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THE RELATIONSHIP OF
PARENT AND CHILD SELF-TALK
IN A COLLEGE SAMPLE

by

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B.A. University of Virginia, 1998

A thesis submitted in partial fulfillment of the requirements
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ABSTRACT

Research has demonstrated the importance of early social interactions in the development of self-talk. It does not appear, however, that existing research has examined the relationship between parents' self-talk and the self-talk that develops in their children. This study examined the relationship between self-talk in parents and their college-age children. Results revealed significant relationships between students' and parents' positive self-talk, but not negative self-talk. Marginal relationships were found for self-talk ratios (ratios of positive and negative self-talk). Maternal communication was found to mediate the relationship between students' and their mothers' positive self-talk. Different trends also were noted between genders. Finally, self-talk was related significantly to depression, anxiety, and self-esteem. Overall, results of this study emphasize the relationship between parents' and their children's positive self-talk and the importance of self-talk in psychological functioning. These findings lend promise to the possibility of modifying parents' self-talk and communication as a way to modify their children's self-talk and psychological functioning.

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CHAPTER ONE: INTRODUCTION

With the onset of the cognitive era, research has shifted from studying overtly observable behaviors to studying more covert mental processes (Dember, 1974; Dush, Hirt, & Schroeder, 1983). Among these various cognitive processes, self-talk has emerged as an important metacognitive function in numerous internal and external processes. Self-talk can be defined as semantically structured internal speech, in which the self is both sender and receiver, that embodies cognitions about oneself and the world (Burnett, 1996; Calvete & Cardeñoso, 2002; Vocate, 1994). Various terms have been used in the literature, including inner speech, inner/internal dialogue, intrapersonal communication, self-statements, and automatic thoughts. Whatever label is used, self-talk appears to be an essential cognitive process that occurs in virtually all humans (Diaz & Berk, 1992), including individuals who are born deaf (Campbell & Wright, 1990; Jamieson, 1995). For instance, some authors have suggested that self-talk is the seat of consciousness unique to the human experience (Yingling, 1994).

Theoretical Background

Vygotsky (1962) was one of the first theorists to describe and examine self-talk, calling it *inner speech*. According to his definition, self-talk was more than just speech without sound; it was a form of inward thought that was functionally, and thus structurally, different from social speech. Vygotsky claimed that self-talk evolved from an internalization of children's *private speech*, the phenomenon of talking aloud to

oneself, which is displayed frequently in young children (Berk, 1986; Kohlberg, Yaeger, & Hjertholm, 1968; Piaget, 1926; Vygotsky, 1962). Vygotsky also emphasized sociocultural interactions in the development of self-talk. He asserted that spoken interactions with others formed the basis for spoken interactions with the self. Thus, private speech was a stepping stone between social regulation and self-regulation. The final product, self-talk, served to organize and direct a variety of mental activities.

In contrast to Vygotsky's (1962) theory, Piaget's (1926) theory of development claimed that private speech was a symptom of egocentric thinking (i.e., children's lack of understanding that they are separate from the rest of the world) and that it disappeared entirely as socialized thinking developed. To Piaget, private speech was not functional, was not learned socially, and did not go underground in the form of self-talk. Vygotsky argued against Piaget's theory by stating that to interpret a decrease in private speech as a disappearance of communication with oneself "is like saying that the child stops counting when he ceases to use his fingers and starts adding in his head" (Vygotsky, 1962, p. 134).

To summarize, Vygotsky (1962) asserted that self-talk evolved from private speech, was based on verbal interactions with others, and functioned as a cognitive organizer. In contrast, Piaget (1926) did not acknowledge self-talk or its cognitive purpose, claimed that private speech was a byproduct of egocentric thinking, and asserted that private speech disappeared when egocentric thinking ceased.

Theoretical Findings

In general, research has supported Vygotsky's (1962) theory and contradicted Piaget's (1926) theory regarding private speech and self-talk. Research has shown that egocentric thinking and private speech are not co-occurring, as Piaget would suggest (Berk, 1986). Berk and Garvin (1984) found that 3-year olds had high levels of egocentric thinking but exhibited little private speech. As children developed, their private speech increased through the age of 7-years, despite a simultaneous decrease in egocentric thinking (Vygotsky, 1962). Furthermore, research has found that adults used private speech when in situations where they believed no one was listening or their cognitive resources to monitor verbalizations were limited (Duncan & Cheyne, 2001). Logically, it was unlikely that these adults were producing private speech due to not understanding that they were separate from the rest of the world (i.e., egocentric thinking).

In support of the theory that private speech becomes internalized as self-talk, research has demonstrated that self-talk begins to develop during the first years of school, at the same time that private speech begins to decline (Kohlberg et al., 1968). Additionally, private speech exhibited by children is similar to the self-talk that is reported in later development (Diaz & Berk, 1992; Vygotsky, 1962). This internalization of private speech into self-talk may be essential to effective self-regulation and maturation. For instance, boys with Attention Deficit/ Hyperactivity Disorder (AD/HD) tend to use more private speech, less internalized self-talk, and more task-irrelevant private speech (Winsler, 1998).

Studies have supported Vygotsky's (1962) theory that private speech and self-talk serve to organize and direct more complex thinking. For instance, self-regulatory types of private speech increase with task difficulty (Berk & Garvin, 1984; Diaz & Berk, 1992) and predict higher levels of success on a wide range of tasks (Behrend, Rosengren, & Perlmutter, 1992; Diaz & Berk, 1992). Furthermore, Behrend and colleagues (1992) found that private speech is related somewhat to task performance but is related highly to *future* task performance on the same task, suggesting that self-talk serves important long term cognitive functions as well.

Social Development of Self-Talk

Several studies have supported Vygotsky's notion that private speech is learned from early social speech but develops ultimately into a separate function (Wertsch, 1979). For instance, studies have demonstrated a strong relationship between styles of social and private speech, suggesting that social speech provides the basis of learning (Berk & Garvin, 1984). In addition, perceived positive and negative statements from others are related significantly to the amount of positive and negative self-talk found in elementary school children (Burnett, 1996; Burnett & McCrindle, 1999). Interestingly, perceived statements from parents were related significantly to positive self-talk, particularly for males. The authors hypothesized that males may rely on parental interactions in the development of their self-talk more than females, who may rely on social interactions more heavily. Moreover, studies demonstrate that social speech has the same structure as private speech at the age of 3-years. Yet, by the age of 7-years, private speech is

structurally different from social speech, suggesting that it is learned socially but later develops to serve an independent function (Furrow, 1992; Vygotsky, 1962).

Further supporting the social basis of the development of private speech and self-talk, research suggests that significant others influence task-oriented self-talk and task performance in children. For instance, Behrend, Rosengren, and Perlmutter (1989) found that children perform better on a challenging task when their mothers exhibit task-oriented regulatory speech and approach the task at a level that matches the child's developmental abilities. This task-oriented parental modeling often has been called scaffolding and has been shown repeatedly to influence children's private speech and performance (Behrend et al., 1992).

