternal drinking was associated with increased depression and in turn is associated with alexithymia. These findings are consistent with previous research (Tarter, 1984; Honkalampi, Hintikka, Laukkanen, Lehtonen & Viinama, 2001). On the other hand mother's alcohol use was not indirectly predictive of alexithymia. A possible reason for this finding is that mothers were not perceived to drink as much as fathers were.

Alcohol Use

Consistent with previous research and supporting one of the hypotheses, students who scored high on depression tended to also score high on the measure of alcohol use (Miller, Klamen, Hoffmann, & Flaherty, 1996). While none of the mother's parenting styles were directly predictive of student alcohol use, a father's permissive parenting style was associated with increased student alcohol use. While the findings concerning mother's parenting styles did not replicate prior research, the finding of father's permissiveness is consistent with other research. It is plausible that since the father is lenient and does not monitor the child, the child becomes susceptible to external influences such as drinking.

The results suggest that Difficulty Describing Feelings scores are predictive of increased student alcohol use scores. The relationship between Difficulty Describing Feelings and student alcohol use could be explained by the fact that Difficulty Describing Feelings occurs when a person can not express

what it is he/she are emotionally feeling. Perhaps those students who have difficulty describing their feelings use alcohol as a way to express their feelings. Possibly the reason Difficulty Identifying Feelings was not predictive of student alcohol use is because students in this population may have found difficulty describing feelings as more detrimental, therefore needing more coping mechanisms like the use of alcohol. Not surprisingly, the Externally Oriented Thinking scale was also not predictive of student alcohol use, as this scale has demonstrated poor reliability and poor predictive capabilities.

Participant sex was also predictive of student alcohol use, where men had higher scores on the SMAST. This is consistent with previous research (Benningfield, Trucco, Barreira and Greenfield, 2009). Also coinciding with preceding research (Anda et. al., 2002) mother's alcohol use was predictive of student alcohol use. Surprisingly, father's alcohol use was not associated with student drinking. A possible explanation for this finding, is that perhaps mothers are more influential during adolescence (DiIorio, Kelley, & Hockenberry-Eaton, 1999) and these effects carry over into young adulthood.

Mother's authoritarian parenting and flexible authoritative parenting were indirectly predictive of student alcohol use through depression. These findings are consistent with previous research (Kench and Irwin, 2000) and indicate that parenting styles of one's mother has indirect effects on student alcohol use. Student alcohol use was also indirectly predicted by father's permissiveness, as permissiveness predicts Difficulty Describing Feelings scores, which in turn, predict student alcohol use. The other two father parenting styles were not predictive, directly or indirectly, of any variable. Perhaps the reason that father's permissiveness was the only father's parenting style to be predictive of alcohol use is because student's perceived their fathers to be more permissive than any of the other two parenting styles.

5.2 Strengths and Limitations

This study adds additional insight to the existing literature. One of the strengths of this study is that it is done on a predominately Hispanic population. Recent research has begun to investigate the role of alexithymia with Latino populations. The expression of emotion, which underlies alexithymia, is culturally dependent (Le, Berenbaum & Raghavan, 2002). Research has shown that collectivists (which are commonly the way Hispanics are described) have higher levels of alexithymia than non-collectivist

counterparts (Dion, 1996; Le et al., 2002). Understanding the relationship between alexithymia and student alcohol use in traditionally underserved populations is an important step in developing treatment strategies for this population. An additional strength of this study is that it considered a host of other variables that could be related to student alcohol use and modeled the relationships among these variables. Finally, the study was adequately powered to detect effects.

