QUALITY OF LIFE ISSUES FOR PEOPLE WITH IBD:
AN EXPLORATORY STUDY TO INVESTIGATE THE RELATIONSHIP OF COPING
SKILLS, SOCIAL SUPPORT AND NEGATIVE SOCIAL INTERACTIONS TO ANXIETY
AND DEPRESSION FOR PEOPLE WITH IBD

DISSERTATION
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Degree Doctor of Philosophy in the Graduate School of
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By
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ABSTRACT

Inflammatory Bowel Disease (IBD) is a debilitating disease of the gastrointestinal tract that affects more than one million people in America (CCFA, 2005). Comorbid anxiety and depression are two common problems for people with IBD. It is well documented in the research literature that increased IBD severity leads to elevated anxiety and depression levels; however, disease severity only accounts for a portion of the variance in anxiety and depression scores. Further, many people with IBD do not develop anxiety or depression, regardless of disease severity. There is a need for research that investigates other possible predictor variables for anxiety and depression for people with IBD. This line of research examined the relationship of coping skills, social support and negative social interactions to anxiety and depression for people with IBD. Results of this study indicated that social support does not correlate with anxiety or depression; however, this may be the result of a skewed distribution and needs further investigation. Negative social interactions do appear to play a significant role in anxiety and depression and need to be included in future IBD studies. Results also revealed that coping skills are an important consideration in both treatment and future research for people with IBD. Overall, information provided by this study will help to improve holistic treatment for people with IBD and provide direction for future HRQOL research in IBD populations.
Dedicated to my most wonderful and amazing husband

JD Kaplan

With you by my side, all things are possible.
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CHAPTER 1
INTRODUCTION
1.1 Statement of the Problem

The chronic diseases known as Crohn’s Disease and Ulcerative Colitis are commonly labeled together as Inflammatory Bowel Disease (IBD) (Steiner-Grossman, Banks, & Present, 1992). Both are debilitating diseases of the gastrointestinal tract that affect more than one million people in America, as estimated by the Crohn’s and Colitis Foundation of America (CCFA) (CCFA, 2005). Medical researchers have been studying these diseases for over 60 years; however, there is currently no cure for either disease (Karlinger, Gyorke, Mako, Mester, & Tarjan, 2000; Shepanski et al., 2005). Although it has been determined that the symptoms of IBD result from an overly active immune response in the intestinal mucosa, scientists still do not know what causes the immune system to become overactive (Anton, 1999).

Because there is no cure, physiological treatment for IBD is limited to symptom management through pharmaceutical and surgical interventions. Combinations of daily oral medications, suppositories, and enemas are common (Steiner-Grossman et al., 1992). When medications do not work, surgical interventions become the next line of treatment. Common procedures include partial and complete removal of the colon and removal of
segments of the intestinal tract (Brandt & Steiner-Grossman, 1989). Most current research and treatment approaches for IBD center on managing physical symptoms and on finding a cure. This information is vital; however, there is also a need for information that will help to improve quality of life while people with IBD are waiting for a cure.

Coping with IBD has a significant impact on a person’s quality of life (Kurina, Goldacre, Yeates, & Gill, 2001). Specifically, depression and anxiety are two quality of life dimensions that are problematic for many people with IBD (Derogatis & Wise, 1989; Kurina et al., 2001). To date, research that focuses on quality of life dimensions for people with IBD is limited. Further research addressing the quality of life domains of anxiety and depression is needed to facilitate effective holistic treatment for individuals with IBD.

1.2 Background and Significance

Because IBD is a disease that is characterized by unpredictable, often debilitating, fluctuations in disease severity, progression, body control, and pain, it can have a significant negative impact on a person’s quality of life (Steiner-Grossman et al., 1992). Simply treating the physical aspects of IBD ignores the devastating effect that IBD can have on a person’s mental health and overall life circumstances. Practitioners treating people with IBD need to take into consideration the overall impact of the disease on a person’s quality of life.

1.2.1 Holistic Approach

There has been a movement within the clinical and rehabilitation counseling fields to incorporate holistic approaches for treating the whole client (Brand, 1995;
Roberts, Kiselica, & Fredrickson, 2002). An holistic approach is a “biopsychosocial model of health and well-being that emphasizes reciprocal interactions among the biological, psychological, social, and spiritual dimensions that influence health” (Roberts et al., 2002, p. 422). Holistic treatment approaches focus equally on the mind, body, and spirit aspects of a person (Roberts et al., 2002). Health related quality of life is an integral component of the holistic approach (Roberts et al., 2002).

1.2.2 Health Related Quality of Life (HRQOL)

Historically, treatment for physical illnesses has used the medical model approach which focuses exclusively on physiological aspects of the person and the disease (Treischmann, 1995). Early practitioners did not take into account the psychological impact of having a physical disease, thus they did not address the whole person when considering treatment options (Brand, 1995; Treischmann, 1995). In recent years, treatment of physical illnesses has begun to focus on more than just the physiological aspect of these diseases (Brand, 1995; Gladis, Gosch, Dishuk, & Crits-Christoph, 1999; Kennedy, Eisfeld, & Cooke, 2001; Shumaker, Anderson, & Czajkowski, 1990). “Health related quality of life” (HRQOL) is a term that was created to indicate a broader treatment focus that includes quality of life issues for people who have a physical illness (Brand, 1995). HRQOL dimensions include measurements of psychological health, satisfaction with life, personal well-being, and physical health (Casellas, Lopez-Vivancos, Badia, Vilaseca, & Malagelda, 2001; Eisen & Farmer, 1996; Farmer, Easley, & Farmer, 1992; Irvine et al., 1998; Love, Irvine, & Fedorak, 1992). Anxiety and
depression are two of the recognized psychological health HRQOL dimensions (Derogatis & Wise, 1989).

HRQOL is becoming a more common topic in the research literature for a wide variety of diseases and medical conditions. However, a review of the literature shows that most HRQOL research has focused exclusively on the effect of disease symptoms on psychological health, satisfaction with life, and personal well-being. Research examining other variables that may affect HRQOL is in its infancy. It seems that a wide variety of possible variables may affect HRQOL dimensions and need to be investigated, including personal relationships, support systems, coping skills, interactions with medical professionals, adjustment, communication skills, optimism, stress levels, personal finances, medical coverage, religiosity, and spirituality. Much research is needed to investigate the vast number of possible variables that may impact HRQOL domains. Of specific interest to this study are the predictor variables of coping skills, social support, and negative social interactions.

1.2.3 Anxiety and Depression with IBD

Anxiety and depression are such common problems for people with IBD that these two mental disorders were originally considered to cause IBD (Kurina et al., 2001; Steiner-Grossman et al., 1992). Research eventually determined that mental disorders are not the cause of IBD, but are instead side effects of the disease (Steiner-Grossman et al., 1992). It is believed that anxiety and depression typically result, in part, from a combination of high levels of pain, knowing there is no cure, fearing the loss of bowel control, coping with the loss of the colon, dealing with the life altering aspects of the
disease, facing the unknown progression of the disease, and never knowing when or where the disease is going to become active (Addolorato, Capristo, Stefanini, & Gasbarrini, 1997). Elevated anxiety and depression levels have a negative impact on overall quality of life (Addolorato et al., 1997). Additionally, people with IBD, physicians, and the medical community at large have long been aware that high levels of anxiety and depression frequently exacerbate the physical symptoms of IBD (Anton, 1999; Mittermaier et al., 2004). This often leads to a spiraling situation in which IBD creates anxiety and depression, and in turn, this anxiety and depression exacerbate physical IBD symptoms (Mittermaier et al., 2004; Walker, Gelfand, Gelfand, Creed, & Katon, 1996).

IBD severity has been positively related to HRQOL anxiety and depression levels (Addolorato et al., 1997). To date, HRQOL anxiety and depression research for people with IBD has focused solely on the impact of disease severity on anxiety and depression levels. Identifying the predictive link between IBD severity and mental health problems was a significant first step; however, IBD severity does not account for 100% of the variance in either anxiety or depression (Addolorato et al., 1997). Although specific numbers are not available, it is of further importance that many people coping with IBD - regardless of symptom severity - do not develop comorbid anxiety or depression (Maunder & Esplen, 1999); therefore, it is apparent that there are other predictors that must be considered in addition to the IBD physical symptoms. Relatively little is known about other possible HRQOL predictors such as coping skills, social support, and negative social interactions for people with IBD. It is certainly helpful to know that IBD
severity has a positive relationship with anxiety and depression levels; however, mental health counselors and practitioners need further information about other possible predictors to complete the picture and improve holistic treatment. Finding effective treatments for HRQOL anxiety and depression may be advanced by additional knowledge pertaining to coping skills, social support, and social interactions for people with IBD.

1.2.4 State vs. Trait Anxiety

Anxiety is commonly viewed as being either “State” or “Trait.” Trait anxiety refers to a type of anxiety that is inherent within an individual’s personality and reflects a great deal of stability across time and situations (Spielberger, 1983). State anxiety refers to a type of situational anxiety that appears as a reaction to specific situational triggers (Spielberger, 1983). State anxiety is not related to personality indicators and is not consistent across time and situations (Spielberger, 1983). Regardless of disease activity levels, research has found no relationship between trait anxiety and IBD diagnosis (Addolorato et al., 1997; Kurina et al., 2001). People with IBD do not have higher levels of trait anxiety than that found in a physically healthy population. Research has shown that the form of anxiety that is commonly experienced by people with IBD is state anxiety (Kurina et al., 2001).

1.2.5 Coping Skills

Coping with the physical symptoms and life changing aspects of IBD can be challenging for people with IBD. Coping skills are the strategies, both action oriented and intrapsychic, that a person uses in efforts to master, tolerate, manage or minimize
environmental and internal demands (conditions of harm, threat, conflict or challenge) that are appraised, or perceived, as exceeding or placing stress on his or her personal resources (Lazarus, 1993; Lazarus & Folkman, 1984; Monat & Lazarus, 1991). The coping skills that a person uses can have a positive-adaptive or negative-maladaptive effect on a person’s health status (Lazarus, 1993). Although not directly confirmed through research, it is possible that the specific coping skills a person uses may be related to HRQOL dimensions of anxiety and depression.

Although the use of coping skills in adaptation to chronic illness and disability are an important consideration (Goodheart & Lansing, 1997), there is only one study to date that examines relationships between coping skills and levels of depression for people with IBD (Kinash, Fischer, Lukie, & Carr, 1993). No studies examine relationships with anxiety, and there is very little information pertaining to specific coping skills used by people with IBD. Counselors need information about possible HRQOL correlations with coping skills and about specific coping skills used by people with IBD to improve holistic treatment.

1.2.6 Social Support

Social support refers to the quantity of, and satisfaction with, emotional support, guidance, and tangible aid or help from friends and/or family members (Ruehlman, Lanyon, & Karoly, 1998). Social support has received significant attention in the medical literature; however, only a small number of studies have focused on social support in the IBD literature.

The effect of social support on anxiety and depression has been studied in other medical populations, including pregnant women and people with breast cancer, cardiac
illness, multiple sclerosis, ovarian cancer, and chronic pain. In these various populations, several studies have found negative relationships between social support and anxiety and/or depression (Christensen, Turner, Slaughter, & Holman, 1989; Feldman, Schaffer-Neitz, & Downey, 1999; Glazier, Elgar, Goel, & Holzapfel, 2004; Hipkins, Whitworth, Tarrier, & Jayson, 2004; Hughes et al., 2004; Neuling & Winefield, 1988; Norbeck & Anderson, 1989; C. Schwartz & Frohner, 2005; Symister & Friend, 2003). One study found no relationship between social support and anxiety for women with suspected breast cancer (Drageset & Lindstrom, 2003). It is important to understand the role that social support plays in the lives of people with IBD and to determine if social support is related to anxiety and depression levels for people with IBD because this would provide counselors with some direction for treatment when working with people with IBD.

1.2.7 Negative Social Interactions

“Negative social interactions” is a concept that refers to angry, hostile, impatient, unpleasant, inconsiderate, insensitive, demanding or distracting interactions between people (Ruehlman et al., 1998). This is not to be confused with a lack of a positive social support in which a person lives with a weak or nonexistent social support system. Instead, negative social interactions refer specifically to the existence of negative, hostile, or unpleasant experiences either with friends, co-workers, neighbors, family, spouses or significant others (Ruehlman et al., 1998). It would be possible for a person to experience both positive social support and negative social interactions with different people.

Researchers have only recently begun to focus on the impact of negative social interactions; therefore, little information is available and no studies to date have investigated this topic for people with IBD. Some studies utilizing other populations have
found significant positive relationships between negative social interactions and both anxiety and depression (Bertera, 2005; Ray, 1992; Song & Ingram, 2002). Conversely, one study found no relationship between negative social interactions and depression (Symister & Friend, 2003). This information from other populations reinforces the need to understand whether negative social interactions are associated with anxiety and depression for people with IBD.

1.3 Purpose of Study

The overall purpose of this study was to create a better understanding about HRQOL issues for people with IBD by (a) gaining information about specific coping skills used by people with IBD, and (b) gaining information about the relationship of coping skills, social support, and negative social interactions to state anxiety and depression.

Research to date shows that there is a predictive link between IBD severity and state anxiety, and between IBD severity and depression (Addolorato et al., 1997; Kurina et al., 2001); however, research examining other predictor variables is needed. Further understanding the relationship between IBD and depression and state anxiety needs to be the next component of research. One important step in this quest for understanding involves gathering information about whether or not coping skills, social support, and negative social have a predictive relationship with state anxiety and depression for people with IBD. Research has shown that coping skills, social support, and negative social interactions can have a significant impact on anxiety and depression in other populations.
Research now needs to determine what predictive role these variables play in relation to anxiety and depression in IBD populations.

As further rationale for this study, little information is available pertaining to coping skills used by people with IBD. This line of research will examine specific coping skills used by people with IBD in the obtained sample. Counselors need data on coping skills in order to incorporate an effective holistic approach for treating clients.

1.4 Research Questions

Several specific research questions are of interest to this study and are listed as follows.

*Question One:* From the biopsychosocial questionnaire, which variables describe the subjects diagnosed with IBD in the obtained sample?

*Question Two:* Which specific coping skills are used by the subjects in the obtained sample?

*Question Three:* Do IBD severity, length of time having IBD, coping skills, social support, and negative social interactions have a predictive relationship with state anxiety in the obtained sample?

*Question Four:* Do IBD severity, length of time having IBD, coping skills, social support, and negative social interactions have a predictive relationship with depression levels?

1.5 Definition of Terms

The following terms will be used in this study and are explained for clarity:

1. **Coping skills:** Strategies that an individual uses in efforts, both action oriented and intrapsychic, to master, tolerate, manage or minimize environmental and
internal demands (conditions of harm, threat, conflict or challenge) that are appraised, or perceived, as exceeding or placing stress on his or her personal resources (Lazarus, 1993; Lazarus & Folkman, 1984; Monat & Lazarus, 1991). Coping skills can have a positive-adaptive or negative-maladaptive effect on a person’s health status (Lazarus, 1993). Coping skills will be measured in this study with the Coping Strategies Questionnaire (CSQ).

2. **Depression**: This concept refers to depressed mood or loss of interest or pleasure in most activities. Depression also includes other possible indicators such as (a) changes in weight, appetite, sleep patterns, psychomotor activity, and/or energy levels; (b) feelings of worthlessness or guilt; (c) difficulty concentrating or making decisions; and (d) recurrent thoughts of death or suicidal ideation, plans, or attempts (American Psychiatric Association, 2000). Depression will be measured in this study with the Beck Depression Inventory (BDI).

3. **Health Related Quality of Life (HRQOL)**: HRQOL is a broad concept -commonly used with people who have short term, chronic, or terminal physical illnesses- that addresses a person’s overall satisfaction with life, general sense of personal well being, and physical and psychological health (Casellas et al., 2001; Gladis et al., 1999; Kennedy et al., 2001; Love et al., 1992; Shumaker et al., 1990). HRQOL reflects a treatment focus beyond physical symptom improvement or management (Kennedy et al., 2001). Some specific HRQOL dimensions include, but are not limited to: anxiety, depression, stress, adjustment, anger, helplessness, physical symptoms, and daily functioning (i.e. sleep patterns, energy, mobility, social isolation, housework, employment) (Kennedy et al., 2001). The overall concept of
HRQOL is not measured in this study, although components of HRQOL including disease severity, anxiety and depression are measured.

4. **Holistic Treatment Approach**: “A biopsychosocial model of health and well-being that emphasizes reciprocal interactions among the biological, psychological, social, and spiritual dimensions that influence health” (Roberts et al., 2002, p. 422). The holistic treatment approach focuses equally on the mind, body and spiritual aspects of a person (Roberts et al., 2002). Holistic treatment will not be measured in this study.

5. **Inflammatory Bowel Disease (IBD)**: A disease classification that encompasses both Ulcerative Colitis and Crohn’s Disease. This is a physiological disease of the gastrointestinal tract for which there currently is no known etiology or cure (Mittermaier et al., 2004). Current treatment includes surgical treatment and daily medications (Steiner-Grossman et al., 1992). Diagnosis of IBD can only be determined by a medical doctor. Severity of IBD physical symptoms is measured in this study with the Inflammatory Bowel Disease Questionnaire (IBDQ).

6. **Negative Social Interactions**: This concept refers to angry, hostile, impatient, unpleasant, inconsiderate, insensitive, demanding or distracting interactions between friends, co-workers, neighbors, family members, spouses, or significant others (Ruehlman et al., 1998). Negative social exchanges will be measured with the “Negative Social Exchange” scale on the Multidimensional Health Profile.

7. **Social Support**: This concept refers to the quantity of and satisfaction with emotional support, guidance, and tangible aid or help from close friends and/or
family members (Ruehlman et al., 1998). Social support will be measured with the “Total Social Support” scale on the Multidimensional Health Profile.

8. **State Anxiety**: State Anxiety refers to a type of situational anxiety that appears as a reaction to specific situational triggers (Spielberger, 1983). State Anxiety is not inherent to an individual’s personality and is not consistent across time or situation (Spielberger, 1983). State anxiety is transitory and “is conceptualized as an emotive state characterized by subjective feelings perceived on a conscious level as apprehension and tension with an increase in the activity of the autonomous nervous system, which varies with time” (Addolorato et al., 1997, p. 1015). State anxiety will be measured in this study by the State-Trait Anxiety Inventory.

9. **Trait Anxiety**: Refers to a type of anxiety that is inherent within an individual’s personality and reflects a great deal of stability across time and situations (Spielberger, 1983). “Anxiety as a trait refers to individuals with a relatively stable continuous disposition towards anxiety” (Addolorato et al., 1997, p. 1015). Trait anxiety will not be measured in this study.

1.6 Limitations of the Study

There are several limitations to this study. First, this study is a preliminary and exploratory attempt to collect data pertaining to HRQOL predictors for people with IBD, thus, findings need to be interpreted accordingly with caution. As a preliminary study, numerous variables will be examined and the sample likely will not reflect an adequate size given the large number of variables. Further, this study will use descriptive and correlational data analysis and will not involve inferential direct manipulation of an
independent variable. Therefore, cause and effect evaluations for any of the variables will not be possible.

Although efforts were made to collect a study sample representative of the greater IBD population, this study relied on nonprobability based sampling techniques and the sample reflected a collection of self-selected participants. It is possible that differences exist between people with IBD who would agree to participate in an IBD research study, and those who would not. Generalizability of results from this research is limited to people with IBD who would volunteer to participate in a research study. Finally, participants completed self-report instruments. This is a limitation in that the researcher cannot ascertain the level of honesty, accuracy, and realistic self-appraisal in the self-report responses.

1.7 Summary

IBD is a debilitating chronic illness that has a significant impact on a person’s HRQOL. Specifically, state anxiety and depression are two HRQOL dimensions that can be especially problematic for people with IBD. Although the positive relationship between disease severity and both anxiety and depression is well documented, disease severity does not account for 100% of the variance in either anxiety or depression. Further, many people with severe IBD do not develop comorbid anxiety and/or depression. This line of research will provide preliminary information pertaining to other possible anxiety and depression predictor variables including coping skills, social support, and negative social interactions. Additionally, there is little information available pertaining to coping skills used by people with IBD and this research will examine the
specific coping skills used. Information from this study will address a gap in the IBD literature and will help to improve holistic treatment for people with IBD.
CHAPTER 2
REVIEW OF THE LITERATURE

2.1 Introduction

Being diagnosed with IBD has a tremendous impact on a person’s life. Coping physically with the disease typically involves a great deal of medication, physical monitoring, and close interactions with a reliable gastrenterologist. Living with IBD can impact a person’s mental health, and problems with comorbid anxiety and depression are common. Little research has addressed anxiety and depression issues for people with IBD but what is available suggests a link between IBD activity and severity with anxiety and depression (Addolorato et al., 1997; Anton, 1999; Sewitch et al., 2001). Coping skills, socials support and negative social interactions have been correlated with anxiety and depression in other illness populations. It is possible that they may also be relevant to people with IBD

2.2 Inflammatory Bowel Disease Defined

Crohn’s disease and ulcerative colitis are commonly labeled together as inflammatory bowel disease (IBD) (Karlinger et al., 2000). IBD is a debilitating chronic illness that affects over one million of people in the United States of America (CCFA, 2005). The incidence of ulcerative colitis has remained relatively stable; however, the incidence of Crohn’s disease has inexplicably and dramatically increased in the last decade (Silverstein et al., 1999). Medical researchers have been studying IBD for more
than 60 years, but the etiology of this disease is still unknown (Karlinger et al., 2000; Shepanski et al., 2005). To date, there is no cure for IBD and physiological treatment focuses on symptom management through pharmacological and surgical interventions (Steiner-Grossman et al., 1992).

