Personal and Interpersonal Predictors of Worry in Male and Female High School Students

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Personal and Interpersonal Predictors of Worry
in Male and Female High School Students

BY

Barbara Anne Davis

THESIS
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Specialist in School Psychology

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

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Personal and Interpersonal Predictors of Worry

In Male and Female High School Students

Thesis for a Specialist’s Degree

In School Psychology

Eastern Illinois University

Charleston, Illinois

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ABSTRACT

This study identified which among several factors would best predict the tendency to worry in male and female adolescents. The potential predictors were divided into two different categories: personal and interpersonal factors. Personal factors included perfectionism, self-consciousness, and locus of control. Interpersonal factors included parental attachment, parenting style, and peer attachment.

Participants in the study completed several scales that measured the predictors. The data were then analyzed to determine the relative contribution of each factor in predicting worry, and to specify the factors that best predict worry. Gender differences in worry levels and in how the factors predicted worry were also examined.

Multiple regression analyses were conducted and results indicate that self-consciousness (personal factor) was the single best predictor for the tendency to worry in female adolescents. In other words, the more self-conscious a girl was purported to be, the more likely she was to worry. Meanwhile, for male adolescents, the best set of predictors included perfectionism (a personal factor) and parental attachment (an interpersonal predictor). The more perfectionistic and less securely attached the male child is to his parent(s), the more likely that adolescent was to worry.

However, analyses also indicate that gender differences in worry predictions cannot be accounted for solely by personal and interpersonal factors, and may be better explained by other factors not examined in the study. These factors help frame the discussion of the findings. Issues in worry and attachment theory are also discussed.
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Personal and Interpersonal Predictors of Worry

In Male and Female High School Students

This study identifies the factors that best predict the tendency to worry in male and female adolescents. Eighty high school students (40 girls and 40 boys) participated in the study by responding to psychological scales that measured a number of factors linked to worrying in previous research. Issues in worry and attachment theory frame the discussion of the study results.

Worrying is a term that is used in different ways in different contexts. When used in the context of psychopathology, worrying tends to be viewed as an unwanted, uncontrollable, aversive cognitive activity associated with negative thoughts and some sense of emotional discomfort (Borkovec, 1994). However, in other contexts, worrying can be viewed as a constructive and appropriate task-oriented process that contributes to the problem solving and the reduction of anxiety (Davey, Tallis, & Capuzzo, 1996). Thus, worry can be placed on a continuum from chronic and intrusive to mild and constructive. For some it may present a major obstacle to happiness; for others it is a very common, normal, human experience. In fact, for a large percentage of the normal population, worry is a relatively routine activity, occurring more or less every day. The average worry episode lasts between 5 and 10 minutes; however, roughly 50% of individuals will worry, on average, within the range 1 to 30 minutes (Tallis, Davey, & Capuzzo, 1994). Meanwhile, according to Kelly & Miller (1999), chronic worriers spend up to about eight hours a day fretting. This disrupts their lives and is clearly seen as a problem.
Consider the following situation. You have decided to carpool with a close friend. She calls to let you know she is on her way. As you wait for her to arrive, a few minutes turn into 10; 10 minutes turn into 20. You start to think to yourself, “What is taking so long? Maybe she got held up at home. Maybe she got caught in traffic. But wait. What if she forgot where I live? What if she forgot to pick me up? What if she got into an accident and is lying by the side of the road somewhere? What if…?!”

Chronic worriers are frequently afraid that bad events are going to occur in the future. Their constant worry is being triggered, often outside of their awareness, by a number of internal cues and environmental reminders of an upcoming event. However, the actual threat exists primarily in their minds—in thoughts and images about what they think the future might hold. In essence, there is no place to run, no place to hide, and, in actuality, nothing to fight. Worrying, then, is one of the few remaining activities left available for worriers in their attempts to avoid predicted, often exaggerated, catastrophe (Borkovec, 1994).

Worry may also lead to more severe and clinically-recognized psychopathological disorders such as Generalized Anxiety Disorder (GAD), with its central feature of chronic worry (American Psychiatric Association Diagnostic Statistical Manual of Mental Disorders: Text Revision, 2000). Moreover, past research suggests that worrying may be a highly significant contributor to the maintenance of anxiety, not only for GAD but possibly for other anxiety disorders as well (Borkovec, 1994). According to Pruzinsky and Borkovec (1990), worrying has been found to be associated with 40 to 60% of all of the remaining anxiety disorders. Meanwhile, Brown, Antony, and Barlow (1992) found that scores on the Penn State Worry Questionnaire (PSWQ) distinguished
GAD subjects from all other anxiety disorder patients, and that patients diagnosed as suffering from all other anxiety disorders (panic disorder, panic disorder with agoraphobia, social phobia, simple phobia, obsessive-compulsive disorder) also scored higher on worry than normal subjects.

Worry also appears to be a common phenomenon among children (Vasey & Daleiden, 1994). In fact, while excessive worry is also characteristic of several anxiety disorders that occur in childhood, worry is common even among normal children (Vasey, Crnic, & Carter, 1994). For example, Bell-Dolan, Last, and Strauss (1990) evaluated a sample of “never-psychiatrically-ill” children ages 5 to 18 and found that over 30% possessed symptoms of excessive worry. Less severe levels of worry are even more prevalent. Orton (1982) found that over 70% of fifth and sixth graders reported 10 or more things about which they worry. Finally, Brown, O’Keefe, Sanders, and Baker (1986) asked children to describe thoughts that would occur to them in various stressful situations and found that anxious anticipation and catastrophizing thoughts were common in children from middle childhood through late adolescence, or from ages 8 to 18 years.

**Value of Understanding Worry in Children & Adolescents**

As prevalent as worry seems to be in children and adolescents, it is unfortunate that most literature on worry focuses on worry among adults. Separate studies on worry in children and adolescents are especially important since dramatic changes in children’s cognitive, social, and emotional development may have significant implications for understanding the role of worry in childhood anxiety (Vasey & Daleiden, 1994). In fact, according to the DSM-IV-TR (2000), worry in its more severe form is also the defining feature of a childhood anxiety disorder category labeled as Overanxious Disorder of
Childhood. Furthermore, by understanding which factors contribute to worry among children and adolescents, researchers and practitioners alike may gain insight into the development of worry in later adulthood and thus help prevent the onset of adult anxiety disorders such as Generalized Anxiety Disorder (GAD).

Defining Worry & Anxiety

In the past, the terms worry and anxiety were often used synonymously; however, these two constructs are conceptually separate. Subtle differences in definition exist and, therefore, must be emphasized. Anxiety generally has been conceptualized as a global, all-encompassing construct, with definitions including somatic sensations (sweating and heart palpitations), cognitive elements (fear and apprehension), and behavioral components (avoidance and escape). Worry, on the other hand, has been more narrowly conceptualized to be cognitive in nature, focusing on excessive or unrealistic concern about future events (Zebb & Beck, 1998).

Therefore, the central aspect of most definitions of worry is the recognition that worry is a cognitive process rather than an event or state of being. According to Kelly & Miller (1999), it involves a process where an individual is preoccupied with a potential threat. Worry can be viewed as a concern over future events, a persistent awareness of potential future danger, or a preoccupation with possible failures. An important, fundamental characteristic of worry is that it involves a type of internal, verbal-linguistic activity (Borkovec, 1994). According to Borkovec (1985), worrying can be defined as a chain of negative and relatively uncontrollable images and thoughts that appear to take on a life of their own. For example, a worry pattern might sound like this:
What if what I said upset my son? He may never call me again. He might tell everyone else in the family. Maybe everyone else will become angry with me. Maybe everyone will stop calling or stopping over to visit. I will become a very lonely, depressed, old person. (Kelly & Miller, 1999, p. 56)

While this example may seem extreme, it illustrates how worrying involves a stream of negative thoughts and images that become emotionally charged. Meanwhile, other definitions of worry include worry as an awareness of possible future danger, which is repeatedly rehearsed without being resolved (Mathews, 1990); and worry as a chain of thoughts and images surrounding an issue with an outcome that is uncertain but contains the possibility of one or more negative outcomes (Borkovec, Robinson, Pruzinsky, & DePree, 1983).