However, there are limitations as well to this study. One limitation is that this study was done on a restricted population. The majority of the participants are from the same ethnicity and age range, meaning these findings may not be generalizable in most other populations. Another limitation to this study was the measures used, as all measures were self-report. Thus, the participants may not have felt comfortable to share their true positions regarding stigmatized constructs (i.e. alcohol/depression). In addition, the DASS-21 measure may measure depressive symptomatology rather than the depression construct. This could be of importance, as most indirect effects occurred through “depression.” Furthermore, the scores on parental alcohol use and parenting styles were not strict scores, but rather perceptions of how the students observe and report these two constructs. Having said that, perceptions of parenting styles and parental alcohol use are important considerations in explaining why a child may behave the way she/he does.

5.3 Implications

To the author’s knowledge, no study has examined all of the variables in this hypothetical model. Hence, the implications of this study are great. First, this model examined the effect of parenting styles on their offspring’s alcohol use, alexithymia, and depression. Prevention programs aimed at parents should involve teaching parent’s effective parenting styles (i.e. authoritative/flexible parenting) to prevent a child from having increased alexithymia or depression scores, which predicts alcohol use. Furthermore, parents should be aware of the perceptions of their alcohol use has on their children. Another implication of this study is that since the DDF scores were predictive of student alcohol use, treatment programs for alcohol use should include therapies or teach management techniques of this non-diagnosable disorder. In addition, depression is shown in this sample to be incredibly critical in student actions, seeing as how it was predictive of alexithymia and alcohol use. Mental health care

providers should be cognizant of the effect depression on students and integrate cognitive behavioral therapy for depression, and other recommended therapies for alexithymia and student alcohol use.

5.4 Future Directions

Given that this experiment was done on a predominately Hispanic population within a specific age range, a future study should generalize the proposed model in other ethnicities and age groups. Second, it might be of interest to remove sex from this model and compare the relationships between the variables across the two sexes. Such an analysis will allow for assessing whether the relationships among the variables in the model is the same for both sexes. In addition, this study examined student's perception of their parent's drinking patterns and their perception of their parent's parenting style. A future study may want to consider administering a self-report to parents to identify parent's drinking patterns and parenting styles. Finally, future studies may want to provide longitudinal data to assess cause and effect relationships as opposed to associations among variables.

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Appendix A: Demographic Questionnaire

Sex: (circle one)

Date: _____

Male Female

Ethnicity: (circle one)

Hispanic

White

Asian

Black

Other: _____ (please specify)

College Grade Level: (circle one)

Freshman

Sophomore

Junior

Senior

Graduate

Age: _____

Marital Status: (circle one)

Single

Married

Separated

Divorced

Widowed

Are you a parent? (circle one)

Yes No

Appendix B: Short Michigan Alcohol Screening Test

Instructions: Answer each question with “Yes” or “No”.

1. Do you feel that you are a normal drinker? (By “normal” we mean that you drink less than or as much as other people.)	YES	NO
2. Does your wife, husband, partner, a parent, or other near relative ever worry or complain about your drinking?	YES	NO
3. Do you ever feel guilty about your drinking?	YES	NO
4. Do friends or relatives think you are a normal drinker?	YES	NO
5. Are you able to stop drinking when you want to?	YES	NO
6. Have you ever attended a meeting of Alcoholics Anonymous?	YES	NO
7. Has drinking ever created problems between you and your wife, husband, partner, a parent, or other near relative?	YES	NO
8. Have you ever gotten into trouble at work because of your drinking?	YES	NO
9. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?	YES	NO
10. Have you ever gone to anyone for help about your drinking?	YES	NO
11. Have you ever been in a hospital because of drinking?	YES	NO
12. Have you ever been arrested for driving under the influence of alcoholic beverages?	YES	NO
13. Have you ever been arrested, even for a few hours, because of other drunken behavior?	YES	NO

Appendix C: Father's Short Michigan Alcohol Screening Test

Instructions: Answer each question with "Yes" or "No". If you can not answer a question feel free to leave it blank.