IBD symptom management involves daily combinations of oral medications, suppositories, and enemas (Steiner-Grossman et al., 1992). People have to work with their doctor to determine the right “cocktail” as it is different for each individual. When medications fail, surgical interventions must be considered. Living with IBD can involve numerous surgeries on the colon for both Crohn’s disease and ulcerative colitis patients, or additional surgeries to the small intestine for Crohn’s disease patients. Complete removal of the colon alleviates all ulcerative colitis symptoms, but not for Crohn’s disease. Of course having the colon removed also opens the door to coping with an ileostomy, which many people fear (Steiner-Grossman et al., 1992).

Crohn’s disease can affect any part of the gastrointestinal tract from the mouth to the anus, and when symptoms are active in the bowel, they affect the full thickness of the colon wall (Steiner-Grossman et al., 1992). Ulcerative colitis attacks only the colon and is found in the inner lining of the colon wall (Steiner-Grossman et al., 1992). Further symptoms of IBD that appear throughout the body include ulcers, intestinal bleeding, diarrhea, cramping, severe intestinal pain, fatigue, nausea, joint problems, back pain, eye infections, sight problems, red swollen skin on the shins of the legs, painful deep ulcerations on the forearms and legs, and mouth ulcers (Brandt & Steiner-Grossman, 1989; Falvo, 1999; Steiner-Grossman et al., 1992). IBD tends to have a waxing and waning progression with periods of active symptoms (flares) and inactive symptoms.
(remission). Still, for many people the disease is aggressive and progressive with little symptom inactivity (Falvo, 1999; Steiner-Grossman et al., 1992).

2.3 Holistic Approach

Treating the whole person through an holistic treatment approach is a growing focus in the clinical and rehabilitation counseling fields (Brand, 1995; Roberts et al., 2002). The holistic approach focuses equally on the mind, body, and spiritual aspects of a person, and emphasizes the interconnections and interdependence between them (Kabat-Zinn, 1990). Specifically speaking, an holistic treatment approach is a “biopsychosocial model of health and well-being that emphasizes reciprocal interactions among the biological, psychological, social, and spiritual dimensions that influence health” (Roberts et al., 2002, p. 422).

The holistic model does not negate the importance of the physiological/biological aspect of a person, which is the entire focus of the medical model (Kabat-Zinn, 1990; Pollin, 1995). Instead it looks at a broader picture and considers ways that the physiological/biological aspects impact the psychological and spiritual aspects of a person, and in turn, how the psychological and spiritual impact a person physiologically (Kabat-Zinn, 1990; Pollin, 1995). When the person’s psychological state is addressed along with the medical condition, positive prognostic outcomes can be achieved (Roberts et al., 2002). Roberts et al. reported, “Currently there has been sufficient scientifically documented evidence to assert that psychological factors do affect physical health, including onset and outcome of some medical illnesses” (2002, p. 422). Further, there is a degree of consensus that the body’s natural ability to heal, by way of the immune system, may be partially dependent on mental processes created through a person’s thoughts,
emotions, reactions, fears, and optimism (Anton, 1999; Kabat-Zinn, 1990; Roberts et al., 2002).

Using a holistic approach is integral to researching and treating people with IBD (Sainsbury & Heatley, 2004). People diagnosed and living with IBD may never regain their previous level of physical functioning, but they may regain their satisfaction and joy in life if a holistic approach is taken toward their treatment options (Roberts et al., 2002; Shepanski et al., 2005). Research that addresses holistic variables is needed if practitioners are to meet the needs of people with IBD.

2.4 Quality of Life - HRQOL

Historically, the medical model approach of treatment for physical illnesses has been the predominate model used (Treischmann, 1995). This model focuses exclusively on physiological aspects of the person and the disease (Treischmann, 1995). The psychological impact of having a disease was not taken into consideration by early medical practitioners, which meant that treatment options were not created for the whole person (Brand, 1995; Treischmann, 1995). In recent years, there has been a movement in the medical community that acknowledges the importance of considering more than just the physiological aspect of diseases and people (Brand, 1995; Gladis et al., 1999; Kennedy et al., 2001; Shumaker et al., 1990). “Health related quality of life” (HRQOL) is a term that was created to be in line with holistic models and to indicate a broader focus of treatment that includes quality of life issues (Brand, 1995). HRQOL is a broad concept and it encompasses several different dimensions including psychological health, satisfaction with life, personal well-being, and physical health (Casellas et al., 2001; Eisen & Farmer, 1996; Farmer et al., 1992; Irvine et al., 1998; Love et al., 1992). There
are numerous measures for the different HRQOL domains leading to vast possibilities for research that needs to be conducted. Anxiety and depression are widely recognized as two of the HRQOL psychological health dimensions (Derogatis & Wise, 1989).

Quality of life can be significantly impaired for people with IBD (Zaag-Loonen, Grootenhuis, Last, & Derkx, 2004). However, information on HRQOL for people with IBD is very limited (Sainsbury & Heatley, 2004). Most HRQOL research for IBD has involved physiological aspects, and the areas of psychosocial function have rarely been addressed. There are HRQOL studies that reveal positive relationships of IBD symptoms and severity with coping, anxiety and depression (Addolorato et al., 1997; Alberts, Lyons, & Anderson, 1988; Kinash et al., 1993; Sewitch et al., 2001). However, HRQOL research has not yet examined other factors that may contribute to HRQOL anxiety and depression, and only one study has provided preliminary information on correlations between depression and coping (Kinash et al., 1993). Specific information pertaining to predictors of anxiety and depression are needed to meet the holistic needs of people with IBD.

2.5. Anxiety, Depression, and People with IBD

The diagnosis of a chronic medical illness, such as IBD, can have a devastating effect on a person’s physical and emotional health, career, sexual relationships, friendships, and family life (Addolorato et al., 1997; Brand, 1995; Brandt & Steiner-Grossman, 1989; Falvo, 1999; Roberts et al., 2002; Rolland, 1994). People with chronic illness frequently develop problems with depression and anxiety due to the pain, physical changes, loss of personal control, and uncertainty about the future (Addolorato et al., 1997; Pollin, 1995; Roberts et al., 2002; Steiner-Grossman et al., 1992). Research has
clearly shown that both depression and anxiety are common problems for people diagnosed with IBD (Addolorato et al., 1997; Sewitch et al., 2001). IBD related depression and anxiety typically result from coping with the loss of personal control, coping with high levels of pain, knowing that there is no cure for the disease, coping with the life altering aspects of the disease, facing the unknown progression of the disease, and never knowing when or where the disease is going to become active (Steiner-Grossman et al., 1992).

Prior to the 1960s, IBD was considered to be one of the seven classic psychosomatic illnesses (Engel, 1955; Murray, 1984; North, Clouse, Sptznagel, & Alperes, 1990; Sperling, 1960). Because of this classification, research focused on the personality types and psychodynamics of people with IBD (Murray, 1984). For years, people suffered not only from the physical symptoms of IBD, but also from treatments that focused on psychological interventions instead of medical biological interventions and from the stigma associated with the psychosomatic label (Murray, 1984; North et al., 1990).

By the late 1960s, advances in research determined that IBD has biological origins, and research now focuses on physiological and immunological explanations and treatments (Kurina et al., 2001; Murray, 1984; Steiner-Grossman et al., 1992). In addition, North et al. (1990) conducted a comprehensive review of 138 early studies that investigated cause and effect between psychiatric factors and ulcerative colitis. North et al. (1990) reported that all but seven of those studies had serious methodological problems. Studies that did find psychiatric factors to have a causal influence on the development of IBD had flaws in the research design such as no control group, unclear or
inappropriate manner of data collection, and lack of sound diagnostic criteria. The seven studies with strong methodology did not find that psychiatric factors led to IBD. Based on research since the 1960s, the predominate viewpoint is that anxiety and depression are common concerns for people with IBD and that these mental health issues result from the problematic physical symptoms and life-altering aspects of IBD (Addolorato et al., 1997).

When the focus of IBD origin moved from psychological variables to physiological variables, so did the focus of research investigations (Levenstein, 2004). The medical model of treatment typically does not address the psychological symptoms that result from chronic illness (Pollin, 1995). This has proven to be true with the current medical focus of IBD treatment and research, thus leaving no consensus or direction for choosing and administering appropriate psychosocial interventions based on the individual’s needs (Levenstein, 2004; Maunder & Esplen, 1999).

Few studies have examined anxiety and depression issues for people with IBD. Those that have done so have made important initial contributions to understanding anxiety and depression issues associated with IBD severity by examining the correlations of IBD with depression and/or anxiety levels.

Addolorato et al. (1997) used IBD subjects (n=79) and a control group (n=36) to investigate depression, state and trait forms of anxiety, and nutritional status. This study found that IBD subjects and controls had similar levels of trait anxiety. However, IBD subjects had state anxiety levels that were approximately 43% higher and depression levels that were 35% higher than for the control group. In looking at periods of active IBD disease symptoms versus periods of remission, it was found that depression and state-anxiety levels were elevated during active-disease periods, but during remission
periods (a) depression levels dropped 40% and state anxiety dropped 60% for the Crohn’s disease subjects, and (b) depression levels dropped 48% and state anxiety dropped 70% for the ulcerative colitis subjects. Trait anxiety levels remained constant for both Crohn’s and ulcerative colitis groups regardless of disease activity. In looking at “undernourished” subjects as compared to “well-nourished” subjects, state anxiety levels were 50% higher and depression levels were 60% higher for the undernourished group. Addolorato et al. (1997) concluded that undernourished subjects likely had more severe disease symptoms, thus leading to the malnourishment and higher levels of mental duress. Maintaining weight is a common problem for people experiencing severe IBD symptoms. Although not discussed in the article, it is also possible that perhaps the depression led to the malnourishment, or contributed to it. Since cause and effect cannot be determined from a correlational study, all interpretations need to be considered.

Schwartz and Blanchard (1991) completed a study with 11 IBD experimental subjects and 10 IBD control subjects in which they investigated the effects of a 12-session cognitive-behavioral stress management program on anxiety, depression, and physical IBD symptoms. The stress-reduction program did not decrease IBD disease symptoms; however, there were significant reductions in depression levels and state-anxiety levels. Also, subjects reported that they were better able to cope with stress after the 12-session treatment. Regardless of these findings, Blanchard (2001) reported that he would “recommend against” using cognitive behavioral procedures to treat people with IBD due to the failure of the treatment to reduce physical IBD symptoms. Blanchard’s (2001) conclusion appears to be in line with the medical model paradigm in which biological aspects are stressed and attention is not given to the whole person.
In a larger study involving social support, Sewitch, et al. (2001) examined anxiety and depression for people with IBD ($N = 199$). This study used the Symptom Check-List 90-R to calculate anxiety and depression levels. Sewitch et al. (2001) compared people with active IBD to people with inactive IBD. Results showed that people with active IBD scored significantly higher than people with inactive IBD on SCL-90-R subscales. For depression, 24% of the people with inactive IBD as compared to 56% of the people with active IBD had clinically important levels of depression. For anxiety, 22% of people with inactive IBD as compared to 38% of people with active IBD had clinically important levels of anxiety. This illustrates that anxiety and depression do tend to increase during times of active IBD. However, this does not hold true for all people with IBD. It would be helpful to have information about other possible variables that may correlate with anxiety and depression. Although this study did involve a component with social support (discussed in section 2.71 of this chapter), it did not investigate correlations of social support with anxiety or depression.

Based on a review of the medical literature, Anton (1999) reported that there is mounting evidence that stress from having IBD and an individual’s response to that stress, often the development of anxiety or depression, can play an important role in the clinical presentation of IBD. Studies reviewed in Anton’s (1999) article focused on animal clinical trials and investigations into human Substance P, Substance P receptors, mucosal histology, and the Hypothalamic-Pituitary-Adrenal Axis. Anton suggested that adjunct IBD treatment options and research endeavors should focus on anxiety and depression issues for people with IBD.
IBD researchers moved from focusing solely on psychological factors prior to the 1960s to ignoring psychological factors after the 1960s. It is only in the last decade that a handful of researchers have begun to investigate the psychosocial and mental health issues associated with IBD. Research has shown that anxiety and depression are significant issues for many people with IBD. It has also shown that anxiety and depression correlate with IBD activity. Importantly though, not everyone with IBD has problems with anxiety and depression, and IBD severity and activity do not completely predict anxiety or depression. Other variables must be present and need to be investigated. Although a degree of progress is being made, the research is still sparse, leaving practitioners with little direction when trying to meet the needs of this population.

2.6 Coping Skills

Coping with the physical symptoms and life changing aspects of IBD can be challenging for people with IBD (Steiner-Grossman et al., 1992). Coping skills are the strategies, both action oriented and intrapsychic, that a person uses in efforts to master, tolerate, manage or minimize environmental and internal demands (conditions of harm, threat, conflict or challenge) that are appraised, or perceived, as exceeding or placing stress on his or her personal resources (Lazarus, 1993; Lazarus & Folkman, 1984; Monat & Lazarus, 1991). The coping skills that a person uses can have a positive-adaptive or negative-maladaptive effect on a person’s health status (Lazarus, 1993).

The study of coping has followed an interesting evolution. McCrae (1984) created a helpful timeline and pointed out that original theoretical work on coping was combined with work on defense mechanisms in early Freudian psychoanalytic formulations. Coping was believed to be a secondary process to unconscious defense mechanisms that was
applied to intrapsychic conflicts (McCrae, 1984). It was during the 1960’s that the research dropped its focus on coping and turned to a focus on stress, and on the effects of stressful events on both physical and psychological health (McCrae, 1984). Much literature was produced which attempted to show that experiencing a large number of stressful life events would lead to the development of illness (McCrae, 1984). As research on stress grew, it was found that only small portions of the variance in illness could be accounted for by stress, so in the 1980s, once again, a significant research focus returned to coping as a predictor in illness research (Billings & Moos, 1981; McCrae, 1984). This focus has continued from the 1980s to the present (Harland & Georgieff, 2003).

Generally, coping inventories are not psychometrically strong (Bowling, 1997). Further, there is debate concerning the best way to measure and analyze coping skills. There is consensus that most people rely on more than one specific coping behavior or skill (Anie et al., 2002; Barry & Elander, 2002; Curtis, Groarke, Coughlan, & Gsel, 2004; Harland & Georgieff, 2003). Some researchers support the process of utilizing numerous coping subscales to collect data, and then reducing those subscales into a smaller set of items, or factors, through statistical procedures such as factor analysis (Curtis et al., 2004; Martin et al., 1996). The smaller number of factors typically yields greater statistical strength. Other researchers acknowledge the problem with using large numbers of variables in statistical analysis, but claim that information provided from numerous small coping scales is more relevant and helpful than the statistical strength that comes with fewer composite variables (Curtis et al., 2004; Martin et al., 1996)
Although the exact mechanisms are not clear, researchers and practitioners are aware of the fact that coping strategies often act as important mediators of both psychological and physiological experience in chronic illness (Rosenstiel & Keefe, 1983). Coping is believed to be a response to an external stressor, such as illness, and this response is believed to be a conscious strategy that the individual is aware of to reduce the external stressor’s impact (McCrae, 1984). Lazarus (1980; 1993) explained that both problem-solving and regulation of emotional distress are two major functions of coping, and this process of coping makes a significant difference in the degree to which a person is able to adapt. Coping is considered to be effective when it leads to the reduction, or overall elimination of, distress (Lazarus, 1980). The problematic entity may still be present, but the person will not be as distressed in any emotional, social, or physiological manner (Lazarus, 1993).

The effects of coping have been studied in numerous illness populations including cancer, arthritis, chronic pain, sickle cell disease, fibromyalgia, and hemophilia (Anie et al., 2002; Barry & Elander, 2002; Classen, Koopman, Angell, & Spiegel, 1996; Curtis et al., 2004; Martin et al., 1996; Snow-Turek, Norris, & Tan, 1996). Harland and Georgieff (2003) reported that the evidence that physically and pathologically similar people can react very differently to their health condition has led to great interest in the coping mechanisms that these people use. This interest is gradually becoming a focus in the IBD research (Zaag-Loonen et al., 2004). Since IBD is a chronic, incurable disease, people diagnosed with IBD have to cope with that condition on a constant basis. It is important to understand the methods that people with IBD use to cope. A small number of studies have investigated coping methods for people with IBD.
Smolen and Top (1998) examined correlations of coping with perceived health, perceived functioning and well-being in people with IBD ($N = 46$). This study found that evasive (avoiding the problem), fatalistic (feeling hopeless and pessimistic), and emotive (responding emotionally) coping methods each had significant negative correlations with perceived health and with well-being. Evasive, fatalistic, and supportive (using support resources) coping methods each had a significant negative correlation with perceived functioning. Using regression analysis, Smolen and Top found the 20% of the variance in health perceptions could be predicted from the use of emotive coping methods. The use of fatalistic coping methods predicted 24% of the variance in perceived functioning. The use of fatalistic coping method predicted 51% of the variance in perceived well-being. Findings from this study indicate the significant role that coping methods can play for people with IBD.

Albert, Lyons, and Anderson  (1988) examined correlations between coping styles and illness variables for people with IBD ($N = 38$). This study examined several illness variables including age, duration of time since diagnosis, disease severity, perceived effectiveness of medical treatment, and perceived control of illness. Albert et al. reported that the coping styles identified and assessed in this study are based on personality profiles. The description of each coping style reads more like a personality description. Duration and severity of disease did not correlate with any of the coping style variables. Age of onset correlated positively with the forceful method of coping. People using the forceful style of coping are overly aggressive, hostile and domineering and tend to fight the illness (Alberts et al., 1988). Effectiveness of medical treatment correlated positively with introversion style of coping. People using the introversion style of coping minimize
distress and are colorless, emotionally flat, seclusive, and aloof (Alberts et al., 1988). As introversion increased, satisfaction with medical treatment increased. Control of the illness correlated negatively with the sociable coping style and correlated positively with the sensitive method of coping. People using the sociable style are “outgoing, talkative, and charming, perhaps dramatic and emotional” (Alberts et al., 1988, p. 73). People using the sensitive style “tend to be unpredictable and moody, may feel as if they were born to suffer, often dissatisfied psychologically and physically (Alberts et al., 1988, p. 73). Based on the descriptions of the coping styles assessed, this appears to be more of a personality investigation than a coping investigation. Alberts et al. (1988) suggested that psychological interventions addressing coping styles may improve quality of life for people with IBD.

Kinash, Fischer, Luke and Carr (1993) examined coping patterns, disease severity, and depression for people with IBD (N=150). This study focused on Lazarus’ (1980) affective-oriented and problem-oriented coping styles. Affective-oriented coping refers to thoughts and/or actions that relieve or decrease the emotional impact of a stressor or problematic situation. Problem-focused coping refers to thoughts and/or actions that reflect an effort to improve the problematic situation or remove the stressor. Problem-oriented coping styles had significant positive correlation with disease severity. Affect-oriented coping correlated positively with depression. Kinash et al. (1993) reported that people in their study were more likely to use problem-oriented coping styles than affect-oriented coping styles. This is interesting, because according to Folkman and Lazarus (1980), problem-oriented coping increases in situations appraised by people as
changeable, and affective-oriented coping increases in situations appraised by people as not amenable to change.

2.7 Social Support and Negative Social Interactions

Early social support research focused almost exclusively on investigations of positive forms of social support with mental and physical health (S. Cohen & Wills, 1985; Ruehlman et al., 1998). In the late 1970s and early 1980s, publications on social support began to acknowledge that social networks involved both positive social support and negative social interactions (Gallant, 2003). Starting in the 1980s, researchers began to provide demonstrations of the significant role that negative social interactions play into the overall picture of social support (Rook, 1984; Ruehlman et al., 1998). Positive social support and negative social interactions are now considered to be important independent concepts; therefore, positive social support and IBD specific research will be addressed in section 2.71 and negative social interactions (no IBD specific literature available) will be addressed in section 2.72 of this chapter. Although there is research addressing these topics individually, more recent publications emphasize that social support research needs to include both positive social support and negative social interaction domains to be of value (Bertera, 2005; Finch, Okun, Barrera, Zautra, & Reich, 1989; Ingersoll-Dayton, Morgan, & Antonucci, 1997; Schuster, Kessler, & Aseltine, 1990). Research addressing both positive social support and negative social interactions will be addressed in section 2.73 of this chapter. Being that no IBD specific research is available for both positive social support and negative social interactions, section 2.73 will focus on research conducted with other populations.
2.71 Positive Social Support

Positive social support is a concept that refers to quantity of and satisfaction with emotional support, guidance, and tangible aid or help from friends or family members (Ruehlman & Karoly, 1991; Ruehlman et al., 1998). In general healthy populations, early research provided evidence of positive relationships between positive social support and physical and emotional health (Gallant, 2003; Grissett & Norvell, 1992). Positive social support has been an important concept in the wellness literature and is also now an important consideration in HRQOL research (Grissett & Norvell, 1992). In illness populations, the focus on positive social support continues to grow as HRQOL becomes a more common consideration. Although there is an understanding that the broader concept of social support encompasses both positive social support and negative social interactions, positive social support is frequently referred to simply as “social support” in the literature.