In general, and for purposes of this study, worry is an anticipatory process involving repetitive, unwanted, and intrusive thoughts whose content pertains to potentially threatening possibilities and their implications (Vasey & Daleiden, 1994). Furthermore, as in previous research, the defining features of worry in childhood for this study remain fairly consistent with current adult definitions.

Therefore, worry in childhood can be defined as an anticipatory cognitive process involving repetitive, primarily internal, verbal thoughts related to possible threatening outcomes and their potential consequences. However, worry typically involves more than the anticipation of a single threatening event. The worrier also verbally elaborates and perhaps exaggerates an event’s potential negative consequences. Like their adult counterparts, children who worry may also selectively interpret ambiguous stimuli as threatening (Vasey & Daleiden, 1994).
Finally, worry must be differentiated from the normal adaptive process of anticipating and preparing for possible negative events. Vasey and Daleiden (1994) argue that the anticipation of possible threats to one’s well-being may be considered an important, normal, human activity. They further suggest that a certain amount of negative “concern” on a child’s part is necessary to motivate the consideration of possible shortcomings of their plans or obstacles that may interfere with their plan’s implementation. The anticipation of future events or threats may therefore produce mild anxiety that seems to serve as a cue for adaptive efforts to take place to prepare for or prevent such possibilities. These types of concerns, however, do not constitute worry. Worrisome thoughts, on the other hand, are difficult to control, are often repetitive and intrusive, and do not lead to effective problem-solving (Borkovec, 1994). Hence, instead of constructively devising strategies for preventing or overcoming problems, when worried, children shift to strategies geared toward avoiding negative outcomes seen as unrealistically likely.

In keeping with current theories on adult worry, Vasey and Daleiden (1994) assert that worry is primarily an attempt to anticipate and avoid all possible negative outcomes. Thus, worry is a distortion of normally adaptive attempts at anticipating and preparing for future events. It rarely leads to effective solutions because problem-solving attempts are disrupted by further anticipations of problems or cognitive avoidance (Vasey & Daleiden, 1994).

*Development of Worry*

As stated earlier, to worry, a child must be capable of anticipating future events. Such anticipation requires the ability to go beyond what is observable and consider what
is merely possible. Thus, the ability to anticipate and reason about possibilities seems to follow a predictable developmental course that is characterized by three stages (Vasey et al., 1994). According to Piaget, children are unlikely to consider more than a single solution to a problem and view it as the only possible solution prior to 6 to 7 years of age. However, in middle childhood, understanding of multiple possibilities increases and children can consider a larger number of possibilities via deductive reasoning. Finally, the attainment of formal reasoning skills brings the understanding that some problems have an infinite number of solutions (as cited in Vasey et al., 1994).

Therefore, as children's ability to reason improves, their ability to consider many different threatening outcomes and the potential to elaborate their anticipated negative consequences should also increase. Past research supports such increases in worrying from early (12-year-olds) to late adolescence (18-year-olds) (Vasey et al., 1994). The present study will focus on adolescents in a high school sample.

Negative Correlates and Consequences of Worrying

Previous research has found that certain variables seem to be related to one's tendency to worry. According to Borkovec (1985), those who have a higher tendency to worry are more likely to be anxious, tense, apprehensive, physically upset, obsessive, and publicly self-conscious than their non-worrying counterparts. Likewise, Meyer, Miller, Metzger, & Borkovec (1990) have found that chronic worriers are self-evaluative, avoidant, perfectionistic, and time-urgent. There also seems to be a high correlation between worry and depression (Borkovec, 1994). Zebb and Beck (1998) have found that negative affect and lack of personal control are highly associated with worry, and, in fact, are more highly associated with worry than with somatic anxiety. Meanwhile, according
to Kelly and Miller (1999), a person's self-image is often defined by the content of his or her thinking patterns. So if one's thoughts are dominated by constant fears of the future, for example, then one's self-image could be adversely affected. Finally, according to Beck and Freeman (1990), worriers may also feel inadequate and, in turn, question their own ability to make appropriate decisions or find solutions that would get them out of a threatening situation. Therefore, they may constantly seek reassurance from others that they have reacted appropriately.

Other research has found that measures of worry are highly correlated with a number of variables normally considered to be features of poor psychological functioning. These include trait anxiety, avoidance coping, poor problem-solving confidence, responsibility for negative but not positive outcomes, and the tendency to define events as threats (Davey, Hampton, Farrell, & Davidson, 1992). Worrying also disrupts effective performance, exaggerates existing problems, and causes emotional distress (Davey et al., 1996).

Like their adult counterparts, children and adolescents tend to experience negative consequences from worrying as well. Past research has shown that excessive worry has a detrimental effect on health. Fatigue, headaches, stomachaches, colds, and insomnia are problems well-represented among children and adult worriers alike (Tallis et al., 1994).

*Potential Predictors of Worry*

Numerous studies have investigated various factors that may contribute or be related to the worry phenomenon. However, these factors are often examined separately and correlated with worry. In other words, there seems to be a lack of research that examines these factors in combination. Therefore, the present study was designed to
examine the relative contribution of each factor in predicting worry, and in specifying which factor best predicts worry. Furthermore, the present study attempted to answer the following specific questions: What set of factors best predicts the tendency to worry among adolescents? Are personal factors or interpersonal factors better predictors of their tendency to worry?

**Personal Factors**

For the purposes of this study, personal factors refer to variables that describe one's personality and are dispositional in nature. These include perfectionism, locus of control; and self-consciousness, individual characteristics that have previously been linked to the construct of worry.

*Perfectionism.* Perfectionism can be conceptualized as a multidimensional construct involving excessive self-criticism associated with high personal standards, doubts about the effectiveness of one's actions, concerns about meeting social expectations (typically those of the parents), and an excessive focus on organization and neatness (Frost, Marten, Lahart, & Rosenblate, 1990). According to Frost et al., it is a combination of high standards and self-criticism associated with the different aspects of perfectionism that distinguish healthy perfectionism from unhealthy perfectionism. Whereas normal perfectionists might set very high standards for themselves but abstain from severe negative self-evaluations, neurotic perfectionists are neither likely to accept nor appreciate themselves unless they are able to obtain perfection in everything they do. It is as if they are held prisoner to "the tyranny of the shoulds" (Wyatt & Gilbert, 1998). These are individuals who are afraid of making mistakes, who frequently second-guess their own decisions, who procrastinate, and for whom perfectionism creates an obstacle
for action. Normal perfectionists, on the other hand, are individuals for whom perfectionistic strivings motivate, rather than paralyze. Perfectionism actually encourages rather than inhibits achievement (Frost et al., 1990).

Hewitt and Flett (1991) distinguish among three dimensions of perfectionism. Self-oriented perfectionism involves self-directed perfectionistic behavior with the setting of unrealistically high standards for oneself. Other-oriented perfectionism involves setting unrealistically high standards for others, placing great importance on others being perfect. Socially-prescribed perfectionism involves the belief that others expect very high and/or perfect standards for oneself. This dimension of perfectionism deals with the concern of not being able to meet or live up to everyone else’s standards. Socially-prescribed perfectionists fear negative evaluation by others.

While perfectionism has been linked to worry, limited research exists in this area. One study, conducted by Rice, Ashby, & Preusser (1996), found that greater perfectionism in both younger and older adults was significantly and positively correlated with worry and negative affect, including depression, anxiety, and hostility. No studies to date, however, have investigated the relationship between one’s tendency to worry and perfectionism in children or adolescents.