Clinical Implications

The prevalence and cognitive importance of self-talk has made it a logical candidate in the study of psychological well-being and psychopathology. Research has demonstrated that self-talk is related to anxiety (Beck et al., 1987; Hembree, 1988; Rosin & Nelson, 1983), depression (Beck et al., 1987; Burnett, 1994), internalizing syndromes (Calvete & Cardeñoso, 2002), externalizing syndromes (Porter & Critelli, 1994; Tafrate & Kassinove, 1998), and schizophrenia (Lysaker, Lancaster, & Lysaker, 2003).

Many aspects of self-talk have been studied to determine their importance in clinical issues. For instance, self-talk has been researched regarding its rationality/irrationality, content-specificity, positiveness/negativeness, and task-/self-orientation. Factor analyses of self-talk inventories have demonstrated that the highest

order factor structures consist of positive and negative self-talk (Calvete & Cardenoso, 2002). Further, both positive and negative self-talk appear to be related significantly to clinical issues. For instance, Manning (1990) analyzed a variety of self-talk features and found that both positive and negative self-talk are correlated significantly with academic achievement and behavior ratings from teachers. Other research has found that negative self-talk contributes to social anxiety in gender-mixed groups (Cacioppo, Glass, & Merluzzi, 1979) and is related positively to low self-esteem and poor performance (Hembree, 1988). Likewise, research has demonstrated that positive self-talk is related significantly and positively to high self-esteem and positive self-perceptions (Burnett & McCrindle, 1999) and is related negatively to depression (Burnett, 1994). Furthermore, positive and negative self-talk have been found to mediate the relationship between self-esteem and positive and negative statements made by others (Burnett & McCrindle, 1999).

Research has been mixed, however, as to whether positive self-talk is predictive of psychological adjustment or whether it is a lack of negative self-talk that is more predictive. In other words, researchers have debated what is more important: the power of positive thinking or the power of non-negative thinking (Kendall et al., 1989). For instance, Safran (1982) found that high, rather than low, negative self-talkers exhibit more anxiety in assertiveness role-playing, but high or low positive self-talk bears little relation to anxiety. On the other hand, some studies have found that it is the presence of positive self-talk, rather than the presence or absence of negative self-talk, that predicts positively psychological well-being. For instance, Burnett (1994) found that positive self-

talk has a significant positive relation to self-esteem and a significant negative relation to depression but that negative self-talk does not. Burnett suggested that positive self-talk, not negative self-talk, may be the important component in regulating psychological processes.

One solution to the puzzle may be the States-of-Mind (SOM) model, which has emphasized the *ratio* of positive to negative thinking (Schwartz & Garamoni, 1989). This model was based on the *golden section hypothesis*, which described how individuals classify objects based on ratios that approximate the *golden section*. The *golden section* is the mathematical point where a line can be divided such that the ratio of the smaller section to the larger section is the same as the ratio of the larger section to the whole (Benjafield & Adams-Webber, 1976). For instance, the following line (c) has been divided according to the golden section; thus, the smaller section (a) has the same proportion to the larger section (b) as the larger section (b) has to the whole (c):

$\text{---c---} \rightarrow \text{---a---} | \text{---b---}$. Mathematically, the golden section is defined as the point where $a:b = b:c$ when $a+b = c$. Therefore, the ratios that satisfy this equation (1.6:1) create sections that are 61.8 percent and 38.2 percent of the whole. According to the golden section hypothesis, these ratios determine how individuals categorize objects.

Because much of the world can be categorized along bipolar dimensions consistent with Yin and Yang (i.e., hot/cold, short/tall, loud/quiet), an object will be classified in one pole when it has enough characteristics of that pole to make it a salient feature. For instance, an individual will classify their boss as generous when the number of generous behaviors reaches 62 percent (a ratio of 1.6:1) as compared to greedy

behaviors (Benjafield & Adams-Webber, 1976). To summarize, the golden section hypothesis has been supported empirically and states that labels are attached to an object when the object displays 62 percent of category-defining traits compared to 38 percent of non-defining traits.

The golden section hypothesis has been applied to the study of self-talk. Several categories, called *states-of-mind* (SOM), have been created based on the ratio of positive to negative self-talk talk (Schwartz, 1997; Schwartz & Garamoni, 1989). These SOMs are related to psychological functioning and are summarized in the Table 1.

Table 1
Self-Talk Ratios Divided into States-of-Mind Categories

State-of-Mind category	Self-Talk Ratio	Psychological Implication
Positive Monologue	90-100% Positive	Psychopathology (mania or denial)
Positive Dialogue	67-90% Positive	Optimal for coping with stress
Successful Coping Dialogue	62% Positive	Adaptive but not optimal coping
Conflicted Dialogue	40-58% Positive	Mild psychopathology
Negative Dialogue	38% Positive	Moderate psychopathology
Negative Monologue	0-10% Positive	Severe psychopathology

Note. Adapted from Schwartz and Garamoni (1989) and Schwartz (1997).

Research has supported the relationship of the SOMs to psychological adjustment in both adults and children (Calvete & Cardeñoso, 2002; Kendall et al., 1989; Ronan & Kendall, 1997; Schwartz & Garamoni, 1989). For instance, a comparison of nonclinical

adults to adults identified as dysphoric (mildly depressed) revealed that negative self-talk accounts for a significant amount of variance and that positive self-talk accounts for a significant amount of the remaining variance in symptoms. Furthermore, it was found that frequency ratios of positive to negative self-talk place the participants who are not depressed in the positive dialogue category of the SOM model and place the participants who are dysphoric in the internal dialogue of conflict and negative dialogue categories (Kendall et al., 1989). Ronan and Kendall (1997) found that children identified as both anxious and depressed have positive to negative self-talk ratios in the negative dialogue range (positive self-talk near 38 percent). Children with only anxiety or depression have ratios that fell in the internal dialogue of conflict range (positive self-talk at 46 percent to 52 percent). The non-anxious, non-depressed children have frequencies in the positive dialogue range (positive self-talk at 62 percent).

Self-Talk Modification

Although the correlation between self-talk and clinical issues is important, the more important clinical question is whether modifying self-talk can improve psychological functioning. Research has supported that it can. Some form of self-talk modification has been incorporated in nearly all cognitive-behavioral treatments (Dush et al., 1983). Furthermore, component analyses have suggested that changing self-talk has been the critical component of effective cognitive restructuring (Glogower, Fremouw, & McCroskey, 1978).

Research has shown that the techniques of self-talk modification have been effective in treating depression, anxiety, low self-esteem, rage, and task performance. For instance, one study trained participants who were identified as depressed and low in self-esteem to rehearse positive self-talk three times per day for two weeks. The participants showed a significant increase in self-esteem and a significant decrease in depression, which was maintained at a two-week follow-up (Philpot & Bamburg, 1996). For treating anxiety, one study used cognitive restructuring to change self-talk and found that the treatment reduced anxiety significantly on both objective and subjective measures. The benefits were apparent immediately following treatment and at a 2-month follow-up (Fremouw & Zitter, 1978). Tafrate and Kassonove (1998) found that rehearsing rational self-talk during barb exposure (i.e., anger provoking statements from others) decreases state anger in men with anger management problems. For improving task performance, teaching children to use positive self-talk has been found to improve writing skills and on-task behavior (de Hass-Warner, 1991; Solley & Payne, 1992). Further, Kamann and Wong (1993) found that learning disabled children could be taught to use positive self-talk more often and that this change improved their math performance, particularly at the second post-test, suggesting a long-lasting cumulative effect from the self-talk change (Kamann & Wong, 1993).