Positive social support is thought to help people cope with stressful events, such as disease and chronic illness (Bolger, Foster, Vinokur, & Ng, 1996; Penninx et al., 1998). Though not directly confirmed in research, it is believed that positive social support may reduce the effects of illness stressors, and thus improve HRQOL for people coping with illness (Bennett et al., 2001; Bolger et al., 1996). The effects of social support on HRQOL are not universal though, and can vary across different diseases (Penninx et al., 1998). The impact of positive social support can also differ across healthy and illness populations (Schroevers, Ranchor, & Sanderman, 2003). Further, positive social support does not always correlate with HRQOL domains (Drageset & Lindstrom, 2003; Schroevers et al., 2003).
There is discrepancy in the literature as to the best way to measure positive social support. There are three common types of positive social support: emotional support (compassion, empathy, kindness, and caring), informational support (advise, information or guidance), and tangible support (provision of resources and help) (Ruehlman & Karoly, 1991; Ruehlman et al., 1998). One approach is to examine each individual type of social support as an independent measurement. To date, few studies examining the effects of positive social support distinguish between social support types (Reinhardt, Boerner, & Horowitz, 2006). The more common approach is to use a composite score that incorporates all three types of positive social support (Reinhardt et al., 2006). Although most research has been conducted with a composite score, there is no consensus on the best method for measuring social support (Reinhardt et al., 2006). Whether measuring the types of support independently, or as a composite, it is generally agreed upon that positive social support research needs to take into account support availability, satisfaction with support, and enacted or received support (Barrera, 1986; Ruehlman et al., 1998).

Positive social support research has been conducted with a variety of illness populations including persons with: cancer, multiple sclerosis, rheumatoid arthritis, high-risk pregnancy, chronic pain, cardiac disease, renal disease, multiple sclerosis, and chronic illness in general (Abraido-Lanza, 2004; Bennett et al., 2001; Butow, Coates, & Dunn, 1999; Gallant, 2003; Mohr, Classen, & Barrera, 2004; Penninx et al., 1998). Research has examined positive social support in relation to overall quality of life, depression, disease course and severity, and adjustment.
Although the research focus on positive social support is growing, that focus has not yet moved to the IBD literature. Only two studies have addressed positive social support issues for people with IBD (Joachim, 2002; Sewitch et al., 2001). These studies did not incorporate both negative social interactions and positive social support, but will be reviewed due to their focus on social support with IBD samples.

Joachim (2002) conducted a descriptive study to assess perceived level of positive social support for people with IBD ($N=97$). The purpose of this study was to serve as a foundation for the development of a social support program for people with IBD. Results showed that positive social support scores were very high with a mean or 143.86 out of a possible 175 points. Joachim (2002) pointed out that the score of 143.86 represents 82% of the highest score possible, but does not provide any cut-off values or comparative information to norms or other groups to understand how “high” these scores are actually. Due to the strong social support scores, plans to develop a social support program were terminated. It is difficult to determine how accurate these results are for several reasons. First, the study questionnaire was mailed to 300 people with IBD. Only 97 people returned a completed survey. So perhaps social support was only high in people who would select to participate. Second, the social support inventory was a generalized support inventory that asks respondents what support resources they would use if confronted with a variety of different situations. This could be construed as very different from asking respondents about availability of, actual usage of, and satisfaction with social support (Barrera, 1986).

Sewitch et al. (2001) examined positive social support, psychological distress, perceived level of stress, and disease activity in people with IBD ($N=199$). The social
support instrument provided separate scores for satisfaction with social support and size of support network. Psychological distress was measured with the Global Severity Index (GSI) on the Symptom Checklist 90-R (SCL-90-R) which provides an overall composite score for psychological distress. GSI scores $\geq 63$ are considered clinically significant.

GSI scores for 77 participants (38.7%) were $\geq 63$. In descriptive data comparisons to nonmedical, nonpsychiatric controls, people with IBD reported greater satisfaction with social support, but had fewer people in their support network. In a stepwise multiple regression analysis with psychological distress as the dependent variable, neither social support network size, or satisfaction with social support, loaded into the equation. Further examination found an interaction such that the relationship between psychological distress and satisfaction with social support changed depending on the level of stress. Sewitch et al. (2001) found that for people with low levels of perceived stress, satisfaction with social support did not correlate with the level of psychological distress. For people who experienced moderate to high levels of perceived stress, satisfaction with social support had a negative correlation with psychological distress. Correlational statistics were not provided.

There were a couple of drawbacks in the Sewitch et al. (2001) study. First, it would have been helpful to see actual correlational statistics between social support and psychological distress. Second, this study did compute depression and anxiety scores (previously discussed in sections 2.5 of this chapter); however, it did not investigate correlations between social support and either anxiety or depression. Third, social support satisfaction and network size were addressed; however, actual usage and availability were not addressed. Reinhardt et al (2006) pointed out that people can easily be satisfied with
their social support if they are not actually using it. When people actually need to use their social support network, a different picture of satisfaction can evolve.

2.72 Negative Social Interactions

Branching off of the social support literature is an area of inquiry that focuses specifically on the presence of negative social interactions. Negative social interactions (NSIs) is a concept that refers to angry, hostile, impatient, unpleasant, inconsiderate, insensitive, demanding or distracting interactions between friends, family members, coworkers, neighbors, spouses, partners, or significant others (Bertera, 2005; Ingersoll-Dayton et al., 1997; Ruehlman et al., 1998). NSIs can have a significant impact on quality of life dimensions (Bertera, 2005; Ingersoll-Dayton et al., 1997). Investigations have found that negative interpersonal events (involving marital/romantic relationships, children, extended family, social relations, and recreation) can arouse more distress than non-personal (school, work, finances, and health events) negative events, and this distress often persists over several days, whereas non-personal distress dissipates more quickly (Zautra, Burleson, Matt, Roth, & Burrows, 1994).

Several different terms are used in the literature to identify the phenomena of NSIs including problematic support, unhelpful social support, social undermining, social impediments, social negativity, conflictual social interactions, and negative social exchanges. Although there is a wide array of different labels for NSIs, the definitions for those labels remain the same.

It is important to note that the concept of NSIs does not reflect the absence of positive social interactions and support, but instead refers to the existence of negative, hostile, or unpleasant experiences (Ruehlman & Karoly, 1991; Ruehlman et al., 1998). It
is common for people to have both positive social support and NSIs in their lives (Bertera, 2005; Ingersoll-Dayton et al., 1997; Smymister & Friend, 2003; Stephens, Kinney, Norris, & Ritchie, 1987). Early researchers thought NSIs and social support were opposite ends of the same concept (Ingersoll-Dayton et al., 1997). Today it is generally accepted that NSIs and positive support are two separate, independent concepts (Ingersoll-Dayton et al., 1997); however, current research that involves both concepts typically involves a correlational component to examine any possible relationships between the NSIs and social support.

Measurement of NSIs commonly addresses four areas of negative interactions: (a) friends or family being angry, hostile or impatient; (b) friends or family making fun, gossiping, or rejecting; (c) friends or family acting insensitive or inconsiderate; and (d) friends or family being demanding or distracting (Ruehlman & Karoly, 1991; Ruehlman et al., 1998). Questions on NSI assessments typically assess all four areas and then provide a composite score.

Research has shown correlations between NSIs and anxiety, depression, overall mood, and adjustment for a variety of healthy populations and illness populations including people with cancer, rheumatoid arthritis, Parkinson’s disease, renal disease, HIV, and stroke (Bennett et al., 2001; Edwards, Hershberger, Russell, & Markert, 2001; Hamilton, 2000; Ray, 1992; Rook, 1990, 2001; Stephens et al., 1987). No research to date has examined NSIs with an IBD sample.

2.73 Research Addressing Both Positive Social Support and Negative Social Interactions

There is debate in the literature as to the role of NSIs and positive social support in predicting mental health and adjustment. Ingersol-Dayton et al. (1997) identified four
distinct models to characterize the effects of NSIs and positive social support. The *Positivity Effect Model* hypothesizes that positive social support has a more powerful impact than NSIs for mental health and adjustment outcomes (Ingersoll-Dayton et al., 1997). Ingersoll-Dayton (1997) reports that there is little support in the literature for this model. The *Domain Specific Model* hypothesizes that positive social support and NSIs may be equally important to their congruent dimensions, such that positive social support predicts positive mental health and adjustment outcomes, and NSIs predict negative mental health and adjustment outcomes (Ingersoll-Dayton et al., 1997). This model also has limited support in the literature (Finch, 1998; Ingersoll-Dayton et al., 1997). The *Negativity Effect Model* hypothesize that NSIs may be more important than positive social support in the consideration of adjustment and mental health issues to the degree that NSIs can both erode positive adjustment and psychological states and provoke negative adjustment and psychological states. There is significant support in the literature for this model (Bertera, 2005; Finch et al., 1989; Rook, 1990; Schuster et al., 1990; Stephens et al., 1987). The *Combined Positivity and Negativity Effect* Model also has limited research support and hypothesizes that NSIs and social support have equal strength in predicting both positive and negative mental health and adjustment outcomes. Although there appears to be more empirical support for the negativity effect model, Ingersoll-Dayton (1997) pointed out that each model is plausible. This theoretical debate has led to research investigations that (a) incorporate both NSIs and social support as predictor variables for different mental health and adjustment variables and (b) look for correlations between NSIs and social support. Most of the published research on NSIs involves simple correlational analyses, and only a few studies use multiple regression.
analysis. No studies to date have examined NSIs in an IBD population; however, authors have examined the relationships of NSI’s with mental health and adjustment in healthy populations and in a variety of illness and disability populations.

Ingersoll-Dayton (1997) claimed that one important methodological weakness in NSI and positive social support research is that much of this research focuses on a variety of geriatric and illness populations. Ingersoll-Dayton (1997) pointed out that results from these studies cannot be generalized to the general public due to the significant differences in life issues, dependency on others, and life stressors for people coping with age and illness. It would seem then that the inverse also would be likely, such that NSI research in healthy populations would not be generalizable to illness populations due differences in life issues, dependency on others, and life stressors. Therefore, this review will focus on research conducted with geriatric populations and populations with mental and physical illnesses.

Symister and Friend (2003) hypothesized that self-esteem would mediate the relationship of NSIs and social support with depression and optimism for a sample of end-stage renal disease patients ($N = 86$). Contrary to study expectations, NSIs did not correlate with either self-esteem or optimism. NSIs did have a small positive correlation with depression ($r = .24, p < .01$). Positive social support had a negative correlation with depression ($r = -.36, p < .01$), a positive correlation with self-esteem ($r = .38, p < .01$), and a positive correlation with optimism ($r = .18, p < .05$). When both positive social support and self-esteem were entered as predictor variables into a stepwise regression equation with depression as the dependent variable, the strength of social support declined ($r = .21, p < .01$). When both self-esteem and positive social support were entered as predictor
variables into a stepwise regression analysis with optimism as the criterion variable, social support no longer correlated with optimism. NSIs did not correlate with positive social support, which suggests that these two concepts were relatively independent of each other. Based on results from this study, Symister and Friend (2003) concluded that self esteem mediated the relationship between social support and both depression and optimism. They further concluded that these results show the importance of positive social support for depression levels, even when self-esteem is considered.

Ray (1992) examined correlations between NSIs, positive social support and anxiety and depression in a sample (N=207) of people with chronic fatigue syndrome. Results of this study showed that NSIs were positively related to both anxiety (r = .31, p<.001) and depression (r = .36, p< .001). Positive support was only negatively related to anxiety (r = -.25, p<.001). Positive social support and NSIs were negatively related (r = -.59, p<.001).

In a research study using qualitative design, Hamilton (2000) shared his personal experiences with cancer and anecdotal self-reports from fellow cancer survivors. Hamilton (2000) argues that NSIs exert greater impact on psychological adjustment to cancer than positive social support. Hamilton (2000) further hypothesized that NSIs may have a negative physiological impact for people with cancer and he called for more research to be conducted in this area.

Rook (2001) used a geriatric populations (N = 129; mean age = 70.27, range 60-89) living in a community residence to examine the relationship of positive social support and NSIs with mood and depression. Mood was defined as being a more transient state of mind that fluctuated daily. Depression was defined as a more stable mental health issue.
Positive mood, negative mood, and depression were assessed independently. Rook (2001) found a positive correlation between NSIs and depression ($r = .41, p < .01$). Positive social support did not correlate with depression. Analysis of daily mood showed that positive social support correlated positively with positive mood ($r = .32, p < .01$) but did not correlate with negative mood. In contrast, negative exchanges had a positive relationship with negative mood ($r = .57, p < .001$) and a negative relationship with positive mood ($r = -.43, p < .01$). NSI correlated with all three variables, but positive social support only correlated with positive mood, and this was the weakest correlation in the study. NSIs did not correlate with positive social support suggesting that they may be independent concepts.

Edwards, Hershberger, Russell and Markert (2001) examined correlations of social support and NSIs with physical health problems and general psychological well-being in a sample of university students ($N = 206$). Edwards et al. (2001) found a positive relationship between NSIs and physical health problems ($r = .42, p < .001$) and a small negative relationship between NSIs and psychological well-being ($r = -.19, p < .01$). Social support did not correlate with physical health problems or psychological well-being. There was a small negative relationship between NSIs and positive social support ($r = -.22, p < .001$).

Stephens, Kinney, Norris and Ritchie (1987) examined relationships of positive social support and NSIs with a variety of variables including morale and psychiatric symptoms in a geriatric population recently discharged from the hospital and recovering from stroke ($N = 48$). The data presentation in this article was incomplete; however, Stephens et al. (1987) reported a negative relationship existed between NSIs and morale,
and that a positive relationship existed between NSIs and psychiatric symptoms. No relationship was found between positive social support and either morale or psychiatric symptoms. Stephens et al. (1987) also reported that there was no relationship between positive social support and NSIs. This study also included two multiple regression models to predict morale and psychiatric symptoms. According to Stephens et al. (1987), for morale, health at discharge from hospital accounted for 5.5% of the variance (p-value not reported), NSIs contributed an additional 8.3% of the variance (p<.05), and positive social support did not load. For psychiatric symptoms, health at discharge accounted for 10.3% of the variance (p<.05), NSIs accounted for an additional 16.7% of the variance (p<.01), and positive support did not load. Results from this article should be interpreted with caution due to the incomplete data presentation; however, reported results are in line with findings in similar articles.

Grissett and Norvell examined positive social support, NSIs and disease severity in women with bulimia (N = 21). A significant positive relationship was found between NSIs and bulimia symptoms (r = .50, p<.001). There was a smaller negative relationship between positive social support and bulimia symptoms (r = -.38, p<.05). Bulimia symptoms also had negative relationships with perceived social support from friends (r = -.45, p<.01) and perceived social support from family (r = -.50, p<.001). There was a negative correlation between NSIs and positive social support (r = -.59, p<.001). Across studies, this was the strongest correlation reported between NSIs and positive social support.

Yanos, Rosenfield, and Horwitz (2001) examined relationships of NSIs and positive social support with different quality of life measures for people diagnosed with
“severe mental illness” \((N=104)\). Quality of life measures included subjective domains of general life satisfaction, satisfaction with social life, satisfaction with leisure, satisfaction with health, satisfaction with family, satisfaction with finances, and objective domains of amount of leisure, frequency of social contacts, and frequency of family contacts. Multiple regression analyses were run, entering control variables of symptoms and demographics (age, education, gender) and NSIs together to assess strength and significance of the relationship between NSIs and each quality of life measure independently, while controlling for the impact of symptoms and demographics. Results showed that regardless of control variables, NSIs were significantly associated with the QOL domains of general life satisfaction \((r = -.22, \ p<.05)\), satisfaction with leisure \((r = -.22, \ p<.05)\) and satisfaction with finances \((r = -.28, \ p<.05)\). Similar regressions were run replacing NSIs with positive social support as a predictor variable. Positive social support only contributed significantly to the satisfaction with social life domain \((r = .29, \ p<.05)\). A significant weakness of the Yanos et al. (2001) study is that NSIs and positive social support were not included together in a regression analysis and the study did not address correlations between NSIs and positive social support.

Clearly, research does support the link between NSIs and mental and physical health; however, interpretation of these results could follow two different paths. One interpretation is that negative social interactions take place, and in reaction, levels of psychological and physical health decline. In this interpretation, NSIs would predict mental and physical health and adjustment. A second interpretation is that people with mental and/or physical health problems attend to conflict in their social network to a greater degree, and thus create problematic experiences or are difficult to get along with
(Stephens et al., 1987). If psychologically or physically distressed people alienated others or routinely instigated negative interactions, then these individuals likely would not be able to maintain supportive relationships and interactions (Stephens et al., 1987). However, several comparisons of subjects’ reporting and not reporting NSIs do not indicate differences in supportive interactions and experiences (Stephens et al., 1987). Correlations are rarely found between NSIs and positive social support (Rook, 1990; Schreurs, DeRidder, & Bensing, 200; Stephens et al., 1987).

Although there is no analytical justification for interpreting cause and effect, research does lend some credence to the theory that NSIs can predict negative outcomes and positive social support can predict positive outcomes. The comparative roles of NSIs and social support are not clear and need further investigation. There is also no consensus as to which model (Stephens et al., 1987) is most credible. Indeed, few results from published studies fall neatly into just one of the models. It does appear that NSI’s may have stronger correlations than positive social support with both positive and negative outcomes, but the extent of that difference in strength is still unclear.

2.8 Conclusion

IBD is a debilitating chronic disease that can have a negative impact on a person’s quality of life and can lead to experiences of anxiety and/or depression (Casellas et al., 2001; Sewitch et al., 2001). While the link between IBD physical symptoms and psychological problems is quite clear, very little information is available about other possible predictor variables. Coping, positive social support and NSIs have been correlated with mental health issues in other medical populations. Further, it is understood that positive social support and NSIs are separate concepts; however, they
typically both occur in people’s lives: therefore, they need to be evaluated together for a study to be of value. Future research needs to examine relationships of coping skills, social support, and negative social interactions with anxiety and depression for people with IBD.
CHAPTER 3
RESEARCH METHOLODGY

3.1 Research Questions

Research Question 1. From the biopsychosocial questionnaire, which biopsychosocial variables describe the subjects diagnosed with IBD in the obtained sample?

Research Question 2. Which specific coping skills are used by subjects in the obtained sample?

Research Question 3. Do IBD severity, length of time with IBD, coping skills, social support, and negative social interactions have a predictive relationship with state anxiety levels in the obtained sample?

Research Question 4. Do IBD severity, length of time with IBD, coping skills, social support, and negative social interactions have a predictive relationship with depression levels in the obtained sample?

3.2 Participants

3.2.1 Population

All participants in this study were people who have been diagnosed with IBD – either Crohn’s Disease or Ulcerative Colitis - by a medical physician as determined through self-report. All participants were at least 18-years old. No other subpopulations were excluded.
3.2.2 Sampling Method

Due to the self-selective nature by which people chose to participate, or not participate, in this study, the participants represented an overall convenience sample. Participants were recruited in several different ways. First, the researcher mailed packets to IBD support group leaders in Ohio with a request for the leader to distribute packets to the group members. Support group leaders and their contact information were listed publicly on the Crohn’s Colitis Foundation of America (CCFA) website. Second, the researcher mailed packets to Ohio CCFA office personnel who had agreed to distribute packets to people with IBD who were either visiting or working in a CCFA office. Third, the researcher left survey packets at a local Gastroenterology office to be distributed by the receptionist to people with IBD who were waiting for their medical appointments. Participants returned the completed, sealed, survey packet to the researcher in the provided addressed and stamped envelope. Fourth, the receptionist at a local gastroenterology office mailed research packets to current patients. The receptionist generated mailing labels from the doctors’ office database, placed the labels on the survey packets, and placed the survey packets into the mail. Completed, sealed, survey packets were returned to the researcher in the provided self-addressed stamped envelope. For tracking purposes, the biopsychosocial data form in the survey packet included a question asking how the participant learned about the study. However, with this varied sampling approach, it was not possible to calculate a response rate.

3.2.3 Sample Size

As a general rule of thumb for sample size, a minimum of 15 people per variable - or level of a variable - in multiple regression studies is suggested (Mertens, 2005). A
researcher needs to always take into consideration sample size, effect size, and statistical power in multiple regression studies (Cohen, 1992; Hair, Anderson, Tatham, & Black, 1998). Due to the exploratory nature of this IBD study, 12 variables were examined. There was only one level for each variable. Based on Mertens’ (2005) sample size rule of thumb and the large number of variables, a minimum of 180 participants would be needed for this study to meet adequate sample size and statistical power parameters. Cohen (1992) provided a primer to determine adequate sample sizes for up to eight variables based on power, effect size, and alpha levels. According to Cohen (1992), for eight variables at a power of .80, and alpha of .05, 757 participants would be needed for a small effect size, or 107 participants would be needed for a medium effect size. The sample size for 12 variables would clearly be much larger.

From the onset, it was expected that it would likely be difficult to collect a large enough sample to satisfy statistical power and sample size requirements for this study. The researcher attempted to collect a sample size of 100 participants; however, actual sample size was 41 participants. It is understood that effect size and statistical power are limitations given the small sample size and large number of variables in this study. It is expected that the results from this preliminary study will be of significant value in that they will provide direction and foundation for future studies.

3.2.4 Demographic Information

A biopsychosocial information questionnaire was included in the survey packet (Appendix C). Biopsychosocial questions in this study addressed age, gender, race/ethnicity, annual household income, employment status, education level, religious affiliation, marital status, and number of children. Participants were asked about date of
IBD diagnosis, disease severity, stress associated with the IBD, diagnosis and treatment for either anxiety or depression, and diagnosis by a professional/physician for any mental illness. There were additional questions asking how often participants had visited their IBD doctor in the past year and if their IBD doctor has ever talked to them about anxiety and depression associated with coping with IBD. Further questions addressed health insurance coverage and out of pocket medical costs. Mental health questions asked about the participant’s history of counseling treatment and about their experience with IBD support groups.

3.3 Variables

3.3.1 Independent Variables

Research Questions One and Two were descriptive and did not involve independent variables. For Research Questions Three and Four, the independent variables were IBD severity, length of time with IBD, coping skills, social support, and negative social interactions. IBD severity was measured with the Inflammatory Bowel Disease Questionnaire (IBDQ) (Irvine, Feagan, & Wong, 1996). Length of time was measured with the Biopsychosocial questionnaire. Coping skills were measured with the Coping Strategies Questionnaire (CSQ) (Rosenstiel & Keefe, 1983). Social support and negative social interactions were measured with the Multidimensional Health Profile (MHP) (Ruehlman et al., 1998).