*Locus of Control.* Locus of control is defined as an individual’s belief that the consequences of his or her actions are controlled by internal personal variables or by external environmental variables. Previous research has discovered that worriers are more likely to have an external locus of control than nonworriers. An external locus of control is defined as the feeling that events are related to outside forces, such as luck or fate, and thus are not readily controlled by the individual (Powers, Wisocki, &
Whitbourne, 1992). In a study conducted by Bennet and Stirling (1998), individuals with anxiety disorders were found to have a more external locus of control than individuals without anxiety disorders. Furthermore, individuals reporting high anxiety were found to have a more external locus of control than individuals reporting low anxiety. It is argued that an external locus of control may lead to the employment of inappropriate defenses and poor coping strategies which, according to Andrews (1991), contribute to an individual’s vulnerability to anxiety.

**Self-Consciousness.** Self-consciousness is defined as the awareness of oneself as an object and the awareness of one’s thoughts, feelings, and attitudes (Wyatt & Gilbert, 1998). Previous research has also linked self-consciousness to the tendency to worry (Borkovec, 1985). According to Pruzinsky and Borkovec (1990), worriers report being more publicly self-conscious and more socially anxious. In fact, as stated by Molina and Borkovec (1994), there appears to be a very strong and intimate link between worry and social evaluation. In past studies of college student samples, high scores on worry questionnaires have been found to be associated with high degrees of social anxiety, and public and private self-consciousness, as well as high perfectionism. This finding further coincides with the work of Wyatt & Gilbert (1998), who found that there seems to be a relationship between perfectionism and self-consciousness, and even dysfunctional relationships. Perfectionistic people are often socially tense, and socially-prescribed perfectionists are more likely to be sensitive to feedback from their social environments. They have a tendency to be very self-conscious and to view themselves unfavorably which, in turn, is often associated with a number of psychological problems such as depression or neuroticism.
Interpersonal Factors

Interpersonal factors, on the other hand, are social variables that are environmental in nature. Little research has been conducted to investigate the relationship between one's tendency to worry and one's relationship with other people. However, there seems to be a link between one's attachment style and the tendency to worry (Vivona, 2000). Therefore, the particular selection of interpersonal variables for the present study is based primarily on attachment theory, and includes one's relationship with parents, one's relationships with peers and the type of parenting style one experienced as a child.

Relationship with Parents. Attachment theory (Bowlby, 1969) emphasizes the lifelong importance of the attachment system, developed within the infant's earliest relationships, for normative development. An infant whose parent responds appropriately and consistently to expressions of need becomes confident that those needs will be met; and subsequently, will develop a secure attachment style, which will allow the infant to explore his or her world and foster self-development. When parents are chronically unreliable, inconsistent, or intrusive or rejecting, infants must divert energies from development to minimize distressing interactions with parents and to manage frustration due to unmet needs (Vivona, 2000).

According to the existing worry literature, there seems to be a link between one's attachment style and the tendency to worry. According to Vivona (2000), insecurely attached late adolescents report greater depression, anxiety and worry than their securely attached counterparts. Also, in a study conducted by Borkovec (1994), insecure
attachment seems to contribute to the development of adult Generalized Anxiety Disorder (GAD).

**Parenting Style.** Parental authority style can fall into one of three categories: authoritarian, permissive, or authoritative. According to Flett, Hewitt, and Singer (1995), authoritarian parents tend to be restrictive, punitive, and overcontrolling. Children respond to the perceived harshness of their parents with externalizing (e.g., aggression) or internalizing (e.g., anxiety) behaviors. Exposure to this parenting style is also associated with poor intellectual and social development and negative self-concepts. Permissive parents, on the other hand, show little involvement to the extent of disinterest in their child. This type of parenting is also associated with internalizing and externalizing symptoms in children. Finally, authoritative parenting uses discipline with reason and warmth. That is, guidelines are set out for the child but reasons for these guidelines are communicated in the way that signifies a warm and caring attitude.

There is no previous research on the effects of one's received parenting style as a child and one's tendency to worry. However, Bowlby (1977) suggested that “distorted” parenting (e.g., unresponsiveness, criticism, rejection, threats of abandonment, or an inversion of the child-parent relationship) may have some bearing on anxiety disorders. Similarly, Silove, Parker, Hadzi-Pavlovic, Manicavasagar, and Blaszcznski (1991) found that individuals with Generalized Anxiety Disorder (GAD) rated their parents as less caring and more overprotective than did normal individuals.

Furthermore, as stated earlier, parenting style has been associated with children’s intellectual and social development and self-concept. According to Vasey and Daleiden (1994), the content of children’s worries reflects their developing understanding of
themselves, others, and the world in general. Also, because worry in childhood is predominantly self-referent (Borkovec, 1994), its content should be tied to the development of children’s self-definitions, which may be affected by the way they were raised. Self-concept development is a reflection of growth in a wide range of social and cognitive domains, such as the ability to take another’s perspective and the ability to engage in social comparison. The content of children’s worrisome thoughts should reflect developmental changes in their emerging perceptions of themselves and their relationship to their physical and social environments (Vasey & Daleiden, 1994).

Finally, if a child’s tendency to experience uncontrollable worry is related to maladaptive coping strategies (Vasey & Daleiden, 1994), then an examination of the origin and growth of such responses makes sense. In general, young children rely heavily upon others to regulate their emotional states, particularly through the responses modeled and taught by their parents. Ideally, parents and other adults would enable children to learn effective skills for managing anxiety and other emotions. However, it is likely that parents inadvertently teach various ineffective anxiety-management strategies through their own behavior or parenting style. It is possible, then, that the parents of anxious and worrisome children may have failed to inculcate effective coping skills (Vasey & Daleiden, 1994).

**Relationship with Peers.** Currently, there are no studies that examine the connection between children’s relationship with peers and their tendency to worry. However, according to Vasey et al. (1994), the prevalence of worry about social evaluation and psychological well-being increases significantly with age, especially in
the school setting. One’s relationship with peers may further have a bearing on one’s self-concept which, in turn, has been associated with worry in the past.

Gender Differences in Worry

Gender differences also appear in studies of worry frequency. Women apparently worry more than men do (McCann, Stewin, & Short, 1990). According to Vasey and Daleiden (1994), girls score higher on measures of anxiety than do boys, as well as on specific measures of worry frequency. Such findings are consistent with previous studies of normal school children in which girls reported significantly more worries than boys (Perrin & Last, 1997; Silverman, La Greca, & Wassertein, 1995). Meanwhile, Orton (1982) found that female children report more worries than their male counterparts in regards to family, personal adequacy, personal health or well-being, and imaginary or unreasonable concerns. Simon and Ward (1982) also found that 12 and 13-year-old female students report more worries than male students in the domains of family, social relationships and situations, school, and imaginary concerns.

Because gender differences in domains of worry were found in past research, this study will further examine whether gender differences exist in how the personal and interpersonal factors predict worry among adolescents. In other words, which factors best predict worry in girls? Which factors best predict worry in boys?

Significance of the Study

Studying the factors that best predict adolescents’ tendency to worry is important for several reasons. First, while research on adult worry increases, little of the literature concerns worry in children and adolescents. Second, while many studies investigate separate factors associated with worry (e.g., Rice et al., 1996; Bennet & Stirling, 1998;
Borkovec, 1985), no research to date examines the relative contribution of each factor in predicting worry, and in specifying which factor best predicts worry. Finally, researchers have asserted that the increased ability to conceptualize elaborate sequences of negative consequences is likely to increase the potential severity and generality of worry in individuals. If this perspective holds true, then generalized anxiety disorders should become increasingly prevalent as time goes on; and the role of worry in mediating anxiety should also increase as children develop (Vasey & Daleiden, 1994). By understanding the relationships among worry and its personal and interpersonal factors, it may be possible to alleviate worrying in individuals and perhaps even prevent adolescent worriers from becoming maladaptive adult worriers.

Hypotheses

As stated earlier, the present study attempts to answer the following questions:

Given a set of factors, which best predicts the tendency to worry among adolescents?

Are personal factors or interpersonal factors better predictors of the tendency to worry?

Do gender differences exist in how the personal and interpersonal factors predict worry among adolescents?