Meta-analyses also have supported the effectiveness of self-talk modification (often called self-statement modification in the literature). In a meta-analysis of 69 studies, Dush and colleagues (1983) found an effect size of .74 for treatments of adults using self-statement modification (SSM). In other words, the use of SSM brought clients

to the 77th percentile as compared to control subjects in the 50th percentile on both behavioral and cognitive self-report outcomes. Furthermore, treatment gains for SSM were somewhat stable over time, with the length of follow-up accounting for only 0.5 percent of the variability in the effect size. In another meta-analysis by Dush, Hirt, and Schroeder (1989), the effects of SSM on children were significant but not as strong as for adults. The effect size for clinically troubled children treated with SSM was .35. These findings suggest that self-talk modification is effective for both adults and children, but more so for adults.

The Possible Relation Between Parents' and Children's Self-Talk

Considering its clinical importance and its origin in social interaction, one worthwhile research question is whether self-talk in parents is related to the self-talk that later develops in their children. Research to date has suggested that self-talk is related to communication (Beth, 1999) and that *perceived* positive and negative communications from others are related to positive and negative self-talk in children (Burnett, 1996; Burnett & McCrindle, 1999). Currently, however, no studies have examined whether parental self-talk is related to their communications with their children or to their children's positive and negative self-talk.

Diaz and Berk (1992) suggested that children learn self-talk by adopting the tools and signs used by their caregivers. Although some studies have assessed the relationship of parental tools (e.g., scaffolding) and parental signs (e.g., communication) in the development of self-talk, no studies have assessed the relationship of parental self-talk

and children's self-talk. The tools and signs that are chosen by parents may be a manifestation of their own self-talk. Thus, parental self-talk may be related to the development of children's self-talk through the intermediate processes of scaffolding and communication. This is a plausible relationship based on the current research, which has shown that an individual's communication style and coping tendencies are related to their self-talk. For instance, Beth (1999) found that students' negative statements about themselves to others are related to negative self-talk. Thus, it is reasonable that a parent with negative (or positive) self-talk would speak negatively (or positively) about themselves to their children. In turn, these negative (or positive) statements may serve as models for self-talk in their children.

Studies also have shown that depression and anxiety in parents are related to the development of these disorders in their children (McClure, Brennan, Hammen, & Le Brocque 2001; Weissman & Jensen, 2002). Furthermore, numerous studies have shown that self-talk is related to anxiety and depression (Beck et al., 1987; Burnett, 1994). Thus, parental self-talk may be related to their affective states, which, in turn, are related to their children's affective states and self-talk. In summary, parents may transmit their own style of self-talk through communication styles and modeling as well as through the affective symptoms they exhibit.

Studying a relationship between parent and child self-talk could have important clinical implications. If a relationship does exist and if it were a causal relation, modifying parental self-talk may be useful in changing children's self-talk. Given the weaker influence of SSM treatment for children than for adults (Dush et al., 1983; Dush

et al., 1989), modifying parents' self-talk may be an important adjunct in the modification of children's self-talk.

Current Study

The purpose of this study was to determine if a relationship exists between the self-talk found in parents and the self-talk found in their children. In particular, this study assessed relationships among self-talk States-of-Mind (ratios of self-talk), positive self-talk, and negative self-talk in parents and their children, who were college students. In addition, this study examined whether parent communication mediated the relationship between parents' and their children's self-talk. Finally, this study examined how positive self-talk, negative self-talk, and ratios of self-talk related to depression, anxiety, and self-esteem across participants. Based on the research literature, it was hypothesized that parental self-talk ratios would be related positively to their children's self-talk ratios, particularly for male children and particularly for positive self-talk (Burnett, 1996; Burnett & McCrindle, 1999). Second, it was hypothesized that self-talk ratios would be related negatively to anxiety and depression but would be related positively to self-esteem and communication for both parents and children. Finally, it was hypothesized that anxiety, depression, communication, and self-esteem would mediate the relationship between parent self-talk and child self-talk.

CHAPTER TWO: METHOD

Participants

Based on Cohen's (1992) recommendations for power analyses, it was estimated that a sample size of 102 would be needed to assess the relationship between parent and child self-talk. This estimation was based on an alpha level of .05, a medium effect size, and power of .80. Participants were undergraduates from a southeastern, suburban university and their parents. Because information from undergraduates was collected on campus but information from parents was collected by mail, information from undergraduates was over-collected. Previous studies have documented that mail surveys have a return rate of approximately 50 percent (Judd, Smith, & Kidder, 1991). Thus, to reach the sample size of 102 required for sufficient power, approximately 250 undergraduates were asked to participate, allowing a buffer for outliers, missing data, and parent drop-out. Participation was not limited by gender, age, ethnicity, or other demographic characteristics.

Given these considerations, 252 (99 Male, 153 Female) undergraduates participated in the study. They ranged in age from 17- to 23-years ($M = 18.30$, $SD = 0.77$). Students self-reported their ethnic backgrounds to be Caucasian (68.7%), Hispanic (9.4%), African American (4.3%), and Asian American (2.9%). Additionally, most students reported that they did not live with their parents (77.3%). Most of the students

(80.2%), however, claimed to have contact with their mom once per week or more, and 60.8% claimed to have contact with their father once per week or more.

Parents who participated in the study were 212 mothers ranging in age from 34- to 65-years ($M = 47.41$, $SD = 4.91$) and 179 fathers ranging in age from 36- to 73- years ($M = 50.09$, $SD = 5.94$). Mothers and fathers self-reported their ethnic backgrounds to be Caucasian (63.7% and 51.8%, respectively), Hispanic (6.8% and 7.2%, respectively), African American (2.2% and 1.4%, respectively), and Asian American (2.5% and 1.4%, respectively).

Measures

The Automatic Thoughts Questionnaire - Revised (ATQ-R)

Students and parents completed the ATQ-R to assess their frequency of positive and negative self-talk (Kendall et al., 1989). The ATQ-R consists of 30 negative self-talk statements and 10 positive self-talk statements. Participants rated the frequency that they say each statement to themselves on a 5-point Likert scale ranging from not at all to all the time. The ATQ-R is similar to the original Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980) but contains 10 positive self-talk statements, which were not part of the original ATQ. The 10 positive statements of the ATQ-R accounted for significantly more variability ($p < .01$) in dysphoric and nonclinical participants than negative self-talk statements alone, as indicated by a hierarchical multiple regression

analysis (Kendall et al., 1989). The psychometric properties of this measure have been found to be adequate (Kendall et al., 1989). In the current study, analyses of internal consistency revealed a Cronbach alpha of .84 for the positive self-talk items, .95 for the negative self-talk, and .95 for the full ATQ-R for student responses. Mothers' responses yielded a Cronbach alpha of .91 for the positive self-talk items, .95 for the negative self-talk, and .94 for the full ATQ-R. Fathers' responses yielded a Cronbach alpha of .92 for the positive self-talk items, .93 for the negative self-talk, and .92 for the full ATQ-R.