3.3.2 Dependent Variables

Research Questions One and Two were descriptive and did not involve dependent variables. The dependent variable for Research Question Three was state anxiety. The dependent variable for Research Question Four was depression. State anxiety was
measured with the State-Trait Anxiety Inventory- Form Y (Spielberger, 1983). Only State
anxiety was measured. Depression was measured with the Beck Depression Inventory
(BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961).

3.4 Instruments

3.4.1 Inflammatory Bowel Disease Questionnaire (IBDQ)

Existing generalized measures of disease activity are not “adequate to fully
encompass the illness experience of patients with IBD or its effects…” (Garrett &
Drossman, 1990, p. 95). The IBDQ is a measure of subjective health status for people
with IBD that provides more adequate and appropriate information than a generalized
questionnaire (Guyatt et al., 1989). The IBDQ is a 32-item self-report instrument that
uses a continuous interval scale to measure perceived IBD severity on four different sub
scales: intestinal function, systemic symptoms, social function, and emotional function
(Guyatt et al., 1989; Irvine, 1993a). Each question is scored on a 7-point Likert-type
scale. An independent score is generated for each subscale, so that all of the questions for
each sub-scale are summed to provide the final sub-scale score (Guyatt et al., 1989).
Higher scores indicate higher levels of IBD problems. The intestinal function scale
has 10 questions and measures the severity of the IBD physiological intestinal symptoms.
The systemic symptoms scale has five questions and measures other IBD symptoms
outside of the intestinal problems, such as fatigue, energy levels, sleep problems, weight
maintenance, and overall feelings of wellness. The social function scale has 5 questions
and measures the impact that IBD is having on a person’s social life, such as, missed days
of school/work, delayed or canceled social engagements, involvement in leisure or sports
activities, and satisfaction with personal life. The emotional function scale has 12
questions and provides a generalized measurement of emotions, but does not provide any specific information for any particular emotion, mood, or mental health condition.

This study only used the intestinal function scale since it is designed to measure physiological IBD severity (Appendix D). The BDI and STAI-State instruments were used to measure mental health domains instead of using the IBDQ emotional status scale because the BDI and STAI-state provide specific scores for anxiety and depression instead of an overall “emotional status” score. Information in the systemic symptoms scale and the social function scale were not used since they were not pertinent to this study.

The IBDQ was designed to help physicians assess subjective quality of life issues for people with IBD quickly and comprehensively (Guyatt et al., 1989; Irvine, 1993a). The IBDQ was created with 97 people diagnosed with IBD. These subjects described problems they had experienced from the disease including physical, emotional and social problems (Guyatt et al., 1989; Irvine, 1993b). The 32 most frequently reported items were included in the IBDQ.

Reliability of the IBDQ was examined with test-retest methods at a one month interval with 19 people who were experiencing a period of stable IBD symptoms (Guyatt et al., 1989; Irvine et al., 1994). The 19 people with stable IBD symptoms showed a “small” improvement in IBDQ scores at the one-month retest. There was a “large” change in IBDQ scores for people with IBD whose symptoms had either improved or deteriorated at the one-month retest – actual numbers for the large and small differences were not provided. Several publications have reported that this low level of test-retest variability in IBDQ scores for people with stable IBD symptoms and high levels of test-
retest variability in IBDQ scores for people with fluctuating IBD symptoms indicates
good test-retest reliability (Guyatt et al., 1989; Irvine, 1993b; Irvine et al., 1994; Irvine,
Zhou, Thompson, & CCRPT-Investigators, 1996); however, it is difficult to determine
this with actual test-retest statistics not being published.

Assessing criterion validity of a new instrument typically involves comparison
against an existing reliable and valid “gold standard;” however, there is no existing gold
standard with which to compare the IBDQ (Guyatt et al., 1989; Irvine et al., 1994). With
no existing comparison instrument available for criterion validity, Irvine (1994) reported
that it was necessary to assess relationships between the IBDQ scales and other
“yardsticks” that could examine IBDQ criterion validity such as participants’ self-
reported global assessments, evaluations by significant other people in the participants’
lives, and physician evaluations. To examine criterion validity for the IBDQ, data from
42 participants with fluctuating IBD symptoms were used to examine whether
participant’s subjective global assessments, evaluations by the participants’ significant
others, and physicians evaluations were related to corresponding IBDQ scales (Guyatt et
al., 1989). “Good correlations” ($r = .42, p<.001$) were found between participants’ global
ratings and each of the IBDQ scales (Irvine, 1993b; Irvine et al., 1994). “Weak
correlations” ($r = .35, p<.001$) were found between the IBDQ scales and the significant
others’ assessments and physician evaluations (Irvine, 1993b; Irvine et al., 1994).
Although, $r = .42$ was determined to be a “good” correlation in several publications, it is
actually somewhat low.
3.4.2 *The Coping Strategies Questionnaire (CSQ)*

The CSQ is a 50-item self-report instrument that measures different strategies for coping with pain and chronic illness on a continuous interval scale (Rosenstiel & Keefe, 1983). Each question is scored on a 7-point Likert-type scale and respondents indicate how often they use eight different coping skills. A separate score is generated for each coping skill: increasing activity, ignoring pain, reinterpreting pain sensations, diverting attention, praying or hoping, coping self statements, catastrophizing, and personal control. A separate independent score is generated for each coping skill, so that all of the questions for each coping strategy are summed. Scores for each coping skill, except personal control, range from zero to 36, with higher scores indicating greater usage of that coping strategy. Scores for personal control range from zero to 12.

The CSQ is the most widely used instrument for assessing coping with pain and chronic illness (Gil, Abrams, Phillips, & Keefe, 1989; Jensen, Turner, Romano, & Karoly, 1991; Keefe et al., 1987; Lefebvre, Lester, & Keefe, 1995; Snow-Turek et al., 1996; Stewart, Harvey, & Evans, 2001). The CSQ has been used predominantly in research with people who have chronic pain, illness, and/or disability (Barry & Elander, 2002). The subscales of the CSQ also have provided direction for interventions to improve coping strategies (Barry & Elander, 2002).

Rosential and Keefe (1983) explained that reliability for coping measures is commonly evaluated on the basis of internal consistency. Rosential and Keefe (1983) and Keefe, Brown, Wallston, and Caldwell (1989) reported alpha coefficients for all CSQ subscales ranging from .69 to .89. Main and Waddel (1991) and Wilke (1995) reported test-retest scores ranging from .68 to .91 with retest after 24 hours. Stewart, Harvey and
Evans (2001) found that only four CSQ subscales achieved an alpha coefficient of .7 or greater, and only the Catastrophizing subscale met the \( r = .7 \) cutoff for test-retest correlations. These various reliability scores range from below adequate to acceptable. Although these scores are low, they are in line with other coping inventories (Bowling, 1997).

Little validity information is available for the CSQ. Stewart et al. (2001) used a multi-method approach for assessing construct validity by correlating the CSQ with the Cognitive Coping Strategies Inventory (CCSI). The catastrophizing subscales for each instrument showed a significant correlation \( (r = .74, p < .05) \). No other subscales from the two instruments had significant correlations. Coping inventories in general are rather weak, but this does not change the importance of assessing these skills as well as possible (Bowling, 1997).

Although there are numerous inventories that measure coping skills, reliability and validity are not strong for any of the available inventories (Bowling, 1997). Regardless of parametric weaknesses, the CSQ remains one of the most widely used instruments for assessing coping with pain and chronic illness or disability (Gil et al., 1989; Keefe et al., 1987; Lefebvre et al., 1995; Stewart et al., 2001). Many coping inventories focus on coping skills across vague life situations and do not focus on coping with illness. One strength of the CSQ for this study is that it focuses specifically on coping with general disease related pain.

No coping inventories available focus on coping with IBD specific symptoms. It was expected that the CSQ would be of greater value to this study with a few minor word adjustments to change “pain” terminology into IBD specific terminology. Therefore, this
study used an adapted version of the CSQ – with permission from the dissertation committee and from the CSQ author, Dr. Keefe (Appendix E). While it is true that coping with IBD can involve a great deal of pain, there are also numerous other problematic symptoms that do not involve pain. Changing the CSQ terminology made this a more inclusive and appropriate instrument to measure coping for people with IBD (Appendix F). It is understood that these changes altered established reliability and validity for the CSQ. However, given the weak reliability and validity data on all coping inventories, it is expected that these changes were a strength instead of a weakness in this particular study.

3.4.3 Multidimensional Health Profile (MHP)

The MHP was developed to provide a comprehensive assessment of psychological characteristics that can be relevant to mental and physical health (Ruehlman et al., 1998). The MHP consists of two separate inventories, the Health Functioning Profile and the Psychosocial Functioning Profile (Ruehlman et al., 1998). This study only used the Psychosocial Functioning Profile (MHP-P). The MHP-P is a 58-item self-report instrument that collects data on a continuous interval scale (Ruehlman et al., 1998). Each question is scored on a 5-point Likert-type scale. Within the MHP-P, there are 5 separate subscales: life stress, coping, social support, negative social interactions, and mental health. This study only used the social support and negative social interactions scales (Appendices G and H respectively). Coping and mental health scales were not used in this study due to the availability of stronger, more complete instruments: the CSQ, the BDI, and the STAI-State.

Each question on the social support (nine items) and negative social interactions (four items) sub-scales is scored on a 5-point Likert-type scale. A separate independent
score is generated for each subscale, so that all of the questions for each sub-scale are summed for an overall score. Scores for each scale range from nine to 45 for social support, and four to 20 for negative social interactions. Higher scores on the social support scale indicate higher levels of usage and satisfaction with available social support. Higher scores on the negative social interactions scale indicate a greater amount of negative social interactions experienced.

Reliability for the MHP-P was examined using confirmatory factor analysis to select items for the MHP-P scales and to ensure adequate consistency (Ruehlman et al., 1998). Test-retest reliability was examined at an approximate three-week interval. According to Ruehlman et al. (1998), “satisfactory” test-retest reliabilities were achieved for the social support scale ($r = .82$) and for the negative social interactions scale ($r = .77$).

Cohen, Mermelstein, Kamarck, and Hoberman (1985) reported that the concurrent validity of the MHP-P social support scale was examined by comparing performance on this scale to performance on the Interpersonal Support Evaluation List (ISEL). The concurrent validity of the MHP-P negative social interaction scale was examined by comparing performance on this scale with performance on the Test of Negative Social Exchanges (TENSE) (Ruehlman & Karoly, 1991). According to Ruehlman et al. (1998), the validity coefficients for the social support scale ($r = .37, p < .001$) and the negative social interaction scale ($r = .42, p < .001$) demonstrate adequate validity. These coefficients are actually somewhat low; however, a stronger instrument that would meet the need of this study was not available.
3.4.4 *The State-Trait Anxiety Questionnaire (STAI)*

The STAI consists of two separate scales that measure state anxiety and trait anxiety, with the scales being used either together or independently (Spielberger, 1983). This study only used the STAI-state anxiety scale (STAI-S). The STAI-S is a 20 item self-report rating scale that measures symptoms of state anxiety and collects data on a continuous interval scale (Spielberger, 1983). Each question is scored on 4-point Likert-type scale and summing all responses results in an overall composite score that ranges from 20 to 80. This composite score is used to determine the level of state anxiety symptoms, if any, being experienced by the respondent. Higher scores indicated higher levels of anxiety. No specific cutoffs for meaning behind the scores are provided.

STAI-S reliability test-retest coefficient at a 30-day interval was .62 for males and .34 for females, and was .51 for males and .36 for females at a 60-day interval (Spielberger, 1983). Spielberger (1983) reported that these relatively low stability coefficients were expected for state anxiety given the fluctuating situational factors that influence state anxiety levels.

Evidence of construct validity for the STAI-S is shown in a comparison of military recruits in a highly stressful training program, working adults, and college students in a non-stressful environment. Spielberger (1983) reported that the military recruits’ STAI-S mean scores (male = 44.05; female = 47.01) were higher than mean scores for the working adults (male = 35.72; female = 35.20) and for the college students (males = 36.47; females = 38.76). Further, military recruits’ mean state anxiety score
(male = 44.05, female = 47.01) was much higher than their trait anxiety score mean (male = 37.64; female = 40.03).

3.4.5 Beck Depression Inventory (BDI)

The BDI is a 21 item self-report rating scale that measures symptoms of depression and collects data on a continuous interval scale (Beck et al., 1961). Each question is scored on a 4-point Likert-type scale and the sum of all responses results in an overall composite score. This composite score is used to determine the level of depression symptoms, if any, being experienced by the respondent. There are no other subscales on the BDI. Scores on the BDI range from zero to 63. The BDI provides an interpretation of the scores: 5 to 9 = normal ups and down, 10 to 18 = mild to moderate depression, 19 to 29 = moderate to severe depression, 30 to 63 = severe depression (Groth-Marnat, 1990). Scores less than five are below usual scores for normal mood and may indicate possible denial of depression (Groth-Marnat, 1990). Scores greater than 40 are significantly above even severely depressed people, which may indicate an exaggeration of depression – although significant levels of depression are still possible (Groth-Marnat, 1990).

The mean for internal consistency reliability for the BDI is .86 with a range of .73 to .92 (Beck, Steer, & Garbin, 1988). The split-half Cronbach Alpha reliability coefficient for the BDI is .93 (Beck et al., 1988). Assessing test-retest reliability can be problematic for mood and mental health indicators because short-interval retest scores may be affected by memory factors and long-interval retest scores may actually reflect changes in severity of symptoms (Beck et al., 1961). Groth-Marnat (1990) reported that BDI test-retest reliability coefficients range from .48 to .86.
To establish content validity, the content of the BDI was obtained by establishing consensus from clinicians pertaining to symptoms of depressed people, and the items on the BDI are consistent with six of the nine DSM-IV-TR depression categories (Beck et al., 1961; Groth-Marnat, 1990). For concurrent validity, Groth-Marnat (1990) reported moderate correlations between the BDI and other depression scales such as the MMPI-2 depression scale \((r = .76)\), the Hamilton Psychiatric Rating Scale for Depression \((r = .73)\) and the Zung Self Reported Depression Scale \((r = .76)\).

3.5 Data Collection Procedures

A survey method of research was used to collect data for this correlational study. Instrument packages were distributed to people with IBD who agreed to participate in the study. The instrument package included a letter of introduction that included appreciation of participants’ time, IRB approval, and consent information; the biopsychosocial questionnaire; the Inflammatory Bowel Disease Questionnaire; the Coping Strategies Questionnaire; the Multidimensional Health Profile; the state form of the State Trait Anxiety Inventory; and the Beck Depression Inventory.

Data were collected in the following manner:

- Survey packets were mailed to IBD Support Group leaders throughout Ohio with a request for the group leaders to distribute packets to group members. Phone contact with leaders was made prior to mailing the survey packets. Contact information for group leaders is available publicly on the Crohn’s Colitis Foundation of America website. Completed packets were returned to the researcher via addressed, stamped envelopes.
• Survey packets were delivered to a local gastroenterology office in Columbus, Ohio. The receptionist distributed survey packets to people with IBD waiting for a medical appointment. Completed, sealed, survey packets were returned by mail in the provided addressed stamped envelope.

• The receptionist at a local gastroenterology office in Columbus, Ohio mailed research packets to current patients. The receptionist generated mailing labels from the doctors’ office database and placed the survey packets into the mail. Completed, sealed, survey packets were returned to the researcher in the provided addressed and stamped envelope.

• Data were entered and analyzed using SPSS 14.0

3.6 Research Design

This was an exploratory correlational study and did not involve the direct manipulation of an independent variable. First, this study used descriptive statistics to examine biopsychosocial data and specific coping skills. Second, this study used multiple regression to determine whether IBD severity, length of time with IBD, coping skills, social support, and negative social interactions had a predictive relationship with state anxiety. Third, this study used multiple regression to determine whether IBD severity, length of time with IBD, coping skills, social support and negative social interactions had a predictive relationship with depression. Data were examined to determine normalcy and assess violations of multiple regression assumptions.

3.7 Statistical Analysis

Statistical analysis of the descriptive data for research Questions One and Two involved frequency distributions, measures of central tendency, and variability.
In Research Questions Three and Four, multiple regression techniques were used to determine the predictive relationship of the independent variables of IBD severity, length of time with IBD, coping skills, social support, and negative social interactions with each dependent variable, state anxiety and depression, separately. One fundamental purpose of multiple regression is to provide an objective method for assessing the predictive power of a set of independent variables on a dependent variable (Hair et al., 1998). Using multiple regression, the set of independent variables can be assessed both as a whole to determine their collective prediction of the dependent variable, and assessed individually to determine their individual prediction of the dependent variable (Hair et al., 1998).

Based on previous research, it was expected that there would be a relationship between IBD severity and each dependent variable (Addolorato et al., 1997). However, as this is an exploratory study, the researcher had no information as whether to expect the other independent variables to correlate with the dependent variables. Zero-order correlations between each independent variable and each dependent variable were examined before concluding which independent variables should be included in the final multiple regression models (Hair et al., 1998). Independent variables that correlated significantly with a dependent variable were considered appropriate for further regression analysis. A separate multiple regression analysis was conducted for each dependent variable.

In determining the appropriate statistic for this research project, consideration had to be given as to whether to use canonical correlations for both dependent variables simultaneously (depression and state anxiety) or multiple regression analysis for each
dependent variable separately. According to Huberty and Morris (1989), utilizing multiple regression for each independent variable separately was the appropriate decision for this research for two reasons. First, the dependent variables are considered to be independent concepts. Second, the research being conducted in this study is exploratory in nature with the goal of reaching some “tentative, nonconfirmatory conclusions” (Huberty & Morris, 1989).

3.8 Research Questions

3.81 Research Question One

From the biopsychosocial questionnaire, which biopsychosocial variables describe the subjects diagnosed with IBD in the obtained sample?

Descriptive statistics were used to provide a description of the sample using data from the biopsychosocial questionnaire. Specifically, frequency distributions, measures of central tendency, and variability were used.

3.82 Research Question Two

Which specific coping skills are used by subjects in the obtained sample?

Descriptive statistics provided a description of the coping skills used by the sample by computing data from the eight scales of the Coping Strategies Questionnaire. Specifically, frequency distributions, measures of central tendency, and variability were used. All data were continuous.

3.83 Research Question Three

Do IBD severity, length of time with IBD, coping skills, social support, and negative social exchanges have a predictive relationship with state anxiety levels in the obtained sample?
Zero-order correlations determined whether each individual independent variable (IBD severity, length of time with IBD, coping skills, social support, and negative social interactions) had a relationship with the dependent variable (state anxiety). All significantly correlated independent variables were then entered into a multiple regression equation to determine the predictive relationship between the significant independent variables and state anxiety. IBD severity was measured with the IBDQ (1 continual scale). Length of time was measured with the biopsychosocial form (1 continual scale). Coping skills were measured with the CSQ (8 continuous scales). Social support (1 continual scale) and negative social interactions (1 continual scale) were measured with the MHP-P. State anxiety was measured with the STAI-S (1 continual scale).

Independent Variables: (1) IBD Severity – Intestinal Function scale
(2) Length of time with IBD – Biopsychosocial Form
(3) Coping Skills - Diverting Attention scale
(4) Coping Skills – Reinterpreting IBD Symptoms scale
(5) Coping Skills – Coping Self Statements scale
(6) Coping Skills – Ignoring IBD Symptoms scale
(7 Coping Skills – Praying/Hoping Scale
(8) Coping Skills – Catastrophizing Scale
(9) Coping Skills – Increasing Activity scale
(10) Coping Skills – Personal Control scale
(11) Social Support
(12) Negative Social Interactions
Dependent Variable: State Anxiety

3.84 Research Question Four

Do IBD severity, length of time with IBD, coping skills, social support, and negative social exchanges have a predictive relationship with depression levels in the obtained sample?

Zero-order correlations determined whether each individual independent variable (IBD severity, length of time with IBD, coping skills, social support, and negative social interactions) had a relationship with the dependent variable (depression). All significantly correlated independent variables were then entered into a multiple regression equation to determine the predictive relationship between the independent variables and depression. IBD severity was measured with the IBDQ (1 continual scale). Length of time was measured with the biopsychosocial form (1 continual scale). Coping skills were measured with the CSQ (8 continuous scales). Social support (1 continual scale) and negative social interactions (1 continual scale) were measured with the MHP-P. Depression was measured with the BDI (1 continual scale).

Independent Variables:  
(1) IBD Severity – Intestinal Function scale  
(2) Length of time with IBD – Biopsychosocial Form  
(3) Coping Skills - Diverting Attention scale  
(4) Coping Skills – Reinterpreting IBD Symptoms scale  
(5) Coping Skills – Coping Self Statements scale  
(6) Coping Skills – Ignoring IBD Symptoms scale  
(7) Coping Skills – Praying/Hoping scale
(8) Coping Skills – Catastrophizing scale
(9) Coping Skills – Increasing Activity scale
(10) Coping Skills – Personal Control scale
(11) Social Support
(12) Negative Social Interactions

Dependent Variable: Depression
CHAPTER 4

RESULTS

Included in this section are the demographic descriptions of the sample, statistical
descriptions of each variable, and statistical analyses for each of the research questions.
The statistical tests used and the findings are discussed.

The following research questions were examined in this study:

Research Question 1. From the biopsychosocial questionnaire, which biopsychosocial
variables describe the subjects diagnosed with IBD in the obtained sample?

Research Question 2. Which specific coping skills are used by subjects in the obtained
sample?

Research Question 3. Do IBD severity, length of time with IBD, coping skills, social
support, and negative social interactions have a predictive relationship with state anxiety
levels in the obtained sample?