It is predicted that, overall, personal factors will better predict the tendency to worry among adolescents. As a whole, personal factors describe aspects of one’s disposition or personality and, therefore, are more directly related to worry. People who describe themselves as perfectionistic, self-conscious, and having an external locus of control will be more likely to worry. Meanwhile, the interpersonal or social factors in this study may explain how and what people become later in life, but there could also be
other variables working for them that prevent people from feeling insecure or inadequate. These may not be more direct predictors of one's tendency to worry.

Among the personal factors, it is predicted that perfectionism in general will be a strong predictor of worrying. According to Beck & Freeman (1990), worriers, like perfectionists, have the underlying belief that they “should” be able to identify a suitable, or even better, solution to current problems. They may feel that they should be able to find the perfect solution whereby all parties involved will be satisfied. This strongly resembles those with perfectionistic attitudes.

It is also hypothesized that the more insecurely attached an adolescent is to his or her parent, the more likely it is for him or her to worry. Likewise, it is predicted that the more authoritarian or permissive the parenting style, the more likely it is for adolescents to worry. While there is no direct evidence to support these hypotheses, it can be inferred from the indirect relationship between insecure attachment and one’s tendency to worry.

Finally, as for anticipated gender differences in predictors of worry, there is little previous research on the subject. However, given that women generally report more frequent and higher levels of worry than men do (McCann et al., 1990), it is predicted that adolescent girls will report higher levels of worry than adolescent boys in the present study. Also, because past research has shown that girls are more likely to worry about family and social relationships (Orton, 1982; Simon & Ward, 1982), it is predicted that parental attachment, peer attachment, and parenting style (interpersonal factors) will be better indicators of worry for girls than for boys.
Method

Participants

Eighty high school students were recruited with the cooperation of high school teachers in the Elkhart Community School District in Elkhart, Indiana. Teachers at Memorial High School volunteered their students during SUCCESS periods, 95-minute classes that enable students to receive extra academic instruction and/or independent reading and study time, as well as allow for additional enrichment opportunities and other club/activity involvement. Students were encouraged to participate by their teachers; however, participation was strictly voluntary.

Fifty percent of the participants were girls (n = 40) and 50% were boys (n = 40). Ages ranged from 14 to 19. The average age was 16 (SD = 1.27). Volunteers ranged in class status from freshman to senior students, however the majority of students (70%) were either sophomores (n = 35) or seniors (n = 35). Seventy percent of the participants were Caucasian (n = 56), 5% were African-American (n = 4), 5% were Asian (n = 4), 5% were Hispanic (n = 4), and 15% did not specify individual ethnicity (n = 12).

Materials

Six scales were utilized in this study, including the Multidimensional Perfectionism Scale (Hewitt & Flett, 1991), the Internal Control Index (Duttweiler, 1984), the Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975), The Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987), the Parental Authority Questionnaire (Buri, 1991), and the Penn State Worry Questionnaire (Meyer et al., 1990).

The Multidimensional Perfectionism Scale (MPS-F), developed by Frost et al. (1990), is a 35-item, self-report measure of perfectionism that generates an overall
perfectionism score as well as scores for six perfectionism components: Concerns over Mistakes and Doubts ("I should be upset if I make a mistake"), Personal Standards ("I have extremely high goals"), Parental Expectations ("My parents set very high standards for me"), Parental Criticism ("My parents never tried to understand my mistakes"), Doubts About Actions ("I usually have doubts about the simple everyday things I do"), and Organization ("I am a neat person"). The Total Perfectionism score is the sum of all subscales except Organization, which tends not to correlate highly with the other subscales or with Total Perfectionism (Frost et al., 1990).

Respondents are asked to rate their agreement to statements based on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores on each of the scales reflect greater levels of perfectionism. Research on the MPS-F in college student samples indicates that the scale has adequate reliability and validity (Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991). See Appendix B for a sample page of the Multidimensional Perfectionism Scale (Frost et al., 1990).

The Internal Control Index, developed by Duttweiler (1984), is a 28-item measure that assesses an individual's locus of control. It is rated on a 5-point Likert-type scale ranging from 1 (rarely—less than 10% of the time) to 5 (usually—more than 90% of the time). Higher scores indicate more internal locus of control. Sample items include "Whenever something good happens to me, I feel it is because I’ve earned it" and "I like jobs where I can make decisions and be responsible for my own work." Research indicates that this measure has high reliability, and good convergent and discriminant validity, with high internal consistency (Duttweiler, 1984). See Appendix C for a sample page of the Internal Control Index.
The Self-Consciousness Scale, developed by Fenigstein et al. (1975), is a 23-item measure, rated on a scale of 1 (extremely uncharacteristic) to 5 (extremely characteristic). Higher scores indicate greater levels of self-consciousness. It consists of three subscales: private self-consciousness, public self-consciousness, and social anxiety. It also provides a total self-consciousness score, which, for purposes of this study, will be the only score used. Sample items include “I’m concerned about the way I present myself” and “I have trouble working when someone is watching me.” Test-retest reliability over a 2-week interval indicates good reliability (.84 public, .79 private, .73 social anxiety, .80 total score) (Fenigstein et al., 1975). See Appendix D for a sample page of the Self-Consciousness Scale.

The Inventory of Parent and Peer Attachment (IPPA), developed by Armsden and Greenberg (1987), is a 53-item scale designed to measure affective and cognitive dimensions of relationships with parents and close friends. There is a 28-item Parent subscale (“I trust my parents”) and a 25-item Peer subscale (“I can count on my friends when I need to get something off my chest”). Each item is rated on a 5-point Likert scale ranging from 1 (almost always or always true) to 5 (almost never or never true). Items are scored so that higher scores indicate more secure attachment. Retest reliability over a 3-week period was .93. The IPPA has also shown substantial reliability and good potential validity as a measure of perceived quality of close relationships in late adolescence (Armsden & Greenberg, 1987). See Appendix E for a sample page of the Inventory of Parent and Peer Attachment.

The Parental Authority Questionnaire (PAQ), developed by Buri (1991), is a 30-item measure that consists of three subscales with 10 items each that measures the
dimensions of authoritative, authoritarian, and permissive parenting styles. Participants are asked to think of the dominant parent in their household and then make 5-point ratings of the extent of their agreement with each item, ranging from 1 (strongly disagree) to 5 (strongly agree). The higher the score, the greater the appraised level of the parental authority prototype measured. Sample items include “As children in my family were growing up, my mother/father consistently gave us direction and guidance in rational and objective ways” (authoritative), “As I was growing up, my mother/father would get very upset if I tried to disagree with her/him” (authoritarian), and “As I was growing up, my mother/father seldom gave me expectations and guidelines for my behavior” (permissive). Test-retest reliability was high. Over a two-week period, retest reliability was .81 for mother’s permissiveness, .86 for mother’s authoritarianism, .78 for mother’s authoritativeness, .77 for father’s permissiveness, .85 for father’s authoritarianism, and .92 for father’s authoritativeness. For internal consistency, Cronbach alpha values are highly respectable (.75 to .87). Other measures of validity (discriminant-related validity and criterion-related validity) were also high (Buri, 1991). See Appendix F for a sample page of the Parental Authority Questionnaire.

The Penn State Worry Questionnaire, developed by Meyer et al. (1990), is a 16-item scale designed to assess a trait-like tendency to worry. Asked to rate their responses on a 5-point Likert-type scale to indicate how typical or characteristic each item is (1 = not at all typical, 5 = very typical); higher scores indicate a greater tendency to worry. Sample items include “My worries overwhelm me” and “I am always worrying about something.” High internal consistency was demonstrated for this measure in both college samples (.92, .91, .88) and in a large sample of mixed anxiety disorders (.93) and GAD
clients (.86). Retest reliability was also high (.75 over a two-week period, .74 and .93 over a four-week period, and .92 over an eight to ten-week period). Furthermore, factor analyses reveal one strong factor, and this measure has been found to correlate significantly with other measures assessing worry such as the Worry Domains Questionnaire and Student Worry Scale (Meyer et al., 1990). See Appendix G for a sample page of the Penn State Worry Questionnaire.