Family Self-Talk Strategies (FSTS), Parent Version and Student Version

Parents and students completed the FSTS, which is an unstandardized survey created for this study. The survey assesses the degree to which mothers and fathers shared self-talk strategies with their children during childhood. The survey consists of questions such as, "While you were growing up and dealing with difficult feelings, how often did your father share with you the things he might say to himself (think to himself) in dealing with similar feelings?" The eight items are rated on 5-point Likert scale; the first four items pertain to maternal sharing of self-talk, and the last four items pertain to paternal sharing. Higher scores on the FSTS indicate greater endorsement of parental sharing regarding self-talk. Normative data, reliability estimates, and validity estimates have not been studied for this survey. In this study, however, analysis of internal consistency revealed a Cronbach alpha of .87 for students' responses on the maternal items and .91 for students' responses on the paternal items. Mothers' responses yielded a Cronbach alpha of .85 for the maternal items and .92 for the paternal items. Fathers'

responses yielded a Cronbach alpha of .87 for the maternal items and .91 for the paternal items.

Manifest Anxiety Scale (MAS)

Students and parents completed the MAS to assess their level of overt anxiety (Taylor, 1953). The MAS consists of 50 statements which participants rate as true or false. The scale was developed from a pool of anxious statements found on the Minnesota Multiphasic Personality Inventory. The final 50 statements that were chosen were those with high correlations to the total anxiety scores of participants rated as anxious. The test-retest reliability of the MAS has been adequate in a previous study with a Pearson's product-moment coefficient of .89 for a three-week interval and a coefficient of .82 for a five-month interval (Taylor, 1953). In the current study, analysis of internal consistency revealed a Cronbach alpha of .88 for students' responses on the MAS, .86 for mothers' responses on the MAS, and .89 for fathers' responses on the MAS.

Beck Depression Inventory – Second Edition (BDI-II)

To assess depression, students and parents completed the BDI-II (Beck, Steer, & Brown, 1996). The BDI-II is a 21-item self-report measure of emotional and physical symptoms of depression. For each item, participants chose the statement, each assigned a relative value ranging from 0 to 3, that best reflected their degree of each symptom. The symptoms on the inventory correspond to the criteria for depression in the Diagnostic and

Statistical Manual-Fourth Edition (DSM-IV). Normative data for the BDI-II was established using 500 outpatient participants and 120 nonclinical, college controls (Beck et al., 1996). The BDI-II was found to have a coefficient alpha of .92 for the outpatient sample and .93 for the college student controls. The test-retest reliability was found to be .93 across a one-week period for 26 outpatients. The BDI-II has been found to have adequate content, construct, and convergent validity. In the current study, analysis of internal consistency revealed a Cronbach alpha of .88 for students' responses on the BDI-II, .89 for mothers' responses on the BDI-II, and .88 for fathers' responses on the BDI-II.

Rosenberg Self-Esteem Scale (RSES)

Students and parents completed the RSES to assess their level of self-esteem (Rosenberg, 1965). The RSES consists of 10 items rated on a Likert scale from strongly agree to strongly disagree. The scale is coded such that the overall score on the RSES is related inversely to self-esteem levels; in other words, a higher score reflects lower self-esteem. The RSES has had adequate reliability and validity in previous studies and is one of the most widely used measures of global self-esteem. The scale was developed originally for adolescents and was first used on a sample of 5,024 high school juniors and seniors. Analyses of the RSES have yielded Cronbach alpha coefficients ranging from .77 to .88 for internal consistency, and correlations with other common scales of self-esteem ranging from .55 to .83 for convergent validity (Blascovich & Tomaka, 1991; Wylie, 1989). The test-retest coefficient for the RSES was .85 for a two-week interval across 28 college students (Wylie, 1989). The RSES is appropriate for assessing global self-esteem

rather than specific aspects of self-esteem (Wylie, 1989). In the current study, analysis of internal consistency revealed a Cronbach alpha of .90 for students' responses on the RSES, .90 for mothers' responses on the RSES, and .88 for fathers' responses on the RSES.

Parent-Child Relationship Inventory (PCRI)

Parents completed the PCRI, which is 78-item, 4-point Likert scale survey assessing parental attitudes toward their children and parenthood (Gerard, 1994). The scale has seven content scales, one of which, Communication, was used to assess the communication between parents and their children. In addition to the communication subscale, the PCRI provides subscales for Parental Support, Satisfaction with Parenting, Involvement, Limit Setting, Autonomy, and Role Orientation. High scores indicate adaptive parenting and communication characteristics, whereas low scores indicate poor parenting and communication. The PCRI was standardized on more than 1,100 parents and has two validity indicators to gauge a participant's tendency to give socially desirable or inconsistent responses. The PCRI has had acceptable reliability and validity in previous studies (Gerard, 1994). In the current study, analyses of internal consistency revealed a Cronbach alpha of .74 for mothers' responses and .74 for fathers' responses on the communication scale of the PCRI.

Procedure

After receiving Institutional Review Board (IRB) approval, students were recruited from undergraduate-level psychology classes to complete a survey packet in exchange for extra credit. Students signed an informed consent form, completed the packet with assistance (if needed), and were given a debriefing form and a form to request results of the study. Students were asked to provide parents' addresses voluntarily so that parent data could be collected.

A survey packet was mailed to parents whose addresses were provided. The packet included a postage-paid return envelope and instructions explaining that extra credit would be assigned to their child, who is a college student, if the completed surveys were returned to the researcher. Packets also included an informed consent form, instructions for completing the surveys with assistance by phone (if needed), the questionnaires themselves, a debriefing form, and a form for receiving study results.

CHAPTER THREE: RESULTS

The data was analyzed using SPSS for Windows version 11.5 using an alpha level of .05, unless otherwise noted. All data was screened for violations of the assumption of normality and for outliers. Although some of the measures showed a skewed distribution (BDI, MAS, and RSES), they were not adjusted as such distributions were expected for these scales.

Descriptive Statistics

For scores on the ATQ-R, mean ratios of positive to negative self-talk (ST) fell in the successful coping dialogue range for students ($M = .66$, $SD = .11$) and fathers ($M = .59$, $SD = .10$) and in the positive dialogue range for mothers ($M = .70$, $SD = .10$). Mean BDI-II scores fell in the range associated with minimal to no depressive symptoms (i.e., 10 or less) for students ($M = 10.02$, $SD = 7.51$), for mothers ($M = 6.58$, $SD = 6.20$), and for fathers ($M = 5.62$, $SD = 5.42$). Mean MAS scores fell in the nonclinical range for students ($M = 19.07$, $SD = 8.20$), for mothers ($M = 13.23$, $SD = 7.70$), and for fathers ($M = 11.92$, $SD = 7.30$). Mean RSES scores were relatively consistent across students ($M = 17.71$, $SD = 5.16$), mothers ($M = 15.42$, $SD = 6.20$), and fathers ($M = 15.09$, $SD = 4.29$). On the communication scale of the PCRI, mean scores translate to T scores that fell within normal limits for mothers ($M = 28.00$, $SD = 3.22$, $T = 47$) and for fathers ($M = 26.49$, $SD = 3.50$, $T = 46$). These findings suggest that, on average, the participants fell in the nonclinical ranges on all measures of psychological functioning.