Research Question 4. Do IBD severity, length of time with IBD, coping skills, social
support, and negative social interactions have a predictive relationship with depression
levels in the obtained sample?
4.1 Data Analysis

SPSS version 14.0 was used to analyze the data. A total $N$ of 41 was used in the analysis. All cases had complete data; therefore, no cases had to be deleted due to missing data. Descriptive statistics including frequency distributions, central tendency and variability are used in the analysis for research questions one and two. Multiple regression analysis is incorporated into the analysis for research questions three and four.

4.2 Research Question One

There were a total of 41 participants in this research. Twenty-eight (68%) participants received the research survey through the mail from their doctor’s office. Six participants (15%) received the survey at a support group meeting. Seven participants (17%) received the survey through contact with the Ohio branch of the Crohn’s Colitis Foundation of America (CCFA). All participants were from Ohio. There were 14 (34%) male and 27 (66%) female participants. The majority of the sample identified as Caucasian (n = 37, 91%). Three participants (7%) identified as Native American and one participant (2%) identified as African American/Black. One participant (2%) reported being single/never married. Twenty-seven participants (66%) reported as married/partnered. Two participants (5%) were separated. Seven participants (17%) were divorced and four (10%) were widowed. Ages of participants ranged from 28 years old to 82 years old ($M = 48, SD = 13$). With such a wide range of ages in a small sample, viewing a frequency distribution can be helpful (Figure 4.1). Demographic variables can be viewed in Table 4.1.
<table>
<thead>
<tr>
<th>Biopsychosocial Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of Receiving Survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In the mail from Doctor</td>
<td>28</td>
<td>68.3</td>
</tr>
<tr>
<td>At an IBD support group</td>
<td>6</td>
<td>14.6</td>
</tr>
<tr>
<td>Through CCFA contacts</td>
<td>7</td>
<td>17.1</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>14</td>
<td>34</td>
</tr>
<tr>
<td>Female</td>
<td>27</td>
<td>66</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>37</td>
<td>90.2</td>
</tr>
<tr>
<td>Native American</td>
<td>3</td>
<td>7.4</td>
</tr>
<tr>
<td>African American/Black</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single/Never married</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Married/Partnered</td>
<td>27</td>
<td>65.9</td>
</tr>
<tr>
<td>Separated</td>
<td>2</td>
<td>4.9</td>
</tr>
<tr>
<td>Divorced</td>
<td>7</td>
<td>17.0</td>
</tr>
<tr>
<td>Widowed</td>
<td>4</td>
<td>9.8</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4.1: Frequencies for Demographic Variables
For highest level of education, four participants (10%) did not graduate from high school. Seven (17%) had graduated from high school. Four (10%) had some college experience. Eleven participants (27%) had technical training or an Associates degree. Ten participants (24%) had earned a bachelor’s degree. Five participants (12%) had some graduate school training or a Masters degree. A Masters degree was the highest level of
education attained by anyone in this sample. Education variables can be viewed in Table 4.2.

<table>
<thead>
<tr>
<th>Highest Level of Education</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not complete high school</td>
<td>4</td>
<td>9.8</td>
</tr>
<tr>
<td>High school graduate</td>
<td>7</td>
<td>17.0</td>
</tr>
<tr>
<td>Some college experience</td>
<td>4</td>
<td>9.8</td>
</tr>
<tr>
<td>Technical training or Associate’s degree</td>
<td>11</td>
<td>26.8</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>10</td>
<td>24.4</td>
</tr>
<tr>
<td>Some graduate school</td>
<td>1</td>
<td>2.4</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>4</td>
<td>9.8</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4.2: Frequencies for Highest Level of Education, (n = 41)

Twenty participants (49%) were not employed. Four (10%) were employed part-time and seventeen (41%) had full-time employment. Ten participants (24%) were on disability due to their IBD and eight participants (19%) reported having lost a job at some point due to their IBD. Employment variables can be found in Table 4.3. For annual household income, there was a fairly even distribution of income levels, with all levels being represented. A distribution for income can be viewed in Figure 4.2.
<table>
<thead>
<tr>
<th>Employment Status - current</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not employed</td>
<td>20</td>
<td>48.8</td>
</tr>
<tr>
<td>Part-time employed</td>
<td>4</td>
<td>9.8</td>
</tr>
<tr>
<td>Full-time employed</td>
<td>17</td>
<td>41.5</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>On disability program</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>10</td>
<td>24.4</td>
</tr>
<tr>
<td>no</td>
<td>31</td>
<td>75.6</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ever lost job due to IBD</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>8</td>
<td>19.5</td>
</tr>
<tr>
<td>no</td>
<td>33</td>
<td>80.5</td>
</tr>
<tr>
<td>total</td>
<td>41</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4.3: Frequencies for Employment (n = 41)
Figure 4.2: Frequency Distribution for Annual Household Income (n=40)

Twenty-four participants (58%) reported having Crohn’s disease. Fifteen participants (37%) reported having ulcerative colitis. Two participants (5%) reported having Crohn’s colitis – a combination of both Crohn’s and ulcerative colitis. Length of time with IBD ranged from 6 months to 69 years ($M = 14$ years, $SD = 14$ years, $Mdn = 8$ years). A frequency distribution for length of time with IBD can be viewed in Figure 4.3. Participants were asked how many times that they had seen their primary IBD doctor in the past year. Responses ranged from zero visits to 10 visits ($M = 4.3$, $SD = 2.9$). The majority of the sample ($n = 37$, 90.2%) reported that they had to take their IBD medications daily regardless of symptom activity, while only four participants (9.8%)
took their medications only during IBD symptom flares. All participants reported having some form of medical health insurance. Additional out-of-pocket medical costs in the past year ranged from zero dollars to $18,000 ($M = 2,393, Mdn = 600.00, SD = 4259$). A frequency distribution of medical costs can be viewed in Figure 4.4.

![Figure 4.3: Frequency Distribution for Length of Time with IBD (N = 41)](image)

$M = 168$ months [14 yrs], $Mdn = 96$ months [8 years], $SD = 168$ months [14 yrs]
Figure 4.4: Frequency Distribution for Out-of-Pocket Medical Costs (n = 41)

*M* = $2,379, *Mdn* = $600, *SD* = $4,529
People with IBD commonly experience periods of inactive disease symptoms, or remission, and periods of disease activity known as flares (Addolorato et al., 1997). Participants were asked, “When your IBD is in remission, do you worry or feel anxious about it returning?” Three participants (7%) reported that they do not worry about IBD returning while they are in remission. Six participants (15%) reported worrying “a little.” Fourteen participants (34%) reported worrying “somewhat.” Eighteen participants (44%) reported worrying “very much” about a possible IBD return while they are in remission. When asked to respond to how stressful their IBD is, thirteen participants reported that their IBD is “not stressful” \((n=3)\) or “a little stressful” \((n=10)\). Twenty-eight participants reported that their IBD is “stressful” \((n=13)\) or “very stressful” \((n=15)\). When asked to respond to how severe their IBD is, fifteen participants reported that their IBD was “not problematic” \((n=5)\) or “mild” \((n=10)\). Twenty-six participants reported that their IBD was “moderate” \((n=13)\), “severe” \((n=4)\), or “very severe” \((n=9)\). Worry, stress, and severity variables can be viewed in Table 4.4.
<table>
<thead>
<tr>
<th>Rate of worrying about IBD</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>not at all</td>
<td>3</td>
<td>7.3</td>
</tr>
<tr>
<td>a little</td>
<td>6</td>
<td>14.6</td>
</tr>
<tr>
<td>somewhat</td>
<td>14</td>
<td>34.1</td>
</tr>
<tr>
<td>very much</td>
<td>18</td>
<td>44.0</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How stressful is your IBD?</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>not stressful</td>
<td>3</td>
<td>7.3</td>
</tr>
<tr>
<td>a little stressful</td>
<td>10</td>
<td>24.4</td>
</tr>
<tr>
<td>stressful</td>
<td>13</td>
<td>31.7</td>
</tr>
<tr>
<td>very stressful</td>
<td>15</td>
<td>36.6</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How severe is your IBD?</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>not problematic</td>
<td>5</td>
<td>12.1</td>
</tr>
<tr>
<td>mild</td>
<td>10</td>
<td>24.4</td>
</tr>
<tr>
<td>moderate</td>
<td>13</td>
<td>31.7</td>
</tr>
<tr>
<td>severe</td>
<td>4</td>
<td>9.8</td>
</tr>
<tr>
<td>very severe</td>
<td>9</td>
<td>22.0</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medication Schedule</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>daily</td>
<td>37</td>
<td>90.2</td>
</tr>
<tr>
<td>only during flares</td>
<td>4</td>
<td>9.8</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4.4: Frequencies for Worry, Stress, Severity, and Medication Schedule ($N = 41$)

Fifteen participants (37%) had been diagnosed with anxiety and fifteen (37%) had been diagnosed with depression at some point in their lives. General medical physicians were the most commonly reported professional that diagnosed anxiety or depression in
participants \((n=12)\), followed by psychiatrists \((n=5)\), gastroenterologists \((n=4)\), and counselors \((n=1)\). Twenty-five \((61\%)\) participants reported that no one in the medical field had ever talked to them about possible anxiety or depression that can arise from coping with IBD. Only four participants \((10\%)\) had been in counseling as the result of coping with their IBD. Nine participants \((22\%)\) reported that they had attended IBD support group meetings in the past 6 months. For support group attendees \((n=9)\), five \((12.2\%)\) reported the support group was “a little helpful,” two \((4.9\%)\) reported it to be “helpful, and seven \((17\%)\) reported it to be “very helpful.” Mental health variables can be viewed in Table 4.5.
<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever diagnosed with anxiety?</td>
<td>Yes</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>26</td>
</tr>
<tr>
<td>Ever diagnosed with depression?</td>
<td>Yes</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>26</td>
</tr>
<tr>
<td>Received counseling due to coping with IBD</td>
<td>Yes</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>37</td>
</tr>
<tr>
<td>Medical professional has discussed anxiety or depression with you</td>
<td>Yes</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>25</td>
</tr>
<tr>
<td>Attended IBD support group in past 6 months</td>
<td>Yes</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>32</td>
</tr>
<tr>
<td>Helpfulness of support group (n=9)</td>
<td>Not helpful</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>A little helpful</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Helpful</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Very Helpful</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 4.5: Frequencies for Mental Health (n = 41)

4.3 Research Question Two:

Which Specific Coping Skills are Used by Participants in the Obtained Sample?

There were eight scales on the Coping Strategies Questionnaire (CSQ) that were examined in this research. The CSQ consists of 50 items that participants responded to on
a 7-point Likert-type scale (0 = never do that, 6 = always do that). A separate score was generated for each coping skill: diverting attention, reinterpreting IBD symptoms, coping self-statements, ignoring IBD symptoms, praying/hoping, catastrophizing, increasing activity, and personal control. The first seven scales consisted of six items and scores could range from zero to 36. The last scale, personal control, had only two items and scores could range from zero to 12. There were an additional six items on the CSQ that were “filler” items and were not part of any scale. Responses from all items on each coping scale were summed to get a total score for each scale. Higher final scores indicated greater use of that particular coping skill. Frequency distributions for each coping scale can be viewed in Figures 4.5 through 4.13. Measures of central tendency and standard deviations for each coping skill can be viewed in Table 4.6.

Scores for the diverting attention scale ranged from zero to 32 \((M = 14.7, SD = 9.2)\). The diverting attention scale included items such as “I play mental games with myself to keep my mind off of the IBD symptoms” and “I count numbers in my head or run a song through my mind.” A frequency distribution for diverting attention can be viewed in Figure 4.5.

Scores on the reinterpreting IBD symptoms scale ranged from zero to 25 \((M = 3.5, SD = 5.2)\). The reinterpreting IBD symptoms scale included items such as, “I just think of the symptoms as some other sensation, such as numbness,” and “I imagine that the IBD symptoms are outside of my body.” A frequency distribution for reinterpreting IBD symptoms can be viewed in Figure 4.6.
Scores for the coping self-statements scale ranged from zero to 36 ($M = 21.8, SD = 9.8$). The coping self-statements Scale includes items such as “I tell myself to be brave and carry on despite the IBD symptoms,” and “I tell myself that I can overcome the IBD symptoms.” A frequency distribution for coping self-statements can be viewed in Figure 4.7.

Scores for the ignoring IBD symptoms scale ranged from zero to 36 ($M = 10.5, SD = 9.5$). The ignoring IBD symptoms scale included items such as “I don’t think about the IBD symptoms,” and “I pretend the IBD symptoms are not there.” A frequency distribution for ignoring IBD symptoms can be viewed in Figure 4.8.

Scores on the praying/hoping scale ranged from three to 36 ($M = 19.7, SD = 8.17$). The praying/hoping scale included items such as “I pray for the IBD symptoms to stop,” and “I rely on my faith in God.” A frequency distribution for praying/hoping can be viewed in Figure 4.9.

Scores for the catastrophizing scale ranged from zero to 36 ($M = 13.5, SD = 10.6$). The catastrophizing scale includes items such as “It is terrible and I feel it is never going to end,” and “It is awful and I feel that it overwhelms me.” A frequency distribution for catastrophizing can be viewed in Figure 4.10.

Scores for the increasing activity scale ranged from zero to 36 ($M = 16.3, SD = 8.3$). The increasing activity scale includes items such as “I leave the house to do something, such as going to the movies or shopping,” and “I do something I enjoy, such as watching TV or listening to music.” A frequency distribution for increasing activity can be viewed in Figure 4.11.
Scores on the personal control scale ranged from zero to 11 ($M = 5.8$, $SD = 2.7$). The personal control scale included two items so the maximum score is 12. The first item read, “Based on all things you do to cope, or deal with your IBD symptoms, on an average day, how much control do you feel you have over it? The Likert-scale ranged from zero = no control to 6= complete control. The second item read, “Based on all things you do to cope, or deal with your IBD symptoms, on an average day, how much are you able to decrease the symptoms?” The Likert-scale ranged from 0= can’t decrease it all to 6= can decrease it completely. A frequency distribution for personal control can be viewed in Figure 4.12.

There were six items on the CSQ that did not pertain to any CSQ scale. Scores on the “filler questions” ranged from three to 29 ($M = 19.6$, $SD = 6.9$). These filler questions were designed to simply “fill out” the CSQ; however, since the mean for the filler items was very high, they are being included in the descriptive analysis. The six “filler” items included: “I take my medication,” “I walk a lot,” “I relax,” “I lie down,” “I take a shower or a bath,” and “I use a heating pad.” Although these are not included on the increasing activity scale, they do appear to be active coping mechanisms that are common for people with IBD. A frequency distribution for the filler items can be viewed in Figure 4.13.
<table>
<thead>
<tr>
<th>Coping Skills</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum Score</th>
<th>Maximum Score</th>
<th>Possible Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping Self-Statements</td>
<td>41</td>
<td>21.8</td>
<td>9.8</td>
<td>0</td>
<td>36</td>
<td>0 – 36</td>
</tr>
<tr>
<td>Praying/Hoping</td>
<td>41</td>
<td>19.7</td>
<td>8.02</td>
<td>3</td>
<td>36</td>
<td>0 – 36</td>
</tr>
<tr>
<td>Filler Items</td>
<td>41</td>
<td>19.6</td>
<td>6.9</td>
<td>3</td>
<td>29</td>
<td>0 – 36</td>
</tr>
<tr>
<td>Increasing Activity</td>
<td>41</td>
<td>16.3</td>
<td>8.3</td>
<td>0</td>
<td>36</td>
<td>0 – 36</td>
</tr>
<tr>
<td>Diverting Attention</td>
<td>41</td>
<td>14.7</td>
<td>9.2</td>
<td>0</td>
<td>32</td>
<td>0 – 36</td>
</tr>
<tr>
<td>Catastrophizing</td>
<td>41</td>
<td>13.5</td>
<td>10.6</td>
<td>0</td>
<td>36</td>
<td>0 – 36</td>
</tr>
<tr>
<td>Ignoring IBD Symptoms</td>
<td>41</td>
<td>10.5</td>
<td>9.5</td>
<td>0</td>
<td>36</td>
<td>0 – 36</td>
</tr>
<tr>
<td>Reinterpreting IBD Symptoms</td>
<td>41</td>
<td>3.5</td>
<td>5.2</td>
<td>0</td>
<td>25</td>
<td>0 – 36</td>
</tr>
<tr>
<td>Personal Control</td>
<td>41</td>
<td>5.8</td>
<td>2.7</td>
<td>0</td>
<td>11</td>
<td>0 – 12</td>
</tr>
</tbody>
</table>

Table 4.6: Descriptive Analysis for Coping Skills
Figure 4.5: Frequency Distribution for the Diverting Attention scale \((N=41)\)

\((M = 14.7, \, SD = 9.2)\)
Figure 4.6: Frequency Distribution for the Reinterpreting IBD Symptoms Scale (N=41)

\( (M = 3.5, \ SD = 5.2) \)
Figure 4.7: Frequency Distribution for Coping Self-Statements Scale ($N=41$, $M = 21.8$, $SD = 9.8$)
Figure 4.8: Frequency Distribution for Ignoring IBD Symptoms Scale ($N=41$, $M = 10.5$, $SD = 9.5$)
Figure 4.9: Frequency Distribution for the Praying/Hoping Scale ($N = 41, M = 19.7, SD = 8.17$)
Figure 4.10: Frequency Distribution for the Catastrophizing Scale ($N=41$, $M=13.5$, $SD=10.6$)
Figure 4.11: Frequency Distribution for the Increasing Activity Scale (N=41, M=16.3, SD=8.3)
Figure 4.12: Frequency Distribution for the Personal Control Scale ($N=41$, $M=5.8$, $SD=2.7$)
Figure 4.13: Frequency Distribution for the “Filler” items on the CSQ ($N=41$, $M=19.6$, $SD=6.9$)
4.4 Preliminary Analysis for Research Questions Three and Four

4.4.1 Descriptive Analysis of Regression Independent and Dependent Variables

This section examines descriptive information for all independent and dependent variable for analysis in questions three and four, with the exception of coping skills which were addressed in Section 4.3 and Table 4.6. Descriptive data for the remaining independent and dependent variables can be viewed in Table 4.7.

Length of time with IBD was calculated in months for statistical analysis. Length of time ranged from six-months to 828 months (69 years) ($M = 168$ months/14 years, $Mdn = 96$ months/8 years, $SD = 168$ months/14 years). A frequency distribution for length of time with IBD can be viewed in Figure 4.3.

Social support was measured with the Total Social Support scale on the MHP-P Inventory. This scale consists of nine 5-point, Likert-type items that address actual usage, availability of, and satisfaction with emotional, informational, and tangible social support. The nine questions were summed for a total social support score. Possible scores could range from nine to 45. Actual scores ranged from 19 to 45 with a significant negative skew ($M = 37$, $Mdn = 39$, $SD = 7.78$). Twelve participants (40%) scored the highest possible score. A frequency distribution for social support can be viewed in figure 4.14.

Negative social interactions were measured with the Negative Social Exchange scale on the MHP-P Inventory. The Negative Social Exchange scale consists of four 5-point Likert-type items. Items addressed experience levels with negative social interactions ($1 = never$, $5 = very often$). Responses for each item were summed for a total
negative social interaction score. Possible scores could range from four to 20. Actual scores ranged from four to 20 (\(M = 9.54, SD = 4.18\)). A frequency distributions for negative social interactions can be viewed in Figure 4.15.

IBD severity was measured using the IBDQ Physical Severity Scale. Ten items addressed IBD physical indicators on a 7-point Likert-type scale. Possible scores could range from 10 to 70. Actual scores ranged from 13 to 64 (\(M = 35.0, SD = 13.11\)). A frequency distribution for IBD severity can be viewed in figure 4.16.

Anxiety was measured with the State form of the State-Trait Anxiety Inventory (STAI-S). The STAI-S consists of 20 4-point Likert-type items that were summed for a total state anxiety score. Possible scores could range from 20 to 80. Actual scores ranged from 20 to 80 (\(M = 42.83, SD = 15.24\)). A frequency distribution for anxiety can be viewed in figure 4.17.