Procedure

Prior to data collection, participants under the age of 18 were given informed consent forms to be signed by parents and/or legal guardians. Once consent was obtained, packets containing the six scales were distributed to the participants. Participants were asked to complete each scale to the best of their ability as well as provide demographic information (i.e., gender and age). Sequencing of scales was counterbalanced within each packet, and questionnaires were coded with a number to insure the participants' anonymity. Participants were also given the opportunity to withdraw from the study at any time without penalty. At the end of the study, participants were given a debriefing statement that revealed the purpose of the study and provided the participants an option to be informed of the results of the study. Overall participation took approximately 30 minutes for the completion of all measures.

Design

The predictor variables are the levels of perfectionism, locus of control, and self-consciousness, as well as the level of attachment to the dominant parent and to peers, and the level of parental authority. The predicted variable is the amount of worry typically experienced by individual participants.
Results

The majority of participants felt that their mother was the dominant parent in their households (54%, \(n = 43\)). Otherwise, fathers (\(n = 29\)) comprised of 37% of ratings, while both parents (\(n = 5\)) were reported to share equal dominance in 6% of households. Other dominant parenting figures included the stepmother (1%, \(n = 1\)), the stepfather (1%, \(n = 1\)), and the grandfather (1%, \(n = 1\)). Among adolescent girls, 50% (\(n = 20\)) reported their mothers to be the dominant parent, while 40% (\(n = 16\)) reported their fathers to be the dominant parent. Among adolescent boys, 58% (\(n = 23\)) also reported their mothers to be the dominant parent, while 33% (\(n = 13\)) reported their fathers to be the dominant parent. The mean level of attachment to parents was 98.32 (SD = 23.46), indicating slightly above average attachment levels. With the highest potential score on the scale being 140, scores ranged from 31 to 140. Meanwhile, the average level of worry experienced by the participants was 50.49 (SD = 13.61), indicating relatively normal worry levels. With the highest potential score being 80, scores ranged from 20 to 80. The higher the ratings the higher the levels of attachment and worry reported by male and female adolescents.

Differences in Gender

T-tests for independent groups were used to determine any gender differences in perfectionism, locus of control, self-consciousness, parent and peer attachment, parenting style (permissive parenting, authoritative parenting, and authoritarian parenting), and worry. Results indicated significant gender differences only in the areas of peer attachment, the permissive parenting style, and worry. More specifically, for peer attachment, female students (\(M = 104.25, SD = 15.25\)) were significantly more securely
attached to peers when compared to male students \( (M = 92.50, SD = 18.43), t(78) = -3.11, p < .01 \) (see Appendix A). Meanwhile, male students \( (M = 23.63, SD = 7.86) \) experienced higher levels of permissive parenting than female students \( (M = 20.45, SD = 5.67), t(78) = 2.07, p < .05 \). As for worry, female adolescents \( (M = 53.93, SD = 13.28) \) were significantly more likely to worry when compared to their male counterparts \( (M = 47.05, SD = 13.21), t(78) = -2.32, p < .05 \). There were no significant gender differences found for the remaining factors (perfectionism, locus of control, self-consciousness, parental attachment).

**Predicting Worry Among Girls**

Initial tests for multicollinearity indicate that the predictors (perfectionism, locus of control, self-consciousness, parent and peer attachment, and parenting style) were not significantly linearly dependent on each other. Therefore, a multiple regression analysis was deemed appropriate for data analysis. This type of statistical analysis allows the researcher to identify which among several factors would best predict a variable of interest. Forward, backward, and stepwise multiple regression procedures were conducted and, despite the relatively small sample size, the results obtained were similar across the different procedures. For female adolescents, results show that self-consciousness is the single best predictor of girls’ overall tendency to worry. This model accounts for 17% of the variance in overall worry levels, \( F(1, 38) = 8.92, p < .01 \). It seems that the more self-conscious girls are, the more likely they are to worry.

**Predicting Worry Among Boys**

For male adolescents, results show that perfectionism and parental attachment comprise the best set of predictors for boys’ overall tendency to worry. This model
accounts for 48% of the variance in overall worry levels, $F(2, 37) = 18.72, p < .001$.

Perfectionism explains 29% of the variance in overall worry levels ($p < .001$) while insecure attachment to parents explains 15% of the variance in overall worry levels ($p < .01$). The more perfectionistic and insecurely attached boys are to their parents, the more likely boys are to worry.

Discussion

The purpose of this study was to identify the factors that best predict the tendency to worry in male and female adolescents. More specifically, it examined how personal factors (perfectionism, self-consciousness, locus of control) and interpersonal factors (parental and peer attachment, parenting style) influenced the boys’ and girls’ tendency to worry. What set of factors best predict the tendency to worry among adolescents? Are personal factors or interpersonal factors better predictors of their tendency to worry? Also, do gender differences exist in how the personal and interpersonal variables predict worry among adolescents?

The study of worry in the context of gender and adolescence also raises broader theoretical questions. Why does worry develop and why might one gender be more likely to worry given particular circumstances? What function does worry serve and how might it be maintained? How might worry be prevented, knowing the factors that best predict the tendency to worry?

Gender Differences in Worry Levels

Results indicated that the average level of worry experienced by the participants was relatively normal. However, female adolescents reported significantly higher levels of worry than their male counterparts. This finding is consistent with findings from
previous research (McCann et al., 1990; Stavosky & Borkovec, 1987) that have shown women to worry more. While it may be that women report more frequent and higher levels of worry than men do simply because women do, in fact, worry more, the question then becomes, why do women worry more?

One explanation may relate to the frustrative non-reward and avoidance model, developed by Borkovec (as cited in Tallis, Eysenck, & Mathews, 1991b). Borkovec suggests that individuals are constantly engaged in securing valued goals. However, a personal history of non-reward will result in the individual anticipating frustration when presented with cues associated with these goals. Because of goal desirability, the individual approaches these cues, but becomes increasingly anxious. Subsequent avoidance reduces distress and is thus reinforcing. However, Borkovec further suggests that individuals may then alternate between avoidance of goal-oriented behavior, leading to possible depression, and further attempts to work for the goal, leading to renewed anxiety. In the meantime, merely anticipating frustration can be sufficient to engender an anxious state. It is at this point that Borkovec introduces the concept of worry, which is viewed as an attempt to avoid negative outcomes by anticipating all possibilities. Extending this frustrative non-reward model to the experience of women implies that women have historically been economically, socially, and politically at a disadvantage, and it is the conflicts and sense of powerlessness derived from these inequities that cause higher levels of worry among women (Stavosky & Borkovec, 1987). Given that with adolescence comes a time of increased self and social awareness (Flett et al., 1995), it may be that female adolescents also become aware of these other matters as well, contributing to increased worry levels.
While this frustrative non-reward viewpoint may be valid, caution needs to be exercised when interpreting findings dealing with variables of a personal nature, particularly when certain variables may be viewed as being more socially acceptable for one gender and not another. According to McCann et al. (1990), women’s socialization experiences may foster greater attention and sensitization to internal states and intrapsychic states such as worry. On the other hand, gender differences in reported worry may also occur because it is simply less socially acceptable for men than it is for women to admit to relatively high degrees of worry. Both men and women tend to regard worry as an essentially feminine characteristic.

Therefore, it seems plausible that gender differences in worrying may also be related to perceived sex role identification (being male or female). According to Bem (1974), to be feminine is to be more expressive; meanwhile, to be masculine is to be more instrumental. Thus, to worry less may be seen as more masculine because worrying is a relatively ineffective and less instrumental means of coping with the ongoing problems of life (Stavosky & Borkovec, 1987). Women, on the other hand, may be more likely to express their fears and openly talk about the issues of which they worry, thus helping them cope with daily life occurrences.