1. Do you feel you father has been a normal drinker?	YES	NO
2. Did your mother, grandparent, or other near relative ever complain about your father's drinking?	YES	NO
3. Did your father ever feel guilty about his drinking?	YES	NO
4. Did friends and relatives think your father was a normal drinker?	YES	NO
5. Was your father able to stop drinking when he wanted to?	YES	NO
6. Has your father ever attended a meeting of Alcoholics Anonymous?	YES	NO
7. Has your father's drinking ever created problems between him and your mother (or step parent) or another near relative?	YES	NO
8. Has your father ever gotten into trouble at work because of drinking?	YES	NO
9. Has your father ever neglected his obligations, family, or work for two or more days in a row because he was drinking?	YES	NO
10. Has you father ever gone to anyone for help about his drinking?	YES	NO
11. Has your father ever been in a hospital because of his drinking?	YES	NO
12. Has your father ever been arrested for drunken driving, driving while intoxicated, or driving under the influence of alcoholic beverages?	YES	NO
13. Has your father ever been arrested, even for a few hours, because of other drunken behavior?	YES	NO

Appendix D: Mother's Short Michigan Alcohol Screening Test

Instructions: Answer each question with "Yes" or "No". If you can not answer a question feel free to leave it blank.

1. Do you feel your mother has been a normal drinker?	YES	NO
2. Did your father, grandparent, or other near relative ever complain about your mother's drinking?	YES	NO
3. Did your mother ever feel guilty about her drinking?	YES	NO
4. Did friends and relatives think your mother was a normal drinker?	YES	NO
5. Was your mother able to stop drinking when she wanted to?	YES	NO
6. Has your mother ever attended a meeting of Alcoholics Anonymous?	YES	NO
7. Has your mother's drinking ever created problems between her and your father (or step parent) or another near relative?	YES	NO
8. Has your mother ever gotten into trouble at work because of drinking?	YES	NO
9. Has your mother ever neglected her obligations, family, or work for two or more days in a row because she was drinking?	YES	NO
10. Has your mother ever gone to anyone for help about her drinking?	YES	NO
11. Has your mother ever been in a hospital because of her drinking?	YES	NO
12. Has your mother ever been arrested for drunken driving, driving while intoxicated, or driving under the influence of alcoholic beverages?	YES	NO
13. Has your mother ever been arrested, even for a few hours, because of other drunken behavior?	YES	NO

Appendix E: Depression Anxiety and Stress Scale 21

DASS 21					
<p>Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you <i>over the past week</i>. There are no right or wrong answers. Do not spend too much time on any statement.</p> <p><i>The rating scale is as follows:</i></p> <p>0=Did not apply to me at all 1=Applied to me to some degree, or some of the time 2=Applied to me to a considerable degree, or a good part of time 3=Applied to me very much, or most of the time</p>					
1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Appendix F: Parental Authority Questionnaire - Mother

Instructions: For each of the following statements, circle the number on the 5-point scale (1= strongly disagree, 5= strongly agree) that best describes how that statement applies to you and you mother. Try to read and think about each statement as it applies to you and your mother during your years of growing up at home. There are no right or wrong answers, so don't spend a lot of time on any one item. We are looking for an overall impression regarding each statement. If you can not answer a question feel free to leave it blank.