Relationship Between College Students' and Parents' Self-Talk

Using Pearson's correlation coefficient, one-tailed tests revealed a significant relationship between students' ST ratios and mothers' ST ratios, $r = .13, p < .05$.

Regarding positive and negative ST specifically, there was a significant relationship between students' and mothers' positive ST, $r = .17, p < .01$, but not between students' and mothers' negative ST, $r = .05, p < .24$. Contrary to the hypotheses, however, the correlation between mothers' and students' positive ST ($r = .17$; z transformation = $.17$) was not significantly greater than the correlation between mothers' and students' negative ST ($r = .05$; z transformation = $.05$) according to a Fisher's r -to- z comparison ($Z = 1.14$; $p < .13$).

The relationship of gender in mothers' and students' ST also was analyzed. Results revealed that daughters' ST ratios were not correlated with mothers' ST ratios, $r = .04, p < .34$, but sons' ST ratios were related significantly to mothers' ST ratios, $r = .25, p < .02$. Contrary to the hypotheses, however, the correlation between mothers' and sons' ST ratios ($r = .25$; z transformation = $.26$) was only marginally greater than the correlation between mothers' and daughters' ST ratios ($r = .04$; z transformation = $.04$) according to a Fisher's r -to- z comparison ($Z = 1.39$; $p < .08$). Regarding positive and negative ST specifically, mothers' negative ST was correlated significantly with daughters' positive ST, $r = .18, p < .03$ and with sons' positive ST, $r = -.32, p < .002$, but was correlated marginally with sons' negative ST, $r = .12, p < .06$. Mothers' positive ST also was related significantly to sons' positive ST, $r = .21, p < .03$. In other words, greater

positive ST and less negative ST in mothers was related to greater positive ST in their sons. More negative ST in mothers was related to *more* positive ST in their daughters.

Concerning fathers, there was a marginal relationship between students' and fathers' ST ratios, $r = .13, p < .06$. In addition, there was a significant relationship between students' and fathers' positive ST, $r = .16, p < .02$, but not between students' and fathers' negative ST, $r = .06, p < .21$. Contrary to the hypotheses, however, the correlation between fathers' and students' positive ST ($r = .16; z$ transformation = .16) was not significantly greater than the correlation between fathers' and students' negative ST ($r = .06; z$ transformation = .06) according to a Fisher's r -to- z comparison ($Z = 0.89; p < .19$).

The relationship of gender in fathers' and students' ST also was analyzed. Results revealed that fathers' ST ratios were not correlated with daughters' ST ratios, $r = .07, p < .25$, and were related marginally to sons' ST ratios, $r = .17, p < .08$. Contrary to the hypotheses, however, the correlation between fathers' and sons' ST ratios ($r = .17; z$ transformation = .18) was not significantly greater than the correlation between fathers' and daughters' ST ratios ($r = .07; z$ transformation = .07) according to a Fisher's r -to- z comparison ($Z = 0.63; p < .26$). Regarding positive and negative ST specifically, fathers' positive ST was correlated significantly with daughters' positive ST, $r = .18, p < .04$, but no significant correlations were found with daughters' negative ST, $r = .03, p < .41$. No significant correlations were found with fathers' and sons' positive ST, $r = .11, p < .17$, or negative, ST, $r = .11, p < .20$. In other words, the greater positive ST in fathers was related to greater positive ST in their daughters.

Relationships Among Self-Talk and Psychological Functioning Variables

To examine the relationships among the variables in the study, Pearson's correlation coefficients were used. As hypothesized, analyses revealed significant relationships of college students' self-talk with depression, anxiety, and self-esteem. First, students' SOM ratios were correlated significantly and negatively with their scores on the BDI, $r = -.73, p < .001$, the MAS, $r = -.67, p < .001$, and the RSES, $r = -.79, p < .01$. Because the RSES yields higher scores for lower self-esteem, the negative correlation between ST and the RSES indicates that more positive ST is associated with greater self-esteem. In other words, more positive the students ST ratios were related to less depression, less anxiety, and more self-esteem.

The relationships among the mothers' and fathers' self-talk, depression, anxiety, self-esteem, and communication were examined, and similar trends were found. Mothers' SOM ratios were correlated significantly and negatively to their BDI scores, $r = -.62, p < .001$, their MAS scores, $r = -.47, p < .001$, and their RSES scores, $r = -.65, p < .001$. Mothers' SOM ratios were correlated significantly and positively to their communication scores, $r = .24, p < .001$. Likewise, fathers' SOM ratios were correlated significantly and negatively to their BDI scores, $r = -.60, p < .001$, their MAS scores, $r = -.61, p < .001$, and their RSES scores, $r = -.64, p < .001$. Fathers' SOM ratios were correlated significantly and positively to their communication scores, $r = .33, p < .001$. In other words, for both mothers and fathers, more positive ST ratios were related to less depression, less anxiety, more self-esteem, and more adaptive communication.

Further, correlations between ST and anxiety, depression, and self-esteem were similar for both male and female students. Both positive and negative ST were correlated in the expected ways with anxiety, depression, and self-esteem. For students, mothers, and fathers, positive ST showed small and medium correlations with anxiety and depression, whereas negative ST showed strong correlations. Both positive and negative ST showed a medium correlation with fathers' self-esteem and strong correlations with students' and mothers' self-esteem. Correlations among positive and negative ST and psychological functioning are depicted in Table 2.

Table 2
Correlations among Self-Talk and Psychological Functioning across Participants

Measure	Students			
	Male ST Ratios	Female ST Ratios	Positive ST	Negative ST
BDI	-.72**	-.76**	-.46**	.74**
MAS	-.61**	-.72**	-.41**	.70**
RSES	-.82**	-.77**	-.62**	.69**
	Mothers		Fathers	
	Positive ST	Negative St	Positive ST	Negative St
BDI	-.38**	.60**	-.29**	.70**
MAS	-.26**	.50**	-.33**	.64**
RSES	-.51**	.51**	-.41**	.62**

Note. * $p < .05$ ** $p < .01$.

Interestingly, students' current grade point average (GPA) was related significantly and positively to mothers' positive ST, $r = .25, p < .005$, and negatively to fathers' negative ST, $r = -.17, p < .05$, but not to any other ST categories including students' ST. No significant relationship existed, however, between the ST of either parents or students and the students' SAT scores. Finally, the relationship between parental ST and students' psychological functioning was analyzed. Fathers' negative ST was related significantly to students' scores on the BDI, $r = .13, p < .05$, the MAS, $r = .18, p < .01$, and the RSES, $r = .19, p < .01$. Only students' RSES scores were related to mothers' positive ST, $r = -.13, p < .04$, and ST ratios, $r = -.13, p < .04$. In other words, more negative fathers' ST was related to more depression, more anxiety, lower self-esteem, and lower GPAs in their children. More positive mothers' ST was related to higher GPAs and higher self-esteem in their children.

Predicting College Students' Self-Talk

To test the hypothesis that parental self-talk was related to their children's self-talk, hierarchical multiple regression analyses were conducted. Separate regression analyses were conducted for maternal and paternal data because the rate of return was not uniform between mothers and fathers. The predicted variable was college students' ST ratios. The predictor variables in step one were maternal or paternal ST ratios. In step two, the set of variables including maternal or paternal depression, anxiety, and self-esteem measures were entered. In step three, the communication measure was entered to determine if these variables were mediators of students' ST.