Worry Predictors Among Girls

In the present study, significant gender differences also existed in predicting worry. Female adolescents reported higher levels of worry when they reported high levels of self-consciousness. The more self-conscious a girl was purported to be, the more likely she was to worry. In other words, contrary to the original hypothesis, not only was a personal factor the best predictor of girls’ tendency to worry, it was the only
personal factor that seemed to significantly influence girls' tendency to worry. Although deemed "personal," self-consciousness may not just be dispositional in nature, but may be social in nature as well. In fact, according to Borkovec (1994), if there is a central source of the anxious experience of worriers and General Anxiety Disorder (GAD) clients, it resides in social evaluative issues. Past research (Borkovec et al., 1983) indicates that worry correlates most highly with social evaluative concerns and very little with nonsocial items. Fear of making mistakes, of being criticized, and of meeting people rank among the highest, most specific, anxiety-provoking events. In general, worriers score significantly higher on public self-consciousness, and social phobia is the most frequent comorbid diagnosis for principal cases of GAD (Pruzinsky & Borkovec, 1990). In turn, a person's self-image is often defined by the content of his or her thinking patterns. So if one's thoughts are dominated by constant fears of the future (as most worriers' thoughts are), then one's self-image could be adversely affected (Borkovec, 1985).

Another explanation for this finding may relate to the age of the girls in the study. According to Vasey et al. (1994), at about eight years of age, children begin to be capable of social comparisons in forming their self-definitions and become increasingly aware that others may be evaluating them. This awareness becomes even more heightened as they enter adolescence. In fact, the prevalence of worries about social evaluation and psychological well-being seems to increase significantly with age (Vasey et al., 1994). Meanwhile, according to Flett et al. (1995), while boys may place a greater value on achievement and competitiveness, girls tend to instead focus on social relationships and
interactions. Thus, some girls may be more vulnerable to being self-conscious as they focus on these types of issues. Girls who are more self-conscious, then, also worry more.

Worry Predictors Among Boys

For male adolescents, the best set of predictors for the tendency to worry includes perfectionism and parental attachment. The more perfectionistic and less securely attached the male child is to his parent(s), the more likely that adolescent is to worry. In other words, the specific combination of perfectionism (personal factor) and parental attachment (interpersonal factor) best predicts boys' tendency to worry. This finding is particularly interesting given that the original hypothesis stated that girls would be more influenced by interpersonal factors.

The explanation for this set of predictors may lie in the fact that boys generally do place a greater value on achievement and competitiveness (Flett et al., 1995), which may, in turn, make boys more vulnerable to perfectionistic tendencies. Meanwhile, the origins of perfectionism have been linked to the nature of parent-child relationships and interactions as well. Frost et al. (1990) state that perfectionists tend to place considerable value on their parents' expectations and evaluations of them. They claim that perfectionists grow up in an environment where approval and love is conditional. To obtain approval and love, children would then need to attain high levels of perfection. A mistake might risk the loss of love. So perfectionists grow up to become critical of their mistakes and cautious about their behaviors. They may also worry more.

Additionally, perfectionists tend to have perfectionistic parents; such children experience approval as being contingent on meeting the high expectations of parents, which further leads to their own strivings to meet unreasonably high self-expectations.
(Rice et al., 1996). This may also lead to an increase in the amount and/or intensity of worrying. Insecure attachment to parents then only aggravates the situation, since individuals may hardly, if ever, experience the approval they so desire.

Furthermore, there may be a very fundamental basis for the connection between worry and social concerns. Borkovec (1994) notes that worry primarily involves thought. From an evolutionary perspective, thought has its origins in verbal-linguistic communication. Speculatively, the prototype for worrisome thinking might then be found in verbal attempts to express one’s anxious feelings to significant others. This may also help to explain the relationship between parental attachment and one’s tendency to worry. The more secure one’s attachment is to parent(s), the more comfortable one feels to express anxious and worrisome feelings, and subsequently, is less likely to grow up internalizing those feelings and becoming a chronic worrier. Beck and Freeman (1990) further state that worriers may feel inadequate and question their own ability to make appropriate decisions or find solutions that would put them out of a threat-filled situation. Worriers may then constantly seek reassurance from others that they have reacted appropriately. Taken together then, for perfectionistic boys who experience insecure attachment, reassurance may never be obtained, thus prolonging and exacerbating the worrying process. In other words, it may be possible that boys who have more secure attachment to parents are generally more expressive and therefore worry less.

Other Factors

It is important to note that while the other factors (locus of control, peer attachment, parenting style) were found to be correlated with worry and/or anxiety in other studies (Powers, et al., 1992; Silove, et al., 1991), they were not predictive for boys
or for girls in the present study. This may be because previous studies have correlated each of the predictors with worry separately. In the present study, when several factors were taken into account together, these factors (locus of control, peers attachment, parenting style) were found to be not as predictive as the others (self-consciousness, perfectionism, parental attachment).

It may also be possible that the relationships of certain factors with worry are mediated by the factors that were found to be predictive in this study. For example, previous research (Bennett & Stirling, 1998; Parker, Tulping, & Brown, 1979) suggest a possible link between parenting style and anxiety. In the present study, parenting style was not found to be predictive for girls’ or boys’ tendency to worry. It is possible that the relationship between parenting style and one’s tendency to worry may be mediated by an individual’s tendency to be perfectionistic. Past research (Rice et al., 1996) have certainly stated that harsh, critical parenting styles may be involved in the development of perfectionism. Hamacheck (1978) also proposed that perfectionism may result from different observational learning experiences. Thus, while parenting style may not be directly predictive of worrying, it nevertheless correlates with perfectionism, which has been linked to worrying on numerous occasions. Similarly, attachment to peers was not found to be predictive in this study. The relationship between attachment to peers and worry, however, may be mediated by an individual’s self-consciousness, or awareness of social evaluative concerns. Unfortunately, these statements are speculative in nature, as the present study did not statistically test for mediations between factors. One reason for this is the relatively small sample size.
While significant results were obtained in the present study, the proportion of the variance of worry that was accounted for by predictive factors was small (17% for the girls and 48% for the boys). Among the factors examined in this study, self-consciousness best predicts the tendency to worry in girls, and perfectionism and insecure attachment best predict the tendency to worry in boys. However, there may be other factors not examined in this study that are more direct predictors. In other words, there may be other factors, not identified in the present study, that are mediating the existing relationships.

For example, one such factor not considered in this study is self-efficacy. Self-efficacy refers to the beliefs individuals have concerning their ability to perform behaviors that will yield expected outcomes (Brett, Gilner, Handal, & Gfellar, 1998). Bandura (1988) has suggested that self-inefficacy is closely associated with anxiety states, and therefore, may also be related to the worry process. Conversely, those who have a firm belief in their power to exercise control over threatening environmental contingencies do not experience “apprehensive thinking” (Bandura, 1988). Incorporating self-efficacy into the set of predictors utilized in this study, therefore, may have added another important factor into the worry equation. For instance, it may be possible that the relationship between locus of control and one’s tendency to worry may be mediated by an individual’s self-efficacy.

Another factor to consider may be what has been termed “metacognitions.” Past research (Davey, Tallis, & Capuzzo, 1996) suggests that pathological worriers possess certain cognitive-behavioral thought control strategies or “metacognitions” which act to perpetuate the activity of worrying. Such metacognitions include beliefs about the
functions of worry (e.g., that worrying is a necessary activity in order to avoid negative life events), and beliefs about its nature (e.g., that worrying is uncontrollable). It seems that, regardless of how effective worry might actually be for avoiding threat, worriers might well believe that it serves this function and would thus be motivated to do it for that reason.

In fact, according to Borkovec (1994), there may be a variety of avoidant functions involved. When asked what benefits GAD clients derive from worrying, they most commonly offer five reasons that refer to the avoidance of threat. The first is what Borkovec (1994) termed “superstitious avoidance of catastrophe” (e.g., “Worrying makes it less likely that the feared event will occur”). Although GAD clients largely recognize that no logical connection exists between worry and the ultimate outcome, it still feels to them as if this were the case. However, the vast majority of negative outcomes that the individuals fear have a low probability of actual occurrence. Thus, constant worry about anticipated outcomes is most often negatively reinforced by the nonoccurrence of the feared catastrophe (e.g., I worry constantly about dying of cancer; I haven’t died yet, so my worrying must be working) (Borkovec, 1994).