1. While I was growing up my mother felt that in a well run home the children should have their way in the family as often as parents do.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
2. Even if her children didn't agree with her, my mother felt that it was for our own good if we were forced to conform to what she thought was right.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
3. Whenever my mother told me to do something as I was growing up, she expected me to do it immediately without asking any questions.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
4. As I was growing up, once family policy had been established, my mother discussed the reasoning behind the policy with the children in the family.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
5. My mother has always encouraged verbal give-and-take whenever I have felt that family rules and restrictions were unreasonable.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
6. My mother always felt that what children need is to be free to make up their own minds and to do what they want to do, even if this does not agree with what their parents might want.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
7. As I was growing up my mother did not allow me to question any decision she had made.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
8. As I was growing up my mother directed the activities and decisions of the children in the family through reasoning and discipline.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
9. My mother has always felt that more force should be used by parents in order to get their children to behave the way they are supposed to.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
10. As I was growing up my mother did not feel that I needed to obey rules and regulations of behavior simply because someone in authority had established them.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
11. As I was growing up I knew what my mother expected of me in my family, but I also felt free to discuss those expectations with my mother when I felt that they were unreasonable.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
12. My mother felt that wise parents should teach their children early just who is boss in the family.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
13. As I was growing up, my mother seldom gave me expectations and guidelines for my behavior.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
14. Most of the time as I was growing up my mother did what the children in the family wanted when making family decisions.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
15. As the children in my family were growing up, my mother constantly gave us direction and guidance in rational and objective ways.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
16. As I was growing up my mother would get very upset if I tried to disagree with her.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
17. My mother feels that most problems in society would be solved if parents would not restrict their children's activities, decisions, and desires as they are growing up.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
18. As I was growing up my mother let me know what behaviors she	1	2	3	4	5

expected of me, and if I didn't meet those expectations she punished me.	Strongly Disagree		Neither		Strongly Agree
19. As I was growing up my mother allowed me to decide most things for myself without a lot of direction from her.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
20. As I was growing up my mother took the children's opinions into consideration when making family decisions, but she would not decide for something simply because the children wanted it.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
21. My mother did not view herself as responsible for directing and guiding my behavior as I was growing up.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
22. My mother had clear standards of behavior for the children in our homes as I was growing up, but she was willing to adjust those standards to the needs of each individual child in the family.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
23. My mother gave me direction for my behavior and activities as I was growing up and she expected me to follow her direction, but she was willing to listen to my concerns and to discuss that direction with me.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
24. As I was growing up my mother allowed me to form my own point of view on family matters and she generally allowed me to decide for myself what I was going to do.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
25. My mother has always felt that most problems in society would be solved if we could get parents to strictly and forcibly deal with their children when they don't do what they are supposed to as they are growing up.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
26. As I was growing up my mother often told me exactly what she wanted me to do and how she expected me to do it.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
27. As I was growing up my mother gave me clear directions for my behavior and activities, but she also understood when I disagreed with her.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
28. As I was growing up my mother did not direct the behaviors, activities, and desires of the children in my family.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
29. As I was growing up I knew what my mother expected of me in the family and she insisted that I conform to those expectations simply out of respect for her authority.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
30. As I was growing up, if my mother made a decision in the family that hurt me, she was willing to discuss that decision with me and to admit it if she had made a mistake.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree

Appendix G: Parental Authority Questionnaire - Father

Instructions: For each of the following statements, circle the number on the 5-point scale (1= strongly disagree, 5= strongly agree) that best describes how that statement applies to you and you father. Try to read and think about each statement as it applies to you and your father during your years of growing up at home. There are no right or wrong answers, so don't spend a lot of time on any one item. We are looking for an overall impression regarding each statement. If you can not answer a question feel free to leave it blank.

1. While I was growing up my father felt that in a well run home the children should have their way in the family as often as parents do.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
2. Even if his children didn't agree with him, my father felt that it was for our own good if we were forced to conform to what he thought was right.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
3. Whenever my father told me to do something as I was growing up, he expected me to do it immediately without asking any questions.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
4. As I was growing up, once family policy had been established, my father discussed the reasoning behind the policy with the children in the family.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
5. My father has always encouraged verbal give-and-take whenever I have felt that family rules and restrictions were unreasonable.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
6. My father always felt that what children need is to be free to make up their own minds and to do what they want to do, even if this does not agree with what their parents might want.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
7. As I was growing up my father did not allow me to question any decision he had made.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
8. As I was growing up my father directed the activities and decisions of the children in the family through reasoning and discipline.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
9. My father has always felt that more force should be used by parents in order to get their children to behave the way they are supposed to.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
10. As I was growing up my father did not feel that I needed to obey rules and regulations of behavior simply because someone in authority had established them.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
11. As I was growing up I knew what my father expected of me in my family, but I also felt free to discuss those expectations with my father when I felt that they were unreasonable.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
12. My father felt that wise parents should teach their children early just who is boss in the family.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
13. As I was growing up, my father seldom gave me expectations and guidelines for my behavior.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
14. Most of the time as I was growing up my father did what the children in the family wanted when making family decisions.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
15. As the children in my family were growing up, my father constantly gave us direction and guidance in rational and objective ways.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
16. As I was growing up my father would get very upset if I tried to disagree with him.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
17. My father feels that most problems in society would be solved if parents would not restrict their children's activities, decisions, and desires as they are growing up.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
18. As I was growing up my father let me know what behaviors he	1	2	3	4	5