Ratios of Self-Talk

Analyses revealed that maternal ST ratios accounted for marginal, but not significant, variance in students' ST ratios in step one, $F(1, 157) = 3.13, R^2 = .02, p < .08$. In step two, maternal depression, anxiety, and self-esteem accounted for a significant amount of the residual variance, $\Delta R^2 = .06, p < .03$, and the overall model became significant, $F(4, 154) = 3.24, R^2 = .08, p < .02$. Specifically, maternal scores on the BDI accounted for significant variance in the model, $p < .05$. Entered in the third step, maternal communication accounted for a significant amount of the remaining variance, $\Delta R^2 = .03, p < .03$, and the overall model remained significant, $F(5, 153) = 3.55, R^2 = .10, p < .005$. Means, standard deviations, and betas are depicted in Table 3.

Regarding fathers, analyses revealed that paternal ST ratios did not account for significant variance in students' ST ratios in step one, $F(1, 133) = 2.19, R^2 = .02, p < .14$. Paternal depression, anxiety, and self-esteem also did not account for a significant amount of the residual variance in step two, $\Delta R^2 = .02, p < .49$, and the overall model remained non-significant, $F(4, 130) = 1.16, R^2 = .03, p < .33$. Further, paternal communication did not account for a significant amount of the remaining variance in step three, $\Delta R^2 = .01, p < .24$, and the overall model remained non-significant, $F(5, 129) = 1.20, R^2 = .05, p < .31$. Means, standard deviations, and betas are depicted in Table 3.

Table 3
Hierarchical Regressions for Parental Variables Predicting Students' Self-Talk Ratios

Variable	Mothers					Fathers				
	M	SD	B	SE B	β	M	SD	B	SE B	β
Step 1	(R ² = .02)					(R ² = .02)				
ST Ratios	.70	.10	.15	.09	.14	.59	.10	.132	.09	.13
Step 2	(R ² = .08)					(R ² = .03)				
ST Ratios	.70	.10	-.11	.12	-.10	.59	.10	.06	.13	.05
BDI	7.06	6.43	-.004	.002	-.25*	5.63	5.50	.001	.003	.04
MAS	13.42	7.92	.001	.002	.09	11.79	7.57	-.003	.002	-.23
RSES	15.60	4.66	-.004	.003	-.19	15.15	4.28	.002	.003	.08
Step 3	(R ² = .10)					(R ² = .05)				
ST Ratios	.70	.10	-.11	.12	-.10	.59	.10	.02	.14	.02
BDI	7.06	6.43	-.004	.002	-.22	5.63	5.50	.001	.003	.06
MAS	13.42	7.92	.001	.002	.04	11.79	7.57	-.003	.002	-.26
RSES	15.60	4.66	-.003	.003	-.11	15.15	4.28	.002	.003	.09
Communication	27.99	3.08	-.01	.003	-.18*	26.39	3.28	-.003	.003	-.11

Note. N = 159 for mothers, N = 135 for fathers. For student ST ratios, M = .66, SD = .11.

* $p < .05$ ** $p < .01$.

Positive Self-Talk

Due to parental *positive* ST showing higher correlations with students' ST than parental *ratios* of ST, multiple regressions were run to analyze the amount of variance accounted for in students' positive ST by parental positive ST. Analyses revealed that maternal positive ST accounted for significant variance in students' positive ST in step one, $F(1, 168) = 6.60, R^2 = .04, p < .01$. In step two, maternal depression, anxiety, and self-esteem did not account for a significant amount of the residual variance, $\Delta R^2 = .03, p < .18$, but the overall model remained significant, $F(4, 165) = 2.90, R^2 = .07, p < .02$. Maternal communication, however, did account for a significant amount of the remaining variance in step three, $\Delta R^2 = .04, p < .009$, and the overall model remained significant, $F(5, 164) = 3.80, R^2 = .10, p < .003$.

Additional regression analyses were run to examine the possible mediation effect of maternal communication, without maternal psychological variables, on students' positive ST. Regressions revealed that maternal positive ST was a significant predictor of maternal communication, $F(1, 194) = 12.09, R^2 = .06, p < .001$. Further, maternal communication was a significant predictor of students' positive ST, $F(1, 198) = 15.17, R^2 = .07, p < .001$. Finally, when maternal positive ST and maternal communication were entered together, maternal communication remained a significant predictor, $p < .001$, whereas maternal positive ST was no longer a significant predictor of student positive, $p < .09$. This finding indicates that maternal communication served as a mediator in the relationship of mothers' positive ST and their children's positive ST.

Regarding fathers, analyses revealed that paternal positive ST accounted for marginal, but not significant, variance in students' positive ST in step one, $F(1, 144) = 3.75, R^2 = .03, p < .06$. Paternal depression, anxiety, and self-esteem did not account for a significant amount of the residual variance in step two, $\Delta R^2 = .009, p < .71$, and the overall model remained non-significant, $F(4, 141) = 1.27, R^2 = .04, p < .28$. Paternal communication also did not account for a significant amount of the residual variance in step three, $\Delta R^2 = .002, p < .59$, and the overall model remained non-significant, $F(5, 140) = 1.07, R^2 = .04, p < .38$. Means, standard deviations, and betas are depicted in Table 4.

Table 4
 Hierarchical Regressions for Parental Variables Predicting Students' Positive Self-Talk

Variable	Mothers					Fathers				
	M	SD	B	SE B	β	M	SD	B	SE B	β
Step 1	(R ² = .04)					(R ² = .03)				
Positive ST	33.74	8.68	.18	.07	.19**	34.35	8.57	.15	.08	.16
Step 2	(R ² = .07)					(R ² = .04)				
Positive ST	33.74	8.68	.07	.09	.08	34.35	8.57	.15	.09	.15
BDI	6.81	6.33	-.14	.14	-.11	5.59	5.42	-.05	.22	-.03
MAS	13.27	7.80	.15	.12	.15	11.84	7.50	-.12	.18	-.11
RSES	15.48	4.62	-.35	.21	-.21	15.18	4.26	.19	.23	.10
Step 3	(R ² = .10)					(R ² = .04)				
Positive ST	33.74	8.68	.06	.08	.07	34.35	8.57	.14	.09	.14
BDI	6.81	6.33	-.12	.14	-.10	5.59	5.42	-.04	.22	-.03
MAS	13.27	7.80	.11	.12	.11	11.84	7.50	-.12	.18	-.11
RSES	15.48	4.62	-.18	.22	-.11	15.18	4.26	.20	.23	.10
Communication	27.97	3.13	-.55	.21	-.22	26.21	3.34	-.12	.22	-.05

Note. N = 170 mothers, N = 146 fathers. For students' positive ST, M = 34, SD = 8.
 * $p < .05$ ** $p < .01$.