The second function may be actual avoidance of the catastrophe (e.g., “Worrying helps to generate ways of avoiding or preventing catastrophe”). According to Borkovec (1994), worry is viewed as a method of problem solving in order to determine actions that might prevent the occurrence of the event. Although actual solutions may or may not be discovered in the process of worry, it is to the degree that a worrier believes this to be true that a further source of negative reinforcement upon even nonoccurrence in generated (Borkovec, 1994).
The third avoidant function is what Borkovec (1994) calls “coping preparation” (e.g., “Worrying about a predicted negative event helps me to prepare for its occurrence”). The perceived reinforcement from this perspective resides in the expected alleviation of emotional reaction to a catastrophe, should it actually happen. It is an example of attempts at internal control as opposed to attempts to control the external environment as seen by the first two reasons (Borkovec, 1994).

Worrying may also be used as a motivating device (e.g., “Worry helps to motivate me to accomplish the work that needs to be done”) or help individuals avoid deeper emotional topics (e.g., “Worrying about most of the things I worry about is a way to distract myself from worrying about even more emotional things, things that I don’t want to worry about”). While little evidence has been found to support the latter idea, it is recognized that a rather dynamic cognitive-affective process may serve to internally maintain worrisome activity. In the meantime, the occurrence of any actual accomplishment reinforces worry as a motivational strategy (Borkovec, 1994).

Whatever the function, it appears that these factors are cognitive in nature and are consistent with the way worry is actually conceptualized, as a cognitive process. Consequently, it may be that these metacognitions are more directly related to worry and matter more to the worrying process than the personal and interpersonal factors examined in the present study.

**Suggestions for Future Studies**

Future research may benefit from modifications in both design and conceptualization of the present study. While these revisions may assist future
researchers in identifying which set of factors best predict one’s tendency to worry, such improvements may also help to clarify existing data.

One important issue involves the set of predictors examined in the study. While best sets of factors were arrived at, very small proportions accounted for the variance in worry levels. In other words, the factors (perfectionism, locus of control, self-consciousness, peer and parental attachment, parental authority) included in the present study may not have been the most direct predictors of worry. Similarly, while other factors may be more predictive of one’s tendency to worry, they were not accounted for in this study. Therefore, it is suggested that future research first identify other, more direct, factors and then test them. Given that worry is currently conceptualized as a cognitive process, it may be more appropriate to initially take into account factors that are cognitive in nature as well (e.g., metacognitions).

It may also be worthwhile to explore the different combinations of parent-child relationships when considering the influence of parental attachment and parental authority. Results from the present study indicated that the majority of participants, regardless of gender, felt that their mother was the dominant parent in their households. However, other dominant parenting figures included the father, the stepmother, the stepfather, the grandfather, or both parents. According to Rice et al. (1996), mother-child relationships may have more influence than fathers do on their children’s development because most of the children’s daily care historically and most typically remains the responsibility of the mother. For those children whose dominant parent was the father, grandfather, or step-parent, results may have been significantly different. Further data in
this area may contribute richly to not only worry research, but to attachment research as well.

Future researchers may also wish to incorporate sex role identification and its relationship to worry among male and female adolescents. As stated previously, to worry less may be seen as more masculine because worrying is considered to be a relatively less effective and less instrumental means of coping with ongoing life difficulties (Stavosky & Borkovec, 1987). Therefore, it seems plausible that gender differences in worry levels and worry predictors may be related to perceived sex role identification (being male or female).

Another suggestion for future research also relates to topics of worry. It may be beneficial for future research to make a distinction between the tendency to worry and the domains of worry. Although the Penn State Questionnaire (PSQW; Meyer et al., 1990) yields a score reflecting “how much” an individual worries, it does not provide information relating to worry content. “I worry all the time” is a typical example of the items included on the PSQW. According to Zebb and Beck (1998), negative affect is more characteristic of individuals who worry about many things than those who merely have a tendency to worry. Furthermore, Zebb and Beck (1998) postulate that although individuals who worry more do tend to worry about a greater variety of issues, an individual’s tendency to worry cannot be equated with the number of issues about which that person worries. In this respect, the Worry Domain Questionnaire, developed by Tallis, Eysenck, and Mathews (1991a), is a relatively short, 30-item scale, that yields a global measure and is composed of scores derived from five subscales in the areas of relationships, self-confidence, the future, and in financial and work arenas. This
particular instrument may prove beneficial in the contribution to worry research when examining how worry predictors influence each specific worry domain.

Furthermore, imminence of threat is also an important determinant of worry (Tallis & Eysenck, 1994). When investigating various populations, the ultimate threat—death—is rarely reported as a pressing concern for the young. Borkovec et al. (1983) instead found that academic performance was a central concern in a student population. With increasing age, however, mortality becomes a more salient preoccupation. This is reflected in elevated concern with regard to physical health (Wisock, 1998). Therefore, the more imminent a threat is, the more intense and uncontrollable worry will be. In regards to the present study, it may be possible that high school students’ responses were contingent upon immediate and imminent happenings in their lives at which time they participated in the study. Different students worry about different things; likewise, different generations worry about different things. Worrying about one topic may produce more anxiety than another. Exploring these avenues may shed additional light on worry research and help clarify existing worry data.

Lastly, revisions may also be made in the methodology of the study. For example, the participants were male and female high school students who were recruited with the help of their high school teachers. Because participation was strictly voluntary, with no tangible incentives, sample sizes were relatively small, imposing restrictions on more complex statistical analyses. A larger sample size is required when examining significant relationships between factors, testing mediations and interactions between factors, and incorporating additional predictors of individuals’ tendency to worry.
In summary, past investigations of worry have led to the tentative conclusion that certain individuals may be predisposed to be vulnerable to anxiety disorders, and that when this vulnerability is combined with certain other factors, the onset of an anxiety disorder may occur (Andrews, 1991; Bennett & Sterling, 1998). This vulnerability may be physiological and present from birth, or it may develop in childhood as a result of certain environmental factors. Results from the present study seem to suggest that this may also hold true for worrying. Whereas self-consciousness best predicts the tendency to worry in girls, perfectionism and (insecure) parental attachment best predicts the tendency to worry in boys. While these findings may not coincide with the present study’s original hypotheses, it certainly adds to the worry literature and creates additional questions for future researchers to explore. One such question relates to the “other” factors not examined in the present study. Given that the factors included in the present study may not have been the most direct predictors of worry, what other factors are more directly predictive of worry?

Thus, further information in worry research is needed that will have implications for not only understanding worry, but for understanding anxiety and its related disorders as well. Discerning why one individual may be more likely to worry given a particular set of predictors may help researchers and therapists alike to better understand the development of worry and, in turn, help to alleviate the worrying process. The present study contributes to past research in that it examined worry in the context of adolescence. Present results may aid in understanding worry phenomena, leading to the development of increasingly effective interventions and perhaps even preventing adolescent worriers from becoming maladaptive adult worriers.
References


Vivona, J. M. (2000). Parental attachment styles of late adolescents: Qualities of
attachment relationships and consequences for adjustment. *Journal of Counseling Psychology, 47*, 316-329.