expected of me, and if I didn't meet those expectations he punished me.	Strongly Disagree		Neither		Strongly Agree
19. As I was growing up my father allowed me to decide most things for myself without a lot of direction from him.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
20. As I was growing up my father took the children's opinions into consideration when making family decisions, but he would not decide for something simply because the children wanted it.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
21. My father did not view himself as responsible for directing and guiding my behavior as I was growing up.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
22. My father had clear standards of behavior for the children in our homes as I was growing up, but he was willing to adjust those standards to the needs of each individual child in the family.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
23. My father gave me direction for my behavior and activities as I was growing up and he expected me to follow his direction, but he was willing to listen to my concerns and to discuss that direction with me.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
24. As I was growing up my father allowed me to form my own point of view on family matters and he generally allowed me to decide for myself what I was going to do.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
25. My father has always felt that most problems in society would be solved if we could get parents to strictly and forcibly deal with their children when they don't do what they are supposed to as they are growing up.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
26. As I was growing up my father often told me exactly what he wanted me to do and how he expected me to do it.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
27. As I was growing up my father gave me clear directions for my behavior and activities, but he also understood when I disagreed with him.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
28. As I was growing up my father did not direct the behaviors, activities, and desires of the children in my family.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
29. As I was growing up I knew what my father expected of me in the family and he insisted that I conform to those expectations simply out of respect for his authority.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree
30. As I was growing up, if my father made a decision in the family that hurt me, he was willing to discuss that decision with me and to admit it if he had made a mistake.	1 Strongly Disagree	2	3 Neither	4	5 Strongly Agree

Vita

Diane Arms was born and raised in El Paso, Texas. After high school, Diane attended The University of Texas at El Paso (UTEP). In 2002, she graduated with a Bachelor of Arts in Psychology, and a minor in Sociology. She was accepted into the Clinical Master's program in the Department of Psychology at UTEP and began the program in the fall of 2007. During her time at UTEP, Diane was a member of the Judgment and Decision Making Lab. In this lab, she conducted research in dealing with health promotion and disease prevention, particularly in colorectal cancer and smoking cessation. While at UTEP she assisted her mentor (Dr. Osvaldo Morera) in submitting grant proposals to the Department of Health and Human Services and more recently to the American Cancer Society. These proposals deal with investigating the differences between rural and urban health disparities concerning colorectal cancer and assessing the effectiveness of a decision aid to aid the colorectal cancer screening decision in these two populations. Diane also submitted, with another lab member a grant proposal to UTEP's Hispanic Health Disparities Research Center (HHDRRC), which is funded by the National Institute of Health. This proposal was funded and they conducted focus groups consisting of Hispanic male and females in El Paso County to determine desired ways to communicate information about colorectal cancer screening. Diane also successfully competed for a summer funding mechanism through HHDRRC. My proposal, which was scored second highest of all proposals (including faculty proposals), secured summer funding and allowed me to continue my research with my advisor. Her research consists of the in the assessment and treatment/intervention of children with chronic illnesses, specifically cancer. After completing her Master's degree, Diane will be applying to Clinical Psychology doctoral programs to study pediatric psychology.

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This thesis was typed by Diane Arms.