Depression was measured with the Beck Depression Inventory (BDI) which has 21 4-point Likert-type items that address experiences with different depression indicators (0 = does not experience that indicator, 3 = strongly experiences that indicator). All items were summed for a total depression score. Possible scores range from zero to 63. Actual scores ranged from zero to 35 (\(M = 13.15, SD = 9.62\)). The BDI provides interpretations for cut-off depression scores. In this sample, nine participants (22%) had scores in the zero to four-points range, which indicated that they may be in denial or perhaps attempting to present themselves as not depressed. Eight participants (19.5%) had scores in the five to nine-points range, which indicated “normal ups and downs.” Thirteen participants (31.7%) had scores in the 10 to 18-points range, which indicated mild to
moderate depression. Nine participants (22%) had scores in the 19 to 29-points range, which indicated moderate to severe depression. Two participants (4.9%) had scores in the 30 to 63-points range, which indicated severe depression. Of the 41 participants, 24 (58.5%) had some degree of depressive symptoms according to the BDI. Frequencies for BDI interpretations can be viewed in Table 4.8 and a frequency distribution for depression can be viewed in figure 4.18.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Min. Score</th>
<th>Max Score</th>
<th>Possible Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Support</td>
<td>37.44</td>
<td>7.78</td>
<td>19</td>
<td>45</td>
<td>9 – 45</td>
</tr>
<tr>
<td>Negative Soc. Int.</td>
<td>9.54</td>
<td>4.18</td>
<td>4</td>
<td>20</td>
<td>4 – 20</td>
</tr>
<tr>
<td>IBD Severity</td>
<td>35.0</td>
<td>13.11</td>
<td>13</td>
<td>64</td>
<td>10 – 70</td>
</tr>
<tr>
<td>Time with IBD (months)</td>
<td>168</td>
<td>168</td>
<td>6</td>
<td>828</td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>42.83</td>
<td>15.24</td>
<td>20</td>
<td>80</td>
<td>20 – 80</td>
</tr>
<tr>
<td>Depression</td>
<td>13.15</td>
<td>9.62</td>
<td>0</td>
<td>35</td>
<td>0 – 63</td>
</tr>
</tbody>
</table>

Table 4.7: Descriptive Data for Independent and Dependent Variables (n = 41)
Figure 4.14 Frequency Distribution for Social Support ($N=41$, $M=37.44$, $SD=7.78$)
Figure 4.15 Frequency Distribution for Negative Social Interactions

\(N = 41, \ M = 9.54, \ Mdn = 39, \ SD = 4.18\)
Figure 4.16 Frequency Distribution for IBD Severity ($N=41$, $M=35.0$, $SD=13.11$)
Figure 4.17: Frequency Distribution for Anxiety ($N=41$, $M=42.83$, $SD=15.24$)
Figure 4.18: Frequency Distribution for Depression ($N=41$, $M=13.15$, $SD=9.62$)
Table 4.8: Frequencies for BDI Interpretations

<table>
<thead>
<tr>
<th>BDI Interpretation</th>
<th>BDI Score Range</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible Denial of Depression</td>
<td>0-4</td>
<td>9</td>
<td>22%</td>
<td>22%</td>
</tr>
<tr>
<td>Normal Ups and Downs</td>
<td>5-9</td>
<td>8</td>
<td>19.5%</td>
<td>41.5%</td>
</tr>
<tr>
<td>Mild to Moderate Depression</td>
<td>10-18</td>
<td>13</td>
<td>31.6%</td>
<td>73.1%</td>
</tr>
<tr>
<td>Moderate to Severe Depression</td>
<td>19-29</td>
<td>9</td>
<td>22%</td>
<td>95.1%</td>
</tr>
<tr>
<td>Severe Depression</td>
<td>30-63</td>
<td>2</td>
<td>4.9%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

4.4.2 Correlational Analysis of Regression Independent and Dependent Variables

Prior to conducting the regression analysis for research questions three and four, zero-order correlations between all variables were examined. This correlational matrix can be viewed in Table 4.9 Sections A, B, and C. Identifying significant correlations provided a theoretical foundation for determining which variables were appropriate for further multiple regression analysis.

Results indicated that there was significant multicollinearity between the coping variables (Table 4.9. Sections A, B, and C). Multicollinearity between independent variables is a problem in multiple regression because statistical programs will not read individual contributions from each variable, and thus, those correlated independent variables will be excluded from the final regression model (Hair et al., 1998).

Some coping variables also correlated with other independent variables. The reinterpreting IBD symptoms scale correlated negatively with negative social interactions.
The coping self-statements scale correlated with social support ($r = .43, p = .005$). The ignoring IBD symptoms scale correlated negatively with negative social interactions ($r = -.44, p = .004$). The increasing activity scale correlated with social support ($r = .34, p = .03$). The catastrophizing scale correlated with IBD severity ($r = .48, p = .002$); and length of time with IBD ($r = -.40, p = .01$). The praying/hoping scale correlated with social support ($r = .60, p < .001$). The personal control scale correlated with IBD severity ($r = .54, p < .001$). The “filler” items correlated with social support ($r = .32, p = .04$).

The remaining independent variables were social support, negative social interactions, IBD severity, and time with IBD. For those remaining independent variables, only negative social interactions and IBD severity correlated ($r = .34, p = .03$).

Anxiety correlated with six of the independent variables: ignoring IBD symptoms ($r = -.40, p = .01$); increasing activity ($r = -.37, p = .02$); catastrophizing ($r = .35, p = .02$); personal control ($r = -.48, p = .002$); negative social interactions ($r = .48, p = .002$); and IBD severity ($r = .55, p < .001$). No significant correlations were found between anxiety and time with IBD, social support, diverting attention, reinterpreting IBD symptoms, coping self-statements, praying/hoping, and the filler items.

Depression correlated with four of the independent variables: catastrophizing ($r = .52, p = .001$); personal control ($r = -.50, p = .001$); negative social interactions ($r = .46, p = .003$); and IBD severity ($r = .68, p < .001$). No significant correlations were found between depression and diverting attention, reinterpreting IBD symptoms, coping self-
statements, ignoring IBD symptoms, increasing activity, praying/hoping, social support, time with IBD, and filler items.

Anxiety and depression are considered to be two independent and separate mental health problems (American Psychological Association, 2000). However, in this sample, anxiety and depression correlated strongly with each other ($r = .84, p < .001$).
<table>
<thead>
<tr>
<th></th>
<th>Diverting Attention</th>
<th>Reinterpreting IBD Symptoms</th>
<th>Coping Self-Statements</th>
<th>Ignoring IBD Symptoms</th>
<th>Increasing Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverting Attention</td>
<td>r .870\textsuperscript{a}</td>
<td>.418**</td>
<td>.554**</td>
<td>.288</td>
<td>.688**</td>
</tr>
<tr>
<td></td>
<td>Sig. .007</td>
<td>.007</td>
<td>.000</td>
<td>.067</td>
<td>.000</td>
</tr>
<tr>
<td>Reinterpreting IBD Symptoms</td>
<td>r .418**</td>
<td>.716\textsuperscript{2}</td>
<td>.402**</td>
<td>.694**</td>
<td>.455**</td>
</tr>
<tr>
<td></td>
<td>Sig. .000</td>
<td>.009</td>
<td>.009</td>
<td>.000</td>
<td>.003</td>
</tr>
<tr>
<td>Coping Self-Statements</td>
<td>r .554**</td>
<td>.402**</td>
<td>.897\textsuperscript{2}</td>
<td>.620**</td>
<td>.620**</td>
</tr>
<tr>
<td></td>
<td>Sig. .000</td>
<td>.009</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>Ignoring IBD Symptoms</td>
<td>r .288</td>
<td>.694**</td>
<td>.620**</td>
<td>.896\textsuperscript{2}</td>
<td>.418**</td>
</tr>
<tr>
<td></td>
<td>Sig. .067</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.007</td>
</tr>
<tr>
<td>Increasing Activity</td>
<td>r .688**</td>
<td>.455**</td>
<td>.620**</td>
<td>.418**</td>
<td>.833\textsuperscript{2}</td>
</tr>
<tr>
<td></td>
<td>Sig. .000</td>
<td>.003</td>
<td>.000</td>
<td>.007</td>
<td>.000</td>
</tr>
<tr>
<td>Catastrophizing</td>
<td>r -.097</td>
<td>-.240</td>
<td>-.166</td>
<td>-.425**</td>
<td>-.002</td>
</tr>
<tr>
<td></td>
<td>Sig. .544</td>
<td>.130</td>
<td>.298</td>
<td>.006</td>
<td>.998</td>
</tr>
<tr>
<td>Praying/Hoping</td>
<td>r .343*</td>
<td>.249</td>
<td>.407**</td>
<td>.103</td>
<td>.513**</td>
</tr>
<tr>
<td></td>
<td>Sig. .028</td>
<td>.117</td>
<td>.008</td>
<td>.524</td>
<td>.001</td>
</tr>
<tr>
<td>Personal Control</td>
<td>r .565**</td>
<td>.264</td>
<td>.635**</td>
<td>.467**</td>
<td>.588**</td>
</tr>
<tr>
<td></td>
<td>Sig. .000</td>
<td>.095</td>
<td>.000</td>
<td>.002</td>
<td>.000</td>
</tr>
<tr>
<td>Filler items</td>
<td>r .612**</td>
<td>.191</td>
<td>.276</td>
<td>-.125</td>
<td>.508**</td>
</tr>
<tr>
<td></td>
<td>Sig. .000</td>
<td>.231</td>
<td>.081</td>
<td>.436</td>
<td>.001</td>
</tr>
<tr>
<td>Social Support</td>
<td>r .107</td>
<td>.111</td>
<td>.426**</td>
<td>.063</td>
<td>.343**</td>
</tr>
<tr>
<td></td>
<td>Sig. .505</td>
<td>.491</td>
<td>.005</td>
<td>.694</td>
<td>.028</td>
</tr>
<tr>
<td>Negative Soc. Int.</td>
<td>r -.037</td>
<td>-.318*</td>
<td>.076</td>
<td>-.441**</td>
<td>-.168</td>
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<td>Sig. .819</td>
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<td>.635</td>
<td>.004</td>
<td>.292</td>
</tr>
<tr>
<td>IBD severity</td>
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<td>Sig. .511</td>
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<td>.697</td>
<td>.305</td>
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<tr>
<td>Time with IBD</td>
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<td>Anxiety</td>
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<td>-.367*</td>
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<tr>
<td></td>
<td>Sig. .097</td>
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<td>Depression</td>
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<td>Sig. .151</td>
<td>.420</td>
<td>.503</td>
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<td>.091</td>
</tr>
</tbody>
</table>

Table 4.9: Correlations for all Independent and Dependent Variables

* = 2-tail significance at the .05 level; ** = 2-tail significance at the .01 level

\( ^{a} \) = Internal reliabilities (Cronbach’s alpha coefficients) written on the diagonal
<table>
<thead>
<tr>
<th></th>
<th>Catastrophizing</th>
<th>Praying/Hoping</th>
<th>Personal Control</th>
<th>Filler Items</th>
<th>Social Support</th>
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</thead>
<tbody>
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<td>.612**</td>
<td>.107</td>
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<tr>
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<td>.095</td>
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<td>.491</td>
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<td>.635**</td>
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<td>.426**</td>
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<td>Ignoring IBD Symptoms</td>
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<td>.063</td>
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<td>.588**</td>
<td>.508**</td>
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<td>.000</td>
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<td>Sig .283</td>
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<td>Social Support</td>
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<td>.230</td>
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</tr>
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<td>.461</td>
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<tr>
<td>IBD Severity</td>
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<td>-.539**</td>
<td>.032</td>
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<td>-.479**</td>
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<td>-.052</td>
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<td>-.028</td>
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<td>Sig.</td>
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<td>.074</td>
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<td>Sig.</td>
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<td>.697</td>
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<td>Ignoring IBD Symptoms</td>
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<td>.011</td>
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<tr>
<td>Increasing Activity</td>
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<td>Sig.</td>
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<td>.476**</td>
<td>-.390*</td>
<td>.353*</td>
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<td>-.119</td>
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</tr>
<tr>
<td></td>
<td>Sig.</td>
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<td>.600</td>
<td>.457</td>
<td>.717</td>
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<td>.225</td>
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<td>-.043</td>
<td>-.190</td>
<td>.052</td>
</tr>
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<td>.791</td>
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<tr>
<td>Negative Soc. Int.</td>
<td>r</td>
<td>.871a</td>
<td>.341*</td>
<td>-.009</td>
<td>.472**</td>
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<td></td>
<td>Sig.</td>
<td></td>
<td>.029</td>
<td>.954</td>
<td>.002</td>
</tr>
<tr>
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<td>.894a</td>
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<td>Sig.</td>
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<tr>
<td>Time with IBD</td>
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<td>-.152</td>
<td>1.0a</td>
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<td>.590</td>
<td>.590</td>
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<td>r</td>
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<td>.553**</td>
<td>.087</td>
<td>.951*</td>
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<td>Sig.</td>
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<td>.000</td>
<td>.744</td>
<td>.000</td>
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Table 4.9 Continued: Correlations for all Independent and Dependent Variables

* = significance at the .05 level; ** = significance at the .01 level

a = Internal reliabilities (Cronbach’s alpha coefficients) written on the diagonal

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4.5 Research Question Three:
Do IBD severity, length of time with IBD, coping skills, social support, and negative social interactions have a predictive relationship with state anxiety levels in the sample?

Prior to analysis, it was determined that IBD severity ($r = .55, p < .001$), negative social interactions ($r = .48, p = .002$), personal control ($r = -.48, p = .002$), ignoring IBD symptoms ($r = -.40, p = .01$), increasing activity ($r = -.37, p = .02$), and catastrophizing ($r = .35, p = .02$) correlated significantly with anxiety and were appropriate variables for further regression analysis. The structure of these variables was examined and scale inter-correlations can be viewed in Table 4.10.

<table>
<thead>
<tr>
<th></th>
<th>IBD Severity</th>
<th>Neg. Soc. Int.</th>
<th>Personal Control</th>
<th>Ignoring IBD Symptoms</th>
<th>Increasing Activity</th>
<th>Catastrophizing</th>
<th>Anxiety</th>
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<td></td>
</tr>
<tr>
<td>Personal Control</td>
<td>-.539**</td>
<td>-.236</td>
<td>.768*</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Ignoring IBD Symptoms</td>
<td>-.164</td>
<td>-.441**</td>
<td>.467**</td>
<td>.896*</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>-.207</td>
<td>-.168</td>
<td>.588**</td>
<td>.418**</td>
<td>.833*</td>
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<td></td>
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<tr>
<td>Catastrophizing</td>
<td>.476**</td>
<td>.262</td>
<td>-.586**</td>
<td>-.425**</td>
<td>-.002</td>
<td>.910*</td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>.553**</td>
<td>.472**</td>
<td>-.479**</td>
<td>-.391**</td>
<td>-.367*</td>
<td>.353*</td>
<td>.951*</td>
</tr>
</tbody>
</table>

Table 4.10: Intercorrelations for Anxiety Predictors ($N = 41$)

* = significant at .05; ** = significant at .01; (2-tailed)

* a = Internal reliabilities (Cronbach’s alpha coefficients) written on the diagonal
4.5.1 Assumptions of Multiple Regression

Prior to statistical analysis, the assumptions of multiple regression were tested to determine whether the regression results could be considered valid: (a) normality, (b) linearity, (c) homoscedasticity, (d) independent error terms, and (e) multicollinearity.

Assumption 1: Normality of the Error Term Distribution.

In multiple regression, each variable and all linear combinations of the variable need to be normally distributed. Normality is determined through visual examination of histograms or normal probability plots. Normal probability plots are more appropriate for smaller sample sizes (Hair et al., 1998). Evidence of normality can be viewed in Figure 4.18.

![Normal Probability Plot of Regression Standardized Residuals for Anxiety Scale Scores (N= 41)](image)

Figure 4.19: Normal Probability Plot of Regression Standardized Residuals for Anxiety Scale Scores (N= 41)
Assumption 2: Linearity of the Phenomenon

Relationships between the independent and dependent variables are expected to be linear in multiple regression analysis. Linearity between the independent variables and the dependent variable can be determined through visual examination of partial regression scatter plots. A curvilinear pattern on the partial regression plot indicates a nonlinear relationship between specific independent and dependent variables (Hair et al., 1998). Evidence of linearity can be viewed in Figures 4.20 - 4.25.

![Partial Regression Plot](image)

Figure 4.20: Partial Regression Plot for Anxiety and IBD Severity \( (N = 41) \)
Figure 4.21: Partial Regression Plot for Anxiety and Negative Social Interactions ($N = 41$)
Figure 4.22: Partial Regression Plot for Anxiety and Personal Control ($N = 41$)
Figure 4.23: Partial Regression Plot for Anxiety and Ignoring IBD Symptoms (N = 41)
Figure 4.24: Partial Regression Plot for Anxiety and Increasing Activity ($N = 41$)
Assumption 3: Homoscedasticity - Constant Variance of the Error Terms

Researchers must determine if any variables violate the assumption of constant variance of the error through the presence of unequal variances (heteroscedasticity). Visual examination of the standardized residual plot will identify the presence of a random pattern in the plot. A random pattern represents homoscedasticity. Evidence of homoscedasticity can be viewed in figure 4.26.
Figure 4.26: Standardized Residual Scatter Plot for Anxiety (N = 41)
Assumption 4: Assumption of Independence of the Error Terms

In multiple regression, it is assumed that each predicted value is independent and not related to, or sequenced by, any other predictor variable in the analysis (Hair et al., 1998). Random patterns in the residual plot represent independence. Evidence of independence can be viewed in Figure 4.25.

Assumption 5: Minimal Multicollinearity Between the Predictor Variables

Multicollinearity between independent variables can happen when variables are either highly related or repeated measurements of the same construct (Hair et al., 1998). Variables that are highly correlated will not load significantly into a final regression equation because they account for the similar portions of variance in the dependent variable (Hair et al., 1998). Multicollinearity between independent variables in this regression analysis did exist (Table 4.12). The effect of this multicollinearity is discussed in the regression results (section 5.2).

4.5.2 Regression Analysis Results

Block entry regression analysis was conducted using the independent variables of IBD severity, negative social interactions, personal control, ignoring IBD symptoms, increasing activity, and catastrophizing. Only IBD severity loaded significantly into the regression equation ($p = .03$). Negative social interactions was the next strongest predictor variable and it had marginal significance at $p = .108$. All other variables had significance levels in excess of $p = .367$. Regression results can be viewed in Tables 4.11 and 4.12.
<table>
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<th>Variable</th>
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<th>Standardized Coefficient</th>
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<td>Std. Error</td>
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<td>.542</td>
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<td>.276</td>
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<td>Increasing Activity</td>
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<td>.360</td>
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<tr>
<td>Catastrophizing</td>
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<td>.291</td>
</tr>
</tbody>
</table>

Table 4.11: Regression Model Results for Anxiety Predictors, Block Entry

<table>
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<th>Model</th>
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<th>R Square</th>
<th>Adjusted R Square</th>
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</table>

Table 4.12: Regression Model Summary for Anxiety Predictors
4.6 Research Question Four

Do IBD severity, length of time with IBD, coping skills, social support, and negative social interactions have a predictive relationship with depression levels in the sample?

Multiple regression techniques were used to answer Question Four. Prior to analysis, zero-order correlations were examined to determine variables that were appropriate for the multiple regression analysis. Independent variables that had a significant correlation with the dependent variable were considered appropriate for further regression analysis (Hair et al., 1998). Independent variables in this research that exhibited significant correlations with depression were: IBD severity ($r = .68, p < .001$), catastrophizing ($r = .52, p = .001$), personal control ($r = -.50, p = .001$), and negative social interactions ($r = .46, p = .003$). Scale inter-correlations can be viewed in table 4.12.

<table>
<thead>
<tr>
<th></th>
<th>IBD Severity</th>
<th>Catastrophizing</th>
<th>Personal Control</th>
<th>Negative Soc. Interactions</th>
<th>Depression</th>
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<tr>
<td>Catastrophizing</td>
<td>.476&lt;sup&gt;**&lt;/sup&gt;</td>
<td>.910&lt;sup&gt;a&lt;/sup&gt;</td>
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</tr>
<tr>
<td>Personal Control</td>
<td>-.539&lt;sup&gt;**&lt;/sup&gt;</td>
<td>-.586&lt;sup&gt;**&lt;/sup&gt;</td>
<td>.768&lt;sup&gt;a&lt;/sup&gt;</td>
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<tr>
<td>Negative Soc. Interactions</td>
<td>.341&lt;sup&gt;*&lt;/sup&gt;</td>
<td>.262</td>
<td>-.236</td>
<td>.871&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>Depression</td>
<td>.681&lt;sup&gt;**&lt;/sup&gt;</td>
<td>.518&lt;sup&gt;**&lt;/sup&gt;</td>
<td>-.499&lt;sup&gt;**&lt;/sup&gt;</td>
<td>.459&lt;sup&gt;**&lt;/sup&gt;</td>
<td>.909&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Table 4.13: Inter-correlations for Depression Predictors ($N = 41$)

* = significant at .05; ** = significant at .01; (2-tailed)
<sup>a</sup> = Internal reliabilities (Cronbach’s alpha coefficients) are written on the diagonal
4.6.1 Assumptions of Multiple Regression

Prior to statistical analysis, the assumptions of multiple regression were tested to determine whether the regression results could be considered valid: (a) normality, (b) linearity, (c) homoscedasticity, (d) independent error terms, and (e) multicollinearity.

Assumption 1: Normality of the Error Term Distribution.

In multiple regression, each variable and all linear combinations of the variable need to be normally distributed. Normality is determined through visual examination of histograms or normal probability plots. Normal probability plots are more appropriate for smaller sample sizes (Hair et al., 1998). Evidence of normality can be viewed in Figure 4.27.
Figure 4.27: Normal Probability Plot of Regression Standardized Residuals for Depression (N= 41)

Assumption 2: Linearity of the Phenomenon

Relationships between the independent and dependent variables are expected to be linear in multiple regression analysis. Linearity between the independent variables and the dependent variable can be determined through visual examination of partial regression scatter plots. A curvilinear pattern on the partial regression plot indicates a nonlinear relationship between specific independent and dependent variables (Hair et al.,
Evidence of linearity can be viewed in Figures 4.28 through 4.31.

Figure 4.28: Partial Regression Plot for Depression and IBD Severity ($N = 41$)
Figure 4.29: Partial Regression Plot for Depression and Personal Control \((N = 41)\)
Figure 4.30: Partial Regression Plot for Depression and Negative Social Interactions (N = 41)
Figure 4.31: Partial Regression Plot for Depression and Catastrophizing ($N = 41$)
Assumption 3: Homoscedasticity - Constant Variance of the Error Terms

Researchers must determine if any variables violate the assumption of constant variance of the error through the presence of unequal variances (heteroscedasticity). Visual examination of the standardized residual plot will identify the presence of a random pattern in the plot. A random pattern represents homoscedasticity. Evidence of homoscedasticity can be viewed in figure 4.32.
Assumption 4: Assumption of Independence of the Error Terms

In multiple regression, it is assumed that each predicted value is independent and not related to, or sequenced by, any other predictor variable in the analysis (Hair et al., 1998). Random patterns in the residual plot represent independence. Evidence of independence can be viewed in Figure 4.32.
Assumption 5: Minimal Multicollinearity Between the Predictor Variables

Multicollinearity between independent variables can happen when variables are either highly related or repeated measurements of the same construct (Hair et al., 1998). Variables that are highly correlated get removed from the final regression analysis because they account for the same portion of variance in the dependent variable (Hair et al., 1998). Multicollinearity between independent variables in this regression analysis does exist (Table 4.13). The effect of this multicollinearity is discussed in section 5.2.