Appendix A

Table 1

*Gender Differences in Worry Levels and Predictors*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Male (n = 40)</th>
<th>Female (n = 40)</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worry</td>
<td>( M = 47.05, SD = 13.21 )</td>
<td>( M = 53.93, SD = 13.28 )</td>
<td>-2.32*</td>
</tr>
<tr>
<td>Perfectionism</td>
<td>( M = 82.25, SD = 15.84 )</td>
<td>( M = 80.38, SD = 18.55 )</td>
<td>.49</td>
</tr>
<tr>
<td>Locus of Control</td>
<td>( M = 97.03, SD = 9.95 )</td>
<td>( M = 97.88, SD = 10.05 )</td>
<td>-.38</td>
</tr>
<tr>
<td>Self-Consciousness</td>
<td>( M = 72.72, SD = 11.88 )</td>
<td>( M = 77.80, SD = 13.17 )</td>
<td>-1.81</td>
</tr>
<tr>
<td>Parent Attachment</td>
<td>( M = 99.70, SD = 19.81 )</td>
<td>( M = 96.95, SD = 26.80 )</td>
<td>.52</td>
</tr>
<tr>
<td>Permissive Style</td>
<td>( M = 23.63, SD = 7.86 )</td>
<td>( M = 20.45, SD = 5.67 )</td>
<td>2.07*</td>
</tr>
<tr>
<td>Authoritative Style</td>
<td>( M = 32.90, SD = 8.63 )</td>
<td>( M = 32.03, SD = 8.47 )</td>
<td>.46</td>
</tr>
<tr>
<td>Authoritarian Style</td>
<td>( M = 34.08, SD = 6.46 )</td>
<td>( M = 33.67, SD = 8.40 )</td>
<td>.24</td>
</tr>
<tr>
<td>Peer Attachment</td>
<td>( M = 92.50, SD = 18.43 )</td>
<td>( M = 104.25, SD = 15.25 )</td>
<td>-3.11**</td>
</tr>
</tbody>
</table>

*Note.* Higher scores for perfectionism, self-consciousness, parenting style, and worry indicate higher levels of each variable.

Higher scores for locus of control indicate more internal locus of control.

Higher scores for parent and peer attachment indicate more secure attachment.

\(^*p < .05.\)

\(^{**}p < .01.\)
Appendix B

Frost Multidimensional Perfectionism Scale

Sample Page

Directions: In response to each statement, please indicate which one of five ordered responses from strongly disagree to strongly agree most closely represents the extent to which you feel the item best describes you. Circle the number that best represents your response.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

1. My parents set very high standards for me. 1 2 3 4 5

2. Organization is very important to me. 1 2 3 4 5

3. As a child, I was punished for doing things less than perfect. 1 2 3 4 5

4. If I do not set the highest standards for myself, I am likely to end up a second rate person. 1 2 3 4 5

5. My parents never tried to understand my mistakes. 1 2 3 4 5

6. It is important to me that I am thoroughly competent in everything I do. 1 2 3 4 5

7. I am a neat person. 1 2 3 4 5

8. I try to be an organized person. 1 2 3 4 5

9. If I fail at work/school, I am a failure as a person. 1 2 3 4 5

10. I should be upset if I make a mistake. 1 2 3 4 5

11. My parents wanted me to do the best at everything. 1 2 3 4 5

12. I set higher goals than most people. 1 2 3 4 5

13. If someone does a task at work/school better than I, then I feel like I failed the whole task. 1 2 3 4 5
Appendix C

Internal Control Index

Sample Page

Directions: Please read each statement. Where there is a blank _____, decide what your normal or usual attitude, feeling, or behavior would be:

<table>
<thead>
<tr>
<th>(A) RARELY (Less than 10% of the time)</th>
<th>(B) OCCASIONALLY (About 30% of the time)</th>
<th>(C) SOMETIMES (About half the time)</th>
<th>(D) FREQUENTLY (About 70% of the time)</th>
<th>(E) USUALLY (More than 90% of the time)</th>
</tr>
</thead>
</table>

Of course, there are always unusual situations in which this would not be the case, but think of what you would do or feel in most normal situations. Write the letter that describes your usual attitude or behavior in the space provided.

1. When faced with a problem I _____ try to forget it.

2. I _____ need frequent encouragement from others for me to keep working at a difficult task.

3. I _____ like jobs where I can make decisions and be responsible for my own work.

4. I _____ change my opinion when someone I admire disagrees with me.

5. If I want something, I _____ work hard to get it.

6. I _____ prefer to learn the facts about something from someone else rather than have to dig them out for myself.

7. I will _____ accept jobs that require me to supervise others.

8. I _____ have a hard time saying “no” when someone tries to sell me something I don’t want.

9. I _____ like to have a say in any decision made by any group I’m in.

10. I _____ consider the different sides of an issue before making any decisions.

11. What other people think _____ has a great influence on my behavior.

12. Whenever something good happens to me, I _____ feel it is because I’ve earned it.
Appendix D

Self-Consciousness Scale

Sample Page

Directions: In response to each statement, please indicate which one of five ordered responses from extremely uncharacteristic to extremely characteristic most closely represents the extent to which you feel the item best describes you. Circle the number that best represents your response.

Extremely Uncharacteristic 1 2 3 4 5 Extremely Characteristic

1. I’m always trying to figure myself out.
2. I’m concerned about my style of doing things.
3. Generally, I’m not very aware of myself.
4. It takes me time to overcome my shyness in new situations.
5. I reflect about myself a lot.
6. I’m concerned about the way I present myself.
7. I’m often the subject of my own fantasies.
8. I have trouble working when someone is watching me.
9. I never scrutinize myself.
10. I get embarrassed very easily.
11. I’m self-conscious about the way I look.
12. I don’t find it hard to talk to strangers.
13. I’m generally attentive to my inner feelings.
14. I usually worry about making a good impression.
Appendix E

Inventory of Parent and Peer Attachment

Sample Page

Directions: Please decide on the amount each statement is true and report that decision by circling the number that best represents your response. The scale is as follows:

(1) Almost Always or Always True (2) Often True (3) Sometimes True (4) Seldom True (5) Almost Never or Never True

PART I

1. My parents respect my feelings. 1 2 3 4 5
2. I feel my parents are successful as parents. 1 2 3 4 5
3. I wish I had different parents. 1 2 3 4 5
4. My parents accept me as I am. 1 2 3 4 5
5. I have to rely on myself when I have a problem to solve. 1 2 3 4 5
6. I like to get my parents' point of view on things I'm concerned about. 1 2 3 4 5
7. I feel it's no use letting my feelings show. 1 2 3 4 5
8. My parents sense when I'm upset about something. 1 2 3 4 5
9. Talking over my problems with my parents makes me feel ashamed or foolish. 1 2 3 4 5
10. My parents expect too much from me. 1 2 3 4 5
11. I get upset easily at home. 1 2 3 4 5
12. I get upset a lot more than my parents know about. 1 2 3 4 5
13. When we discuss things, my parents consider my point of view. 1 2 3 4 5
14. My parents trust my judgement. 1 2 3 4 5
Appendix F

Parental Authority Questionnaire

Sample Page

Directions: Think of the parent that was most dominant in your household (enforced rules, handed out discipline, main caretaker, etc.).

Circle which one it was:

Father  Mother  Other: ______________________

For each of the following statements, circle the number on the 5-point scale that best describes how that statement applies to you and that dominant parent. Try to read and think about each statement as it applies to you and your parent 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. I am looking for your overall impression regarding each statement. Be sure not to omit any items.

Strongly Disagree  1  2  3  4  5  Strongly Agree

1. While I was growing up, my parent felt that in a well-run home, the children should have their way in the family as often as the parents do.

2. Even if I didn’t agree with him/her, my parent felt that it was for my own good if I was forced to conform to what he/she thought was right.

3. Whenever my parent told me to do something as I was growing up, he/she expected me to do it immediately without asking any questions.

4. As I was growing up, once family policy had been established, my parent discussed the reasoning behind the policy with the children in the family.

5. My parent has always encouraged verbal give-and-take whenever I have felt that family rules and restrictions were unreasonable.
Appendix G
Penn State Worry Questionnaire

Sample Page

Directions: In response to each statement, please indicate which one of five ordered responses from not at all typical to very typical most closely represents the extent to which you feel the item best describes you. Circle the number that best represents your response.

Not At All Typical 1 2 3 4 5 Very Typical

1. If I do not have enough time to do everything, I do not worry about it.
2. My worries overwhelm me.
3. I do not tend to worry about things.
4. Many situations make me worry.
5. I know I should not worry about things, but I just cannot help it.
6. When I am under pressure I worry a lot.
7. I am always worrying about something.
8. I find it easy to dismiss worrisome thoughts.
9. As soon as I finish one task, I start to worry about everything else I have to do.
10. I never worry about anything.
11. When there is nothing more I can do about a concern, I do not worry about it anymore.
12. I have been a worrier all my life.
13. I notice that I have been worrying about things.