ANOVAs

Finally, parents' and students' ST ratios were converted from continuous data to categorical data by separating them into the six SOM categories to examine the utility of the SOM categories in relating parents' and students' ST. Ratios of ST endorsed by the participants, however, only fell within the middle four SOM categories. Students' ratings of maternal and paternal sharing of self-talk, as represented by FSTS scores, also were converted from continuous data into categorical data by separating them into four categories. Four ordinal categories were created for both the mother and father scales of the FSTS by placing students who scored in the 4 to 8 range into category one, in the 9 to 12 range into category two, in the 13 to 16 range into category three, and in the 17 to 20 range into category four. For the mother and father scales, respectively, 5% and 13% of students fell in the first category, 16% and 28% fell in the second category, 38% and 31% fell in the third category, and 31% and 15% fell in the fourth category. The uneven cell sizes of the FSTS and SOM data violated the assumption of the analysis and should be interpreted with caution.

A 4 x 4 ANOVA was conducted, with student SOM categories serving as the dependent variable and maternal SOM categories and FSTS categories serving as the independent variables. Results revealed no main effect of maternal SOM on students' SOM, $F(3, 142) = 0.59, p < .62$, and no main effect of students' FSTS ratings of their mothers on students' SOM, $F(3, 142) = 2.06, p < .11$. In addition, no significant interaction effect was found between maternal SOM and students' FSTS ratings of their mothers, $F(6, 141) = 2.06, p < .07$. Another 4 x 4 ANOVA was conducted, with student

SOM categories serving as the dependent variable and paternal SOM categories and FSTS categories serving as the independent variables. Results revealed no main effect of paternal SOM on students' SOM, $F(3, 117) = 1.25, p < .29$, and no main effect of students' FSTS ratings of their fathers on students' SOM, $F(3, 117) = 2.35, p < .07$. In addition, no significant interaction effect was found between paternal SOM and students' FSTS ratings of their fathers, $F(7, 141) = 1.02, p < .42$.

Predicting Students' Psychological Functioning from Self-Talk

Regression analyses were conducted to determine whether positive and negative student ST accounted for significant variance in students' anxiety, depression, and self-esteem. Analyses revealed that students' positive ST accounted for significant variance in students' depression, $F(1, 234) = 64.45, R^2 = .22, p < .001$; anxiety, $F(1, 228) = 45.20, R^2 = .17, p < .001$; and self-esteem, $F(1, 234) = 141.55, R^2 = .49, p < .001$. Furthermore, students' negative ST accounted for a significant amount of the residual variance in depression, $\Delta R^2 = .37, p < .001$; anxiety, $\Delta R^2 = .34, p < .001$; and self-esteem, $\Delta R^2 = .24, p < .001$. In addition, positive ST still accounted for a significant amount of unique variance even after negative ST was added to the model for depression, $p < .001$, anxiety, $p < .03$, and self-esteem, $p < .001$. These findings indicate that students' positive and negative ST serve as significant and unique predictors of their depression, anxiety, and self-esteem. Means, standard deviations, and betas are depicted in Table 5.

Table 5
Hierarchical Regressions for Students' Self-Talk Predicting Psychological Functioning

Variable	BDI			MAS			RSES		
	M	SD	β	M	SD	β	M	SD	β
Step 1	$(R^2 = .22)$			$(R^2 = .17)$			$(R^2 = .37)$		
Positive ST	33.89	8.06	-.47**	33.88	8.04	-.41**	33.89	8.04	-.61**
Step 2	$(R^2 = .59)$			$(R^2 = .51)$			$(R^2 = .61)$		
Positive ST	33.89	8.06	-.19**	33.88	8.04	-.11*	33.89	8.04	-.39**
Negative ST	17.41	5.99	.67**	17.32	5.89	.66**	17.42	6.00	.54**

Note. N = 236 for BDI and RSES, N = 230 for MAS. * $p < .05$ ** $p < .01$.

CHAPTER FOUR: DISCUSSION

Findings of this study support the hypothesis that parents' and students' self-talk are related. Student self-talk ratios showed a significant correlation with mothers' self-talk ratios and a marginally significant correlation with fathers' self-talk ratios. In particular, students' positive self-talk was correlated significantly and positively with both mothers' and fathers' positive self-talk. Conversely, students' negative self-talk was not correlated significantly with mothers' or fathers' negative self-talk. Fisher's *r*-to-*z* test, however, did not support the hypothesis that parents' and children's positive self-talk were related significantly more than their negative self-talk. Previous research has found that positive statements from parents are related significantly to students' positive self-talk (Burnett, 1996; Burnett & McCrindle, 1999). In addition, previous research has found that self-talk is related to the statements made aloud to others regarding the self (Beth, 1999). The findings of this study and previous research, although not causal, suggest the possibility that parental positive self-talk may be related to their students' positive self-talk via the statements they communicate aloud. The reason that this relationship is not significant for negative self-talk needs to be explored in future research.

Regarding gender, sons' self-talk ratios were related significantly and positively to mothers' self-talk ratios and marginally to fathers' self-talk ratios. Daughters' self-talk ratios were not related significantly to either mothers' or fathers' self-talk ratios. Fisher's *r*-to-*z* test, however, did not support the hypothesis that parental self-talk was related more to sons' self-talk ratios than daughters' self-talk ratios. Regarding positive and

negative self-talk across genders, daughters' positive self-talk was correlated positively with fathers' positive self-talk. Interestingly daughters' positive self-talk also was correlated *positively* with mothers' negative self-talk. This relationship is in the opposite direction of the hypotheses, which postulated that more negative maternal self-talk would be related to more negative self-talk in their daughters. One possible explanation may come from previous research (Burnett, 1996; Burnett & McCrindle, 1999), which suggests that social interactions outside the family may play a larger role in self-talk development for girls than for boys. It may be the case that the more negative a mother's self-talk, the more that her daughter relies on social interaction with peers and teachers for modeling positive self-talk. Future research needs to determine explanations for why greater maternal negative self-talk would be related to greater positive self-talk in their daughters. Daughters' negative self-talk was not related to either parents' positive or negative self-talk. In contrast, sons' positive self-talk was related positively to mothers' positive self-talk and negatively to mothers' negative self-talk, but not to fathers' self-talk. Sons' negative self-talk was related marginally to mothers' negative self-talk, but not to fathers' self-talk. In other words, daughters have greater positive self-talk when their fathers' self-talk is more positive and their mothers' self-talk is more negative. In contrast, sons have greater positive self-talk when their mothers have more positive and less negative self-talk. Previous research has found that positive statements from parents are related significantly to sons' self-talk (Burnett, 1996; Burnett & McCrindle, 1999). Thus, the findings of this study are congruent with previous research and suggest that it

may be the positive statements made by parents that lead to the development of positive self-talk in their sons.

In addition, findings of this study support the hypothesis that self-talk is related negatively to depression and anxiety and is related positively to higher self-esteem and better communication for all three participant groups (mothers, fathers, and students). Further, students' positive and negative self-talk serve as significant predictors of students' depression, anxiety, and self-esteem. These results support previous research, which has demonstrated that using both positive and negative self-talk predicts significantly more of the variance in psychological functioning than either positive or negative self-talk alone (Calvete & Cardenoso, 2002; Kendall et al., 1989; Ronan & Kendall, 1997; Schwartz & Garamoni, 1989). The findings of this study and previous research lend credence to the use of ratios in the study of self-talk and psychological functioning. Contrary to expectation, however, using self-talk ratios and the SOM categories was not useful in analyzing the relationship between parent and student self-talk. The findings of this study suggest that, although it is better to use both positive and negative self-talk together when analyzing psychological functioning, it is more useful to consider positive and negative self-talk separately when analyzing self-talk in parents and their children. In particular, positive self-talk between parents and their children is related significantly, whereas negative self-talk is not.