4.6.2 Regression Analysis Results

Block entry multiple regression analysis was conducted using the independent variables of IBD severity, catastrophizing, personal control, and negative social interactions for the dependent variable of depression. Only IBD severity significantly loaded into the regression model \( p = .002 \). Negative social interactions was the next strongest variable and loaded marginally into the regression model \( p = .058 \). All other variables had significance levels in excess of \( p = .195 \). Full regression results can be viewed in Tables 4.14 and 4.15.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Unstandardized Coefficient</th>
<th>Standardized Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>Constant</td>
<td>-.4561</td>
<td>.6086</td>
<td>.458</td>
</tr>
<tr>
<td>IBD Severity</td>
<td>.344</td>
<td>.102</td>
<td>.469</td>
</tr>
<tr>
<td>Negative Social Interactions</td>
<td>.532</td>
<td>.272</td>
<td>.231</td>
</tr>
<tr>
<td>Personal Control</td>
<td>-.294</td>
<td>.517</td>
<td>-.083</td>
</tr>
<tr>
<td>Catastrophize</td>
<td>.169</td>
<td>.128</td>
<td>.185</td>
</tr>
</tbody>
</table>

Table 4.14: Regression Model Results for Depression Predictors, Block Entry

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.751</td>
<td>.563</td>
<td>.515</td>
<td>6.70402</td>
</tr>
</tbody>
</table>

Table 4.15: Regression Model Summary for Depression Predictors

4.7 Additional Analysis

To try and better understand the utilization of coping skills, additional statistical analyses were conducted after the original research questions were addressed. Specifically, the impact of IBD severity on use of coping skills was addressed. To examine this, the sample was divided into two groups based on their response to question 18 on the Biopsychosocial questionnaire (Appendix C) for self-perceived IBD severity: “mild” and “severe.” Scores on the IBDQ for IBD severity were not used for two reasons: (a) the IBDQ is a self-report of their actual symptoms and not about how “severe” they
feel their IBD is, (b) the IBDQ is a continuous scale and does not provide benchmarks for levels of severity. The IBDQ and the self perceived IBD severity variable are positively correlated ($r = .546, p < .001$). Univariate $t$-test indicated that there were differences between the “mild” and the “severe” groups for several coping skills (see table 4.16).

Significant differences in the means were found for reinterpreting IBD symptoms, coping self-statements, ignoring IBD symptoms, catastrophizing and personal control. Box plots for the different coping skills according to severity can be viewed in figures 4.33 through 4.39.

<table>
<thead>
<tr>
<th>Coping Variable</th>
<th>Mild IBD Mean (SD) n = 12</th>
<th>Severe IBD Mean (SD) n = 29</th>
<th>Mean Diff.</th>
<th>Levene’s Test for Equality f (sig)</th>
<th>Equal Variance Assumed</th>
<th>$t$ (df)</th>
<th>Sig 2-tailed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverting Attention</td>
<td>17.08 (9.92)</td>
<td>13.69 (8.92)</td>
<td>3.40</td>
<td>14.78 (.001)</td>
<td>Yes</td>
<td>1.03</td>
<td>.32</td>
</tr>
<tr>
<td>Reinterpreting IBD Symptoms</td>
<td>6.25 (8.14)</td>
<td>2.38 (2.82)</td>
<td>3.87</td>
<td>.11 (.74)</td>
<td>No</td>
<td>2.28</td>
<td>.03*</td>
</tr>
<tr>
<td>Coping Self Statements</td>
<td>27.75 (7.31)</td>
<td>19.34 (9.75)</td>
<td>8.40</td>
<td>1.55 (.221)</td>
<td>No</td>
<td>3.02</td>
<td>.005*</td>
</tr>
<tr>
<td>Ignoring IBD Symptoms</td>
<td>17.58 (12.00)</td>
<td>7.55 (6.57)</td>
<td>10.03</td>
<td>11.05 (.002)</td>
<td>Yes</td>
<td>3.45</td>
<td>.001*</td>
</tr>
<tr>
<td>Increasing Activity</td>
<td>18.66 (6.89)</td>
<td>15.28 (8.75)</td>
<td>2.84</td>
<td>.40 (.534)</td>
<td>No</td>
<td>1.32</td>
<td>.20</td>
</tr>
<tr>
<td>Praying/Hoping</td>
<td>19.83 (9.75)</td>
<td>19.66 (7.61)</td>
<td>.178</td>
<td>1.45 (.23)</td>
<td>No</td>
<td>.06</td>
<td>.95</td>
</tr>
<tr>
<td>Catastrophizing</td>
<td>6.08 (6.64)</td>
<td>16.58 (10.42)</td>
<td>10.50</td>
<td>4.69 (.04)</td>
<td>Yes</td>
<td>-3.22</td>
<td>.003*</td>
</tr>
<tr>
<td>Personal Control</td>
<td>7.46 (2.21)</td>
<td>5.12 (2.64)</td>
<td>2.34</td>
<td>1.32 (.26)</td>
<td>No</td>
<td>2.91</td>
<td>.01*</td>
</tr>
</tbody>
</table>

Table 4.16: $t$-test Comparison of Coping Means for Self Perceived Mild and Severe IBD
* = significant at $p < .05$; Personal Control has a maximum score of 12; all others coping scales have a maximum score of 36
Figure 4.33: Box-Plots for Praying/Hoping by IBD Severity ($N = 41$).

Mean Difference = .178, $p = .95$
Figure 4.34: Box-Plots for Personal Control by IBD Severity ($N = 41$)

Mean Difference = 2.34, $p = .01$
Figure 4.35: Box-Plots for Increasing Activity by IBD Severity ($N = 41$)

Mean Difference = 2.84, $p = .20$
Figure 4.36: Box-Plots for Ignoring IBD Symptoms by IBD Severity ($N = 41$)

Mean Difference = 10.03, $p = .001$
Figure 4.37: Box-Plots for Coping Self-Statements by IBD Severity ($N = 41$)

Mean Difference = 8.40, $p = .005$
Figure 4.38: Box-Plots for Reinterpreting IBD Symptoms by IBD Severity ($N = 41$)
Mean Difference = 3.87, $p = .03$
Figure 4.39: Box-Plots for Diverting Attention by IBD Severity ($N = 41$)
Mean Difference = 3.40, $p = .32$
Figure 4.40: Box-Plots for Catastrophizing by IBD Severity \((N = 41)\)

Mean Difference = 10.5, \(p = .003\)

4.8 Summary

People with IBD completed self-report inventories for this line of inquiry. A description of the obtained sample, examination of used coping skills, and regression analyses for the dependent variables of anxiety and depression were completed. Regression analysis showed that coping skills did not load into the regression equations for either anxiety or depression. To better understand the role of coping skills, additional analyses examined differences in the coping skills means based on IBD severity. Chapter Five will address the implications of these results.
CHAPTER 5

DISCUSSION

5.1 Purpose of the Study

The overall purpose of this study was to improve understanding about HRQOL issues for people with IBD by (a) gaining information about specific coping skills used by people with IBD, and (b) gaining information about predictor variables for anxiety and depression in people with IBD. Of specific interest were the predictor variables of coping skills, social support, and negative social interactions. It was expected that results from this study would provide preliminary direction for counselors and for future studies.

Little information is available pertaining to coping skills for people with IBD. This line of research examined specific coping skills used by people with IBD in the obtained sample. Counselors need data on effective coping skills in order to incorporate an effective holistic approach for treating clients.

Research to date has shown a predictive link between IBD severity and state anxiety, and between IBD severity and depression (Addolorato et al., 1997; Kurina et al., 2001); however, research examining other predictor variables was needed. This study provided an important contribution by examining whether coping skills, social support, and negative social interactions had a predictive relationship with state anxiety and
depression for people with IBD. Research has shown that coping skills, social support, and negative social interactions can have a significant impact on anxiety and depression in other medical populations (Anie et al., 2002; Barry & Elander, 2002; Christensen et al., 1989; Curtis et al., 2004; Feldman et al., 1999; Glazier et al., 2004; Hipkins et al., 2004; C. Schwartz & Frohner, 2005; Symister & Friend, 2003). This research examined the predictive role of these variables in relation to anxiety and depression in people with IBD. Further sections of this chapter discuss results for sample characteristics, coping skills, anxiety, and depression.

5.2 Sample Characteristics

The sample was predominantly Caucasian with minimal Native American and African American/Black representation. The male to female ratio was somewhat more balanced (34% and 66% respectively). There was greater diversity in age, which ranged from 28-years to 82-years of age. Most participants were married/partnered; however, there was representation in each of the marital status categories. There was also good representation in each of the household income levels.

There was significant disability representation with almost 25% of the sample reporting that they are on a disability support program. Almost half of the sample was unemployed, although it was not clear if the unemployment was by choice, or the result of their IBD. However, half of those unemployed were on a disability program. Further, almost 20% of the sample reported that they had lost a job at some point in their life due to their IBD problems. These employment issues may reflect a need for vocational counseling.
There was a wide range for length of time since diagnosis of IBD with a range of six-months to 69-years. The majority of the sample (90%) reported that they took IBD medications on a daily basis regardless of symptom activity level. All participants had some form of medical insurance; however, there was a wide range for “out of pocket” medical costs. Out of pocket costs for the past year ranged from zero dollars to $18,000 ($\text{Mdn} = \$600.00$). With such a wide range, measures of central tendency can still be unclear. Nine people in the sample had costs in the $\$1000.00$ to $\$3000.00$ range. Three people had costs in the $\$5000.00$ to $\$8800.00$ range. Three people had costs in the $\$13,000.00$ to $\$18,000.00$ range. All others (n = 24) had costs under $\$1000.00$. It would be helpful to know what led to the large medical costs (i.e. particular procedures, lack of prescription coverage, out of network physicians) and if there are particular types of insurance that provide better coverage than others.

People with IBD experience periods of active disease and periods of symptom remission. Almost half of the participants reported that they worry “very much” about IBD recurrence while they are in remission. Further, the majority of the participants reported that their IBD was “stressful” (31.7%) or “very stressful” (36%).

Thirty-seven percent of the participants reported that they had been diagnosed at some point with anxiety at some point in their lives and 37% had been diagnosed with depression at some point. Participants’ primary IBD physicians were the most frequently reported professionals to diagnose either anxiety or depression. Only one participant had been diagnosed by a counselor, and only four participants (9.8%) had received counseling to cope with symptoms of IBD. Although anxiety and depression are well documented
co-morbid problems for people with IBD, 61% of the participants reported that no one in the medical field had ever spoken with them about possible anxiety or depression that can arise from coping with IBD. These data reflect a lack of holistic treatment in this sample. Participants had elevated levels of anxiety and depression, however, few had received any type of information about, or treatment for, anxiety or depression.

5.3 Coping Skills

Participants in this study used a variety of coping skills. When looking at the complete sample, coping self-statements ($M = 21.8$, $SD = 9.8$), praying/hoping ($M = 19.7$, $SD = 8.02$), increasing activity ($M = 16.3$, $SD = 8.3$), diverting attention ($M = 14.7$, $SD = 9.2$), and personal control ($M = 5.8$, $SD = 2.7$) were the most frequently used coping skills. Reinterpreting IBD symptoms ($M = 3.5$, $SD = 5.2$) and ignoring IBD symptoms ($M = 10.5$, $SD = 9.5$) were the least used coping skills. These results seem to indicate that people with IBD do rely on a variety of coping skills. However, they do not, as a group, tend to rely heavily on techniques to ignore IBD symptoms or to pretend that IBD symptoms do not exist. This could be a reflection of the overall impact of IBD symptoms such that the symptoms cannot be disregarded.

There was significant multicollinearity between coping variables (Table 5.1) (please see Table 4.8, Sections A, B, and C for correlational statistics). The only negative correlations between coping variables involved the catastrophizing scale, which is expected. All other correlations between coping scales were positive in direction.

Strong multicollinearity between predictor variables is a weakness for multiple regression analysis (Hair et al., 1998). Correlated predictor variables account for similar
portions of the variance in a dependent variable, and are therefore excluded through statistical analysis from the final regression model. This was likely the case in the multiple regression analysis for this study. Several coping skills did significantly correlate with the dependent variables; however, these coping variables did not load into the regression models. Being that people frequently rely on more than one coping skill (Anie et al., 2002; Barry & Elander, 2002; Curtis et al., 2004), it makes sense that there would be significant multicollinearity between individual coping scales. Thus, it is possible that multiple regression may not be the best choice for analysis of coping variables.
<table>
<thead>
<tr>
<th>Coping Variable</th>
<th>Scales With No Multicollinearity $p \leq .05$</th>
<th>Scales With Multicollinearity $p \leq .05$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverting Attention</td>
<td>Ignoring IBD Symptoms, Catastrophizing</td>
<td>Reinterpreting IBD Symptoms, Coping Self-Statements, Increasing Activity, Praying-Hoping, Personal Control</td>
</tr>
<tr>
<td>Reinterpreting IBD Symptoms</td>
<td>Catastrophizing, Praying-Hoping, Personal Control</td>
<td>Coping Self-Statements, Increasing Activity, Diverting Attention, Ignoring IBD Symptoms</td>
</tr>
<tr>
<td>Coping Self-Statements</td>
<td>Catastrophizing</td>
<td>Diverting Attention, Increasing Activity, Praying-Hoping, Personal Control, Ignoring IBD Symptoms, Reinterpreting IBD Symptoms</td>
</tr>
<tr>
<td>Ignoring IBD Symptoms</td>
<td>Diverting Attention, Praying-Hoping</td>
<td>Reinterpreting IBD Symptoms, Coping Self-Statements, Increasing Activity, Personal Control, Catastrophizing</td>
</tr>
<tr>
<td>Increasing Activity</td>
<td>Catastrophizing</td>
<td>Diverting Attention, Coping Self-Statements, Praying-Hoping, Personal Control, Ignoring IBD Symptoms, Reinterpreting IBD Symptoms</td>
</tr>
<tr>
<td>Catastrophizing</td>
<td>Diverting Attention, Reinterpreting IBD Symptoms, Coping Self-Statements, Increasing Activity, Praying-Hoping</td>
<td>Personal Control, Ignoring IBD Symptoms</td>
</tr>
<tr>
<td>Praying-Hoping</td>
<td>Reinterpreting IBD Symptoms, Ignoring IBD Symptoms, Catastrophizing, Personal Control</td>
<td>Diverting Attention, Coping Self-Statements, Increasing Activity</td>
</tr>
<tr>
<td>Personal Control</td>
<td>Praying-Hoping, Reinterpreting IBD Symptoms</td>
<td>Coping Self-Statements, Increasing Activity, Ignoring IBD Symptoms, Catastrophizing</td>
</tr>
</tbody>
</table>

Table 5.1: Multicollinearity Between Coping Variables
There is debate in the literature as to the best method of statistical analysis for coping skills. Most coping inventories have numerous coping scales within the inventory (Bowling, 1997). Some researchers support the use of data reduction techniques, such as factor analysis, to reduce the large number of coping scales to a fewer number of composite factors which yield weaker details in the results, but greater statistical power (Curtis et al., 2004; Martin et al., 1996). Other researchers support the use of numerous coping scales in analysis, which yields greater detail in the results but weaker statistical power (Curtis et al., 2004; Martin et al., 1996). The debate centers on detailed information versus statistical power. In this study, the detailed information was of greater value; however, the multicollinearity likely led to poor regression loadings. With little regression information for guidance, zero-order correlations provided detailed information for the analysis of coping predictor variables and the dependent variables of anxiety and depression. Sections 5.3 and 5.4 discuss coping results with anxiety and depression respectively.

Data were examined to determine whether coping skills correlated with IBD severity. IBD severity only correlated with catastrophizing ($r = .476$, $p = .002$) and personal control ($r = -.539$, $p < .001$). Although cause and effect cannot be inferred, people in this study with perceived higher levels of IBD severity tended to also catastrophize more and feel lower levels of personal control over the disease.

When the results showed that no coping skills loaded into the regression model as predictors for either anxiety or depression, further analysis was conducted to gain a better
understanding of coping skills. Because IBD severity was such a strong predictor variable, the sample was divided according to self-perceived IBD severity (mild and severe IBD), and a comparison was made for the means of the two groups for each coping skill. Results indicated that there were significant differences between the mild and severe IBD groups for five coping skills. People with mild IBD scored higher on the coping scales of reinterpreting IBD symptoms, coping self statements, ignoring IBD symptoms, and personal control. People with severe IBD only scored higher on the catastrophizing coping scale. Implications of the further analysis results are discussed in sections 5.4.2 and 5.5.2.

5.4 Anxiety

5.4.1 Initial Analysis

Regression analysis for the predictor variables of IBD severity, negative social interactions, personal control, ignoring IBD symptoms, increasing activity and catastrophizing yielded limited results. Although all predictor variables significantly correlated with the dependent variable, anxiety, only IBD severity significantly loaded into the regression model. It is possible that the high levels of multicollinearity between coping variables, and the strong correlation between IBD severity and anxiety, allowed for IBD severity to pull unique variance from the coping predictor variables, and thus kept them from loading into the regression model.

The limited regression results led to a focus on the zero-order correlations. Cause and effect could not be determined; however, direction and strength of the relationships provided important information. Participants with higher levels of anxiety also had higher
levels of negative social interactions and catastrophizing, and lower levels of ignoring IBD symptoms, increasing activity, and personal control.

From a counseling perspective, these results provide some helpful direction. First, it is clear that negative social interactions are an important consideration when addressing anxiety levels for people with IBD. These results are in line with research in other medical populations that have shown negative social interactions to be positively correlated with anxiety (Bennett et al., 2001; Edwards et al., 2001; Hamilton, 2000; Ray, 1992; Rook, 1990, 2001). Knowing that negative social interactions correlate with anxiety can give counselors one area for clinical focus when working with people who have IBD. Counselors need to address relationships and personal interaction with clients with IBD. Specifically, counselors need to find out if there are any people with whom the client has negative, hostile or unpleasant interactions. If there are close relationships with friends and family members that involve negative interactions, then communication skills and assertiveness may need to be examined. Helping people with IBD to communicate openly and honestly with people they are close to may be helpful.

Couples counseling may be necessary if there are negative interactions within the primary romantic relationship for people with IBD. This romantic relationship may be between spouses, partners, or boyfriend/girlfriends. IBD has a debilitating effect on the lives of people diagnosed with IBD. This negative impact can extend to romantic partners when social activities are eliminated, and the person with IBD is physically and emotionally drained (Falvo, 1999; Steiner-Grossman et al., 1992). These life changes can lead to anger, resentment, helplessness and frustration for the romantic partner. Couples
counseling may help to open the lines of communication, improve self-awareness of personal needs for both partners, and help people with IBD and their romantic partners to navigate the life changes they are experiencing.

Negative social interactions may involve distant others such as neighbors, coworkers, bosses, or acquaintances. With these cases, counselors may need to help people with IBD to be assertive, avoid internalizing the negativity, identify positive options and decisions to deal with the negativity, and perhaps practice methods of stress reduction such as meditation and relaxation techniques.

Much published research on negative social interactions has involved both negative social interactions and social support. It was originally believed that these two concepts were actually opposite ends of one concept (Ingersoll-Dayton et al., 1997). It is now commonly accepted that negative social interactions and social support are two separate concepts; however, research frequently includes comparisons of the importance of these concepts (Ingersoll-Dayton et al., 1997). Some research has supported the Negativity Effect Model which claims that negative social interactions are more important than social support in the consideration of anxiety (Bertera, 2005; Finch, 1998; Finch et al., 1989; Rook, 1990; Schuster et al., 1990; Stephens et al., 1987). Results from this study also support the Negativity Effect Model. Social support did not correlate with anxiety in this sample of people with IBD. Negative social interactions did correlate with anxiety ($r = .472, p = .002$), and although not significant, negative social interactions was the second strongest predictor variable in the regression analysis. Thus, in this sample it
could be said that negative social interactions were more important than social support in the consideration of anxiety.

Since social support did not correlate with anxiety, it does not appear that this is an important counseling consideration. Further, counselors need to be aware that having a strong social support network does not compensate for the presence of negative social interactions. Social support results from this study must be interpreted with caution though, given the high levels of social support that was found in this sample. The highly skewed distribution for social support could have distorted the zero-order correlations. However, it should be noted that the skewed social support distribution in this study is in line with previous social support findings. Joachim (2002) also found exceptionally high levels of social support in a sample of people with IBD (n = 97). Therefore, it is possible that the high level of social support is normal for IBD populations.

Further direction for counselors comes from the catastrophizing and personal control results. Anxiety correlated negatively with personal control and positively with catastrophizing. It is possible that addressing feelings of personal control over IBD and helping clients to avoid catastrophizing by implementing more successful coping skills could help to lower anxiety. Mindfulness Based Stress Reduction (MBSR) is a therapeutic intervention specifically designed to help people cope with chronic or terminal illnesses (Kabat-Zinn, 1990). Through cognitive behavioral techniques and relaxation practices, MBSR has been effective in lowering anxiety levels for people with a variety of chronic illness by helping people to avoid catastrophizing, “live in the moment,” reinterpret problematic health symptoms and difficult life circumstances, and
increase perceptions of self-control (Kabat-Zinn, 1990). There was a strong negative correlation between catastrophizing and personal control \( (r = -.586, p < .001) \); therefore, addressing both areas in counseling could have a positive impact on anxiety levels for people with IBD.