Results of this study also demonstrated that mothers' positive self-talk and fathers' negative self-talk were related to students' current GPA but not their SAT scores. This finding is interesting because students' GPA standings are related more to effort and

study strategies than their SAT scores, which are designed to reflect aptitude more than effort. One possible explanation is that parents' self-talk influences the way they teach children to approach and persist at tasks such as schoolwork. In other words, parents' self-talk may be influencing their self-statements and comments around their children (Beth, 1999), and parents may be structuring their children's task-oriented self-talk and behavior (Behrend et al., 1992) based on their own self-talk. Future research would need to assess whether the relationship between parental self-talk and their children's GPA is causal, as this study only provides a correlational link. If a causal path were found, it may be possible that changing parents' self-talk through SSM could lead to a change in their children's GPA through improved task-oriented self-talk.

In regression analyses, the only significant predictor of students' self-talk was found in predicting students' positive self-talk from maternal positive self-talk. In contrast, paternal positive self-talk predicted marginally students' positive self-talk. The hypothesis that parental anxiety, depression, and self-esteem would mediate the relation between parent and student self-talk was not supported. The hypothesis that parents' communication would mediate the relation between parents' and students' self-talk was supported for mothers' positive self-talk. In other words, maternal communication mediates the relationship between mothers' and their children's positive self-talk. Given the pattern of the regression results, it may be the case that maternal positive self-talk influences the communications they express to their children, who, in turn, develop their self-talk based on their mothers' communications. The correlational relationships found in this study provide support for future research to examine the possible causal path from

maternal self-talk and communication to child self-talk. Future research also needs to examine whether the relationships among mothers' and children's self-talk and maternal communication are larger when children are younger, are developing their own self-talk styles, and thus are possibly more affected by the self-talk and communication of their mothers.

Although the results of this study are correlational and not causal, it is plausible that modifying mothers' positive self-talk and mothers' communication could create subsequent changes in their children's positive self-talk. Future research should address the possibility of causality, both to determine if maternal SSM and communication therapy could improve their children's positive self-talk and to determine if these changes in children's self-talk would reduce their anxiety and depression. Based on previous research, it is likely that a change in children's positive self-talk would lead to a change in psychological health (Dush et al., 1989). It is also plausible that changing maternal positive self-talk and communication could be related to long-term changes in their children's self-talk in light of the age of the participants in this study. Students' self-talk was related to their mothers' self-talk even as they were reaching adulthood, despite presumably more time to have been changed by other experiences and to have drifted away from their mothers' self-talk style. Although fathers' positive self-talk served as a marginal predictor of students' positive self-talk in general, fathers' positive self-talk was correlated significantly with daughters' positive self-talk. These findings suggest that it may be worthwhile for future research to examine if this is a causal relationship, and if so, to develop specific targets in SSM. In other words, if the relationship between

parents' and their children's self-talk is causal, it may be beneficial for SSM to focus on fathers' positive self-talk when targeting improvement in daughters' positive self-talk and on mothers' negative self-talk when trying to change daughters' negative self-talk. When targeting sons' positive self-talk, it may be beneficial to focus on both mothers' positive and negative self-talk. Finally, when targeting children's positive self-talk, it may be beneficial to focus on maternal communication, as this variable mediates the relation between mothers' and their children's positive self-talk.

Another important and related question for future research may be whether parents' positive self-talk is related more significantly to their children's self-talk in early years, before other social interactions influence their self-talk (Burnett, 1996; Burnett & McCrindle, 1999). If this were the case, early SSM of parents may have a greater impact on the self-talk of their children and may even serve to mediate the influence of peers and teachers on the development of self-talk in their children (Burnett & McCrindle, 1999). Finally, if changing parental self-talk leads to a change in their children's self-talk, future research will need to address whether there is an optimal period of influence, or a sensitive period, for effecting a change in children's self-talk.

One important limitation of this study was the education level of the participants. All of the student participants were attending a large university and had parents who reported high levels of education relative to the general population. High education levels such as these are related to a higher socioeconomic status and to lower levels of psychopathology (de Graaf, Bijl, & Smit, 2002; Mizell, 1999). Thus, this study likely had a sample of high functioning participants. These characteristics may explain why, on

average, parents' and students' self-talk ratios fell within the Successful Coping Dialogue and Positive Dialogue ranges. Further, this distribution may have limited the degree of relationship between parent and student self-talk due to a restricted range. Future research needs to address whether a wider range of psychological functioning and self-talk in the sample would yield higher correlations between parents' and students' self-talk. Finally, the sample used in this study is limited in its generalizability. This sample consisted only of college students attending a southeastern university whose ethnicities were not representative of the general population.

Another limitation of this study was the exclusive use of self-report surveys. Future research needs to confirm the findings of this study using other methods of measurement, such as behavioral observation, time-interval sampling, and physiological markers. Such research would ensure that the relationships are a function of similarities between parents' and children's self-talk and not an artifact of measurement technique (e.g., similar tendency toward social desirability in self-reports).

Collectively, the findings of this study indicate that parents' and students' positive self-talk tend to be related and that their negative self-talk tend not to be related. Furthermore, maternal positive self-talk serves as a significant predictor of the positive self-talk that develops in their children, and this relationship is mediated by maternal communication. The students' positive self-talk, in turn, serves as a significant predictor of their depression, anxiety and self-esteem. Finally, significant gender effects were found. Fathers' positive self-talk was related significantly to daughters' positive self-talk. Mothers' negative self-talk was related significantly to daughters' negative self-talk. No

significant relationships were found between sons' self-talk and fathers' self-talk; however, sons' positive self-talk was related significantly to mothers' positive and negative self-talk. These findings lend promise to the possibility of improving children's self-talk through self-talk modification and communication therapy being provided to their parents. These findings also support previous research in emphasizing the importance of self-talk in psychological functioning. Moreover, the fact that a relationship existed between parents' and college students' self-talk suggests the possibility of a long lasting relationship between parent and child self-talk.

APPENDIX: IRB APPROVAL



Office of Research

July 30, 2004

Reesa Donnelly
Ph.D. Candidate
University of Central Florida
Department of Psychology
Orlando, FL 32816-1390

Dear Ms. Donnelly:

With reference to your protocol entitled, "Self-Talk from Parent to Child," I am enclosing for your records the approved, expedited document of the UCFIRB Form you had submitted to our office.

Please be advised that this approval is given for one year. Should there be any addendums or administrative changes to the already approved protocol, they must also be submitted to the Board. Changes should not be initiated until written IRB approval is received. Adverse events should be reported to the IRB as they occur. Further, should there be a need to extend this protocol, a renewal form must be submitted for approval at least one month prior to the anniversary date of the most recent approval and is the responsibility of the investigator (UCF).

Should you have any questions, please do not hesitate to call me at 823-2901.

Please accept our best wishes for the success of your endeavors.

Cordially,

A handwritten signature in cursive script that reads "Barbara Ward".

Barbara Ward, CIM
Institutional Review Board (IRB)

Copies: Dr. Kimberly Renk, Department of Psychology
IRB File

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