Finally, there are two other coping skills that may prove helpful to people with IBD. Ignoring IBD symptoms and increasing activity correlated negatively with anxiety. It is possible that counselors could help clients with IBD by developing methods to increase the use of ignoring IBD symptoms and increasing activity while avoiding catastrophizing. Again MBSR interventions may be helpful when working with clients to ignore IBD symptoms. However, the ability for a person to ignore IBD symptoms and increase activity may be determined by the severity of that person’s physical IBD symptoms. A person in extreme pain or experiencing a loss of bowel and body control will probably not be able to ignore the symptoms or become more physically active through counseling. Therefore, counselors need to be aware that they may have limited effectiveness if working to increase these coping skills.

5.4.2 Further Analysis

After the regression analysis was completed, further \( t \)-test analysis of coping skills by self-perceived IBD severity revealed that there were significant differences in coping skills used by people with mild IBD, as compared to people with severe IBD. People with mild IBD scored significantly higher on reinterpreting IBD symptoms, coping self-statements, ignoring IBD symptoms, and personal control; and they scored significantly lower on catastrophizing. Since the link between IBD severity and anxiety has already
been established, it stands to reason that these comparisons of severity groups could also prove important to treating anxiety. Ignoring IBD symptoms, personal control, and catastrophizing correlated with anxiety and were discussed in section 5.3.1 of this chapter. Reinterpreting IBD symptoms and coping self-statements did not correlate with anxiety. However, people with mild IBD, and thus lower levels of anxiety, relied on reinterpreting IBD symptoms and coping self statements more than those with severe IBD and higher levels of anxiety. This further analysis suggests that by helping clients to incorporate the coping skills of reinterpreting IBD symptoms and coping self statements, counselors may also help to lower anxiety rates.

5.4.3 Summary for Anxiety

Results from this study support previous research by indicating a strong positive relationship between anxiety and IBD severity and between anxiety and negative social interactions. Results also provide important coping skills information for counselors. Counselors may help to decrease anxiety rates by working with clients to increase the effective use of increasing activity, ignoring IBD symptoms, personal control, reinterpreting IBD symptoms, and coping self statements and decrease the use of catastrophizing.

Increasing activity and ignoring IBD symptoms have strong physical components that may be influenced by IBD severity. People’s ability to increase their activity level is likely limited by the physical severity of their IBD symptoms. Being that IBD is a painful and debilitating disease, it also stands to reason that ignoring mild IBD symptoms may be easy, but ignoring severe IBD symptoms is more difficult and perhaps even impossible.
Given the physiological component of these coping scales, counseling interventions may have little impact in the areas of increasing activity and ignoring IBD symptoms for people with severe IBD.

Catastrophizing, reinterpreting IBD symptoms, coping self statements and personal control have significant cognitive components that counseling could impact positively, regardless of IBD severity. Helping people with IBD to develop new definitions of personal control, and to grieve and adjust to the loss of personal control may be beneficial. Further, helping people with IBD to develop cognitive abilities to reinterpreting IBD symptoms, avoid catastrophizing, and use coping self statements may also be helpful in lowering anxiety levels. MBSR therapy may be a beneficial tool for counselors working to meet these needs of people with IBD.

Medical professionals can also benefit from these anxiety results. The link between anxiety and IBD symptoms is well established; therefore, it is imperative that doctors begin to initiate conversations about anxiety with people who have IBD. Further they need to have some form of print materials or brochures that their patients can take with them to read and review. Although anxiety was highly prevalent in this study, only about a third of the participants (39%) had ever spoken with a medical professional about anxiety. Doctors also need to have a counseling referral list available for their patients who are struggling with IBD. It would probably be beneficial to provide mental health information to patients when they are first diagnosed with IBD.

This information on anxiety is also important for IBD support group leaders. Social support does not appear to play a significant role in anxiety, therefore, support
group leaders need to be proactive in addressing topics of coping and negative social interactions. Although support group leaders should not conduct actual counseling interventions, they can introduce topics, initiate discussions, and help to make referrals to professional counselors as needed. Further, it would be helpful to market support groups in such a way that people understand there is more to gain by attending than simple support. Many people with IBD have strong support systems and also significant problems with anxiety. Helping people to understand that important information and resources are available, may make IBD support groups more valuable to all people with IBD.

5.5 Depression

5.5.1 Initial Analysis

Regression analysis for the predictor variables of IBD severity, catastrophizing, personal control, and negative social interactions yielded limited results. Although all predictor variables significantly correlated with the dependent variable, depression, only IBD severity significantly loaded into the regression model. It is possible that the high levels of multicollinearity between coping variables, and the strong correlation between IBD severity and depression, allowed for IBD severity to pull unique variance from the coping predictor variables, and thus they were not included in the final regression model.

Once again, limited regression results led to a focus on the zero-order correlations. Although cause and effect could not be determined, direction and strength of the relationships provided important information. Depression was associated (a)
positively with catastrophizing and negative social interactions, and (b) negatively with personal control.

These results provide some helpful direction for counselors. Negative social interactions are clearly a significant consideration when addressing depression in people with IBD. These results are in line with research conducted in other populations that have also shown positive correlations between negative social interactions and depression (Bennett et al., 2001; Edwards et al., 2001; Hamilton, 2000; Ray, 1992; Rook, 1990, 2001). Awareness of the correlation between negative social interactions and depression can provide counselors with one area for clinical focus. As discussed in the anxiety results (section 5.5.1), counselors need to address negative social interactions that take place both in close relationships and with distant others such as neighbors, co-workers, bosses and acquaintances. Interventions to help people with IBD to be more assertive, communicate openly and honestly, avoid internalizing the negativity, avoid feelings of helplessness, examine options and choices, and practice methods of stress reduction may help people with IBD who are experiencing negative social interactions with friends, family or distant others.

Couples counseling may be necessary if the negative interactions take place within a romantic relationship. IBD can have a negative impact on people diagnosed with the disease. But is can also have an impact on those who are romantically involved with someone diagnosed with IBD (Steiner-Grossman et al., 1992). Issues of anger, resentment, frustration and helpless may arise for the romantic partner (Pollin, 1995). Couples counseling can help to open the lines of communication, normalize the
experiences for both people, and help them to overall navigate their life circumstances in a positive way.

Previous research has supported the Negativity Effect Model which claims that negative social interactions are more important than social support in the examination of depression for other populations (Bertera, 2005; Finch, 1998; Finch et al., 1989; Rook, 1990, 2001; Schuster et al., 1990; Stephens et al., 1987). Results from this study support the Negativity Effect Model. Social support did not correlate with depression in this sample of people with IBD. Negative social interactions did correlate \( r = .46, \ p = .002 \) with depression, and although not significant, negative social interactions was the second strongest predictor variable in the regression analysis for depression. Results for this sample seem to indicate that negative social interactions are more important that social support in the consideration of depression. Given the overall high levels of social support found in this sample, these results must be interpreted with caution. The highly skewed distribution for social support could have distorted the zero-order correlations involving social support. However, these social support results are in line with previous social support research. Joachim (2002) found very high scores for social support in a sample of people with IBD \( (N=97) \). Therefore, it may be possible that high social support is more the norm than the exception for people with IBD. Counselors need to be aware that having a strong social support network does not compensate for the presence of negative social interactions. Negative social interactions correlate with depression regardless of the presence of a strong social support network. Therefore, counselors need to give attention to all negative social interactions.
Further direction for counselors comes from depression’s positive relationship with catastrophizing and negative relationship with personal control. Developing interventions to help people adjust to the loss of personal control, develop new definitions of personal control, and/or develop new ways of feeling in control may help to improve depression levels. Helping people to focus on what they do have control over, as opposed to what they have lost control over, may also prove helpful. There was a strong negative relationship between catastrophizing and personal control \( (r = -.59, p < .001) \). One method to improve feelings of self-control could be to reduce catastrophizing coping behaviors and help people with IBD to develop more positive coping strategies (Anton, 1999; Kabatt-Zinn, 1990). MBSR research has shown that increasing feelings of self-control and reducing catastrophizing in other illness populations has led to a decreased levels of depression (Anton, 1999). Using MBSR to decrease catastrophizing and increase personal control may also have a positive impact on depression levels for people with IBD.

5.5.2 Further Analysis

After initial analysis, a further \( t \)-test analysis was conducted comparing the means of each coping skill by self-perceived IBD severity. The link between IBD severity and depression has already been established; therefore, it is likely that information from the comparisons of IBD severity groups could be helpful in researching and treating depression for people with IBD. In the \( t \)-test analysis comparing mild and severe IBD groups, it was determined that people with mild IBD scored significantly higher on reinterpreting IBD symptoms, coping self statements, ignoring IBD symptoms, and
personal control. The mild IBD group scored significantly lower on catastrophizing. Catastrophizing and personal control did correlate with depression and are discussed in section 5.4.1. Reinterpreting IBD symptoms, coping self statements, and ignoring IBD symptoms did not correlate with depression. However, people with mild IBD, and thus lower levels of depression, used these coping skills to a greater degree than did people with severe IBD, and higher levels of depression. This further analysis suggests that counselors may also help to lower depression levels by helping people with IBD to rely more on the coping skills of reinterpreting IBD symptoms, coping self statements, and ignoring IBD symptoms.

5.5.3 Summary for Depression

Results from this study support previous research by indicating a strong positive relationship between depression and IBD severity and between depression and negative social interactions. Results also provide useful coping information for counselors working with people who have IBD. Counselors may decrease depression levels by helping clients to increase personal control, reinterpreting IBD symptoms, ignoring IBD symptoms, and use of coping self statements and to decrease the use of catastrophizing.

As discussed in section 5.3.3, increasing activity and ignoring IBD symptoms have strong physiological components and may be dependent on IBD severity. People’s ability to increase their activity level may be limited by the physical severity of their IBD symptoms. Equally, ignoring painful, debilitating IBD symptoms may be impossible. Therefore it may be in the best interest of the client to focus on areas less dependent on physiological aspects of IBD.
It is possible that counselors would be more effective in addressing coping skills that are less dependent on physiological aspects of IBD. Catastrophizing, personal control, reinterpreting IBD symptoms, and coping self statements have significant cognitive components. Helping clients with IBD adjust to new levels of personal control may be beneficial. Working with clients to develop the cognitive skills to reinterpreting IBD symptoms, use coping self-statements, and avoid catastrophizing may also contribute to decreasing depression levels for people with IBD. MBSR is a therapeutic intervention based on cognitive behavioral and relaxation techniques. MBSR may be an effective intervention to help counselors meet the needs of people with IBD.

As discussed in the anxiety summary (section 5.4.3) doctors need to be aware of the link between IBD physical symptoms and depression, and they need to keep in mind the reciprocal impact of depression and physical IBD symptoms. Doctors need to initiate conversations with patients about the prevalence and impact of depression for people with IBD, especially during times of severe symptoms. It would be helpful if they would provide print materials for their patients to review and keep on hand. Further, they need to make their patients aware that counseling may help them to cope with the life changes. Finally doctors need to have a counseling referral list available for any patient experiencing depression associated with IBD.

IBD support group leaders need to be aware of the prevalence and impact of depression and they need to provide informational resources to support group attendees. It would be beneficial for national organizations such as CCFA to provide funding for informational materials. Support group leaders need to initiate conversations about
depression, coping methods, and negative social interactions. Leaders need to have a referral list to provide counseling referrals as needed. Although it is not ethical for the support group leader to engage in counseling interventions, they can initiate conversations, improve awareness, and provide educational materials and referral resources.

5.6 Limitations

There are several limitations to this study that are important to note. First is the small sample size and large number of variables. Future studies need to involve larger samples to meet power requirements for large sets of variables. Coping inventories in general are psychometrically weak (Bowling, 1997). Analyzing coping data and making decisions between stronger statistical power and greater detailed information can be problematic. The overall weakness of coping inventories and the difficulty in analyzing coping data is a second limitation.

Another limitation is the self-selected sample that was used in this research. The results of this research can only be generalized to people with IBD who would choose to respond to an IBD research survey. It is possible that there are differences between people who would chose to participate and those who would not.

The demographics of this sample restrict the ability to generalize the findings of this research. Although there was diversity in age, disability status, marital status, and household income, the sample was predominantly comprised of Caucasian females. Further research involving greater diversity in ethnicity and gender is needed.
5.7 Implications for Future Research

Much additional research is needed to investigate anxiety and depression issues for people with IBD. First, studies similar to this one, with larger sample sizes and greater diversity, are needed. Perhaps developing a partnership with CCFA would create access to a wider set of participants. Obtaining grant money to offer incentives would also be helpful. It is also possible that by sharing the results from this study, that doctors may be more inclined to participate in future studies and make their patients available to the researchers. Second, there is a need for studies similar to this one that investigate other possible predictors of anxiety and depression. Third, there is a need for rigorous cause and effect studies that examine the impact of depression and anxiety counseling treatments for people with IBD. Specifically, investigation into the effect of interventions, such as MBSR, designed to help people develop the skills to reinterpret IBD symptoms, use coping self statements, increase perception of self control, and avoid catastrophizing are needed. It would be helpful to have collaborative data from family and counselors as well as direct data from participants. Since most data collection involves self-report and individual perceptions, it would be interesting to see if reports and perceptions are similar for both participants and collaborators.

5.8 Conclusion

Treating the complete person through a holistic approach is a growing focus in the counseling field (Roberts et al., 2002). HRQOL is an integral component of a holistic treatment approach. Most HRQOL research has focused exclusively on the effect of disease symptoms on HRQOL domains. There is a need for research focusing on other
variables that may affect HRQOL domains, such as anxiety and depression. This examination of coping skills, social support, and negative social interactions provided an important step in understanding anxiety and depression issues for people with IBD. Results of this study indicated that social support does not correlate with anxiety or depression; however, this may be the result of a skewed distribution and needs further investigation. Negative social interactions do appear to play a significant role in anxiety and depression and need to be included in future IBD studies. Results also revealed that coping skills are an important consideration in both treatment and future research for people with IBD.

These results provide implications for a variety of people. First, the results provide good direction for counselors working with people who have IBD. The importance of particular coping skills and negative social interactions provides groundwork for anxiety and depression work. Further the knowledge that many people with IBD have lost a job due to having IBD indicates a possible need for vocational counseling. Second, this study provides important information for doctors and medical personnel. Anxiety and depression are significant problems for people with IBD that result from coping with the painful and debilitating disease symptoms. Doctors need to initiate conversations with their patients about anxiety and depression and doctors need to normalize the fact that these are common problems for people with IBD. Finally, doctors need to have a referral list of local counselors and make this available to their patients. Third, support group leaders need to be aware of the important role that coping and negative social interactions can play in the mental health of people with IBD. Since social
support does not appear to have a significant impact on anxiety and depression, it may be inefficient to simply spend time “supporting” one another during the support group meetings. Leaders can make better use of the time by providing information on positive and negative coping methods. They can also help members by addressing the problematic impact of negative social interactions and helping support group members to find counseling resources when needed. Fourth, organizations such as the CCFA provide sites for the support group meetings to take place, but they also need to provide informational materials for support group leaders concerning anxiety, depression, coping skills, and negative social interactions. Further, it would be helpful if CCFA would provide funding to periodically have a counselor attend support group meetings and provide assistance to attendees through a psychoeducational approach. Each CCFA branch needs to have a referral list of local counselors who can work with people who have IBD. CCFA puts much time and funding into finding a cure for IBD: however, they need to also place significant emphasis on improving quality of life while people with IBD are waiting for a cure. The current life circumstances cannot be ignored in hopes for a better tomorrow.

Information from this study can be helpful to a wide variety of people who work with or interact with people who have IBD. Overall, information provided by this study will help to improve holistic treatment for people with IBD and provide direction for future HRQOL research in IBD populations.
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APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL
This study has been reviewed and approved for safety by The Ohio State University Human Subjects Committee Approval #2006E0456
APPENDIX B
INTRODUCTION LETTER
To All People with Inflammatory Bowel Disease,

Very little research information is available pertaining to “quality of life” issues for people with Inflammatory Bowel Disease (IBD). This lack of information makes it difficult for physicians to treat more than your physical symptoms, and yet, IBD certainly affects much more than your physical world! IBD can also impact the social, emotional, career, and relationship aspects of your life. We most certainly need our medical researchers to continue looking for both a cure and improved IBD medications. However, we also need research that helps to improve your quality of life while coping with IBD and waiting for a cure.

The enclosed study questionnaire focuses on quality of life issues for people with IBD (Crohn’s Disease, Ulcerative Colitis, or Crohn’s Colitis). If you have any form of IBD, we are asking you to please help with this study by completing the attached study questionnaire. The entire questionnaire should only take 20 to 30 minutes to complete. This is an opportunity to make your voice heard and to provide information that will help in the future treatment of quality of life issues for people with IBD.

This study has been reviewed and approved for safety by the Ohio State University Human Subjects Committee (approval #2006E0456). The information you provide is completely anonymous and no identifying information will be used. Further, no individual information will be reported. Group information will be analyzed and summarized with the expectation of making the results available to medical and health professionals. We are looking for people with any form of IBD (including Crohn’s Disease, Crohn’s Colitis, or Ulcerative Colitis) to participate.

Please be certain to answer all questions on the following form. Remember that there are no right or wrong answers. We are simply looking for your personalized impressions and information. Completion and return of this form will signify your consent to participate in the study.

The entire research team thanks you for your time and assistance.

Sincerely,

Angel R. Rhodes       Darcy Haag-Granello
The Ohio State University       Associate Professor and Advisor

The Ohio State University

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APPENDIX C

BIOPSYCHOSOCIAL QUESTIONNAIRE
1. How did you learn about this survey? 
   _____ I received it in the mail  _____ I received it at the doctor’s office
   _____ I received it at a support group meeting  _____ I received it at a fundraiser
   _____ I received it through CCFA contacts  other ____________________

2. Your age: __________________

3. Gender: _____ male  _____ female

4. Race/Ethnicity that you most identify with: 
   _____ Asian  _____ African American/Black  _____ Caucasian/non-Hispanic
   _____ Hispanic  _____ Native American  Other __________________________

5. Approximate overall annual household income per year: 
   _____ less than $10,000
   _____ $10,000 – $14,999
   _____ $15,000 – $24,999
   _____ $25,000 – $34,999
   _____ $35,000 – $49,999
   _____ $50,000 - $74,999
   _____ $75,000 - $99,999
   _____ more than $100,000

6. Are you currently employed? _____ Full-time  _____ Part-time  _____ Not employed

7. If employed, how many days during the last month have you had to miss work because of your IBD problems? _____________

8. Are you on any disability program (Medicaid, SSI, or SSDI) due to your IBD?  _____ yes  _____ no

9. Have you ever lost a job due to having IBD?  _____ yes  _____ no

10. Highest Education Level Attained: 
    _____ Some High School  _____ Technical Training or Associates Degree  _____ Masters degree
    _____ High School Graduate  _____ College Bachelors Degree  _____ Doctorate (ex. PhD,EdD, JD)
    _____ Some College  _____ Some Graduate School  _____ MD

11. Would you consider yourself to be: (please circle one) 
    very religious, moderately religious, a little religious, not at all religious
    or spiritual, or spiritual, or spiritual

12. Current marital status: 
    _____ single, never married  _____ married/partnered  _____ separated  _____ divorced  _____ widowed

13. How many children under 18 do you have living with you? ______

14. How many elderly dependents do you have living with you? ______
15. How long have you had IBD? _____________________________
Do you have Crohn’s Disease, Crohn’s Colitis, or Ulcerative Colitis? __________________
Do you have an ileostomy? _____________________________

16. Currently, do you take IBD medications:
_____ only during flare-ups
_____ on a daily basis for health maintenance, regardless of flare-up status

17. Overall, how severe do you feel your IBD has been in the past 6 months? (please circle one)
not mild moderate severe very severe
problematic

18. How severe do you feel your current IBD symptoms are? (please circle one)
not mild moderate severe very severe
problematic

18a. When your IBD is in remission, do you worry or feel anxious about it returning?
Very much somewhat a little not at all

19. Overall, how stressful is your IBD illness? (please circle one)
not at all a little stressful very stressful

20. Since developing IBD, have you ever been diagnosed and/or treated for anxiety? _____ yes _____ no

21. Since developing IBD, have you ever been diagnosed and/or treated for depression? _____ yes _____ no

22. If you answered “yes” to questions 19 or 20, what type of professional diagnosed you with anxiety and/or depression? (example: psychiatrist, counselor, gastrenterologist, general medical physician)
_______________________________

23. Have you been in individual counseling anytime since your IBD diagnosis? ____________
If yes, was this counseling the result of coping with IBD? _____ yes _____ no
If yes, approximately how many sessions did you have? ______________

24. Have you ever attended an IBD support group? _____ yes _____ no

25. Approximately how many times in the past 6 months have you attended an IBD support group?
_______________

26. Do you currently attend an IBD support group? _____ yes _____ no
If you answered “yes” to question #26, how long have you been attending the support group?_______________
27. If you have attended an IBD support group, has attending the IBD support group been helpful to you? (please circle one)

very helpful  helpful  a little helpful  not at all helpful  not applicable

28. In the past year, approximately how many times have you seen your Primary IBD doctor? ____________

29. Has anyone in the medical field ever talked to you about anxiety or depression issues associated with coping with the symptoms of IBD?

_____ yes  _____ no

30. If you do have health insurance, do you have:

_____ Private health insurance  _____ HMO or PPO – associated with place of employment

_____ Public Care (Medicare/Medicaid)  _____ I do not have health insurance  Other

______________________

31. In the past year, approximately how much in “out-of-pocket” costs have you had to pay for treatment of your IBD (this includes co-pays for office visits, medical procedures, and medications). $_______________