

ATTACHMENT INFLUENCES WITHIN A GYNECOLOGIC CANCER  
POPULATION

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## DEDICATION

I would like to thank my parents and sister for their unconditional support and love. Mom and Dad, you have been beside me every step of the way. You have always emphasized the importance of education, integrity, and work ethic. I could never have made it this far without you. Kara, my sister and dearest friend, thank you for reminding me to laugh and remember what is truly important.

To my dissertation committee, thank you all for your support and guidance through this process. Thank you for your patience, humor, and wisdom in helping me understand and work through my challenges.

ATTACHMENT INFLUENCES WITHIN A GYNECOLOGIC CANCER  
POPULATION

by

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DISSERTATION

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CASSANDRA LEIGH ADAMS, Ph.D.

The University of Texas Southwestern Medical Center, 2012

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Despite significant levels of distress and demonstrated benefits of psychosocial intervention, few women diagnosed with gynecologic cancers utilize psychosocial resources. Research indicates adult attachment style and perception of social support impact distress. However, relationships between these variables are poorly understood. Participants completed measures of distress, adult attachment

style, and perception of social support and provided information regarding self-reported openness to psychosocial services and barriers to using those services. Our analyses identified significant relationships between adult attachment dimensions, distress, perceived social support, and openness to and use of psychosocial services. Distress was significantly associated with openness to and use of psychiatric medication. Perceived social support demonstrated significant mediation effects between attachment anxiety and distress. Similarly, perceived social support demonstrated significant mediation effects in the relationship of elevated depression and high attachment avoidance to use of psychiatric medication. However, significant study limitations may be assumed to have negatively impacted the ability to draw meaningful conclusions from the data. Future research would benefit from further examination of the relationships among adult attachment, distress, perceived social support, and openness to and use of psychosocial services. Clearer understanding the nature of these relationships could guide care providers in being able to more effectively provide services to women who are experiencing significant distress but fail to access services. More effective provision of services and subsequent reduction in distress would likely improve health outcomes.

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## LIST OF ABBREVIATIONS

ACS	American Cancer Society
AJCC	American Joint Committee on Cancer
ANOVA	Analysis of variance
APA	American Psychiatric Association
ASCO	American Society of Clinical Oncology
$\beta$	Beta
CAM	Complementary and Alternative Medicine
CI	Confidence Interval
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders (4 <sup>th</sup> Ed.) Text Revision
DT	Distress Thermometer
ECOG	Eastern Cooperative Oncology Group
ECR	Experiences in Close Relationships scale
FIGO	International Federation of Gynecology and Obstetrics
FSAD	Female Sexual Arousal Disorder
FSD	Female Sexual Dysfunction
GAD	Generalized Anxiety Disorder
HADS	Hospital Anxiety and Depression Scale
HADS-A	HADS-Anxiety
HADS-D	HADS-Depression
HADS-T	HADS-Total
HR-QOL	Health-Related Quality of Life
NAMI	National Alliance on Mental Illness
NCCN	National Comprehensive Cancer Network
NCI	National Cancer Institute

OR	Odds Ratio
PNCQ	Perceived Need for Care Questionnaire
PTSD	Posttraumatic Stress Disorder
RM-ANOVA	Repeated Measure Analysis of Variance
RoW	Reassurance of Worth
SPS	Social Provisions Scale

## CHAPTER ONE

### INTRODUCTION

Research indicates that one in three cancer patients in outpatient settings report moderate to high levels of psychological distress (Carlson et al., 2004). The consequences of elevated distress not only impact the patient's quality of life and social functioning, but also increase overall health care costs. Several agencies, including the National Comprehensive Cancer Network (NCCN), have developed guidelines encouraging the use of screening measures to evaluate distress and to address psychosocial issues within oncology. However, research has observed a lack of correspondence between distress levels and referral for psychosocial care (Ellis et al., 2009; Ernstmann et al, 2009; Tuinman et al., 2008). Furthermore, a significant proportion of patients fail to access psychosocial services even when appropriately referred (Ell et al., 2005; Ernstmann et al., 2009).

Determining which demographic and disease related variables are associated with distress and willingness to access psychosocial services within this population can help clinicians identify those patients needing additional psychosocial care and target interventions appropriately. Recent research has linked individual differences in attachment style to numerous clinically relevant factors, including distress, communication, and health behaviors such as symptom reporting, accessing health care, quality of the patient-provider relationship, and treatment adherence (Maunder & Hunter, 2009; Meredith et al., 2008; Ravitz et

al., 2010; Zhang & Labouvie-Vief, 2004. Assessing the barriers to psychosocial interventions for patients with cancer has not been evaluated within the area of attachment theory.

The proposed study examined patterns of perceived social support, reported distress, and utilization of psychosocial services among adult attachment styles within a gynecological cancer population. Specifically, the first aim was to evaluate the influence of adult attachment style and perceived social support on an individual's reported level of distress. It was hypothesized that individuals with either a preoccupied or fearful attachment style would report a higher level of distress than individuals with a secure or dismissing attachment style and that perceived social support would function as a mediating variable. The second aim was to evaluate how adult attachment style interacts with perceived social support and level of distress to influence self-reported likelihood and actual use of psychosocial services. It was hypothesized that perception of social support would mediate the influence of adult attachment style and level of distress on use of psychosocial services, such that individuals with either a secure or dismissing adult attachment style would report lower levels of distress and lower utilization of psychosocial services than individuals who reported either a fearful or preoccupied adult attachment style.



CHAPTER TWO  
LITERATURE REVIEW

**Cancer**

Cancer is the second leading cause of death in the United States (Xu, Kochanek, Murphy, and Tejada-Vera, 2010). The National Cancer Institute (NCI) defines cancer as “diseases in which abnormal cells divide without control and are able to invade other tissues.” There are many types of cancer, each with its own determinants and prognoses. Although research and advances in medicine have contributed to diagnosis and treatment of many types of cancer, the survival rates and disease trajectories remain divergent. This divergence is evident within gynecologic cancers, i.e. any cancer which first appears in a woman’s reproductive organs. Gynecologic cancers include endometrial/uterine, ovarian, cervical, vaginal, vulvar, fallopian, and peritoneal cancer. By nature, gynecologic cancers are accompanied by issues and concerns that may be less present among other cancer diagnoses, such as concerns relating to sexuality (Hersch, Juraskova, Price, & Mullan, 2009; Ratner, Foran, Schwartz, & Minkin, 2010). In addition, each gynecologic cancer diagnosis has a unique prognosis and disease trajectory. While some, such as cervical cancer, are typically detected at an earlier stage and have a lower mortality rate, others, such as ovarian cancer, are typically detected at a later stage of development and offer a less promising prognosis (American

Cancer Society, 2010). Subsequently, the experiences of the women diagnosed with these diseases may be strikingly different.

### **Cancer Classification & Staging**

In an attempt to facilitate understanding and communication, several categorization and classification systems have been developed which describe disease stage and level of functioning. The most commonly used systems and scales are described below.

**FIGO stages.** As asserted by the International Federation of Gynecology and Obstetrics (FIGO) Committee on Gynecologic Oncology, “The major purpose of staging ... is to offer a classification of a cancer’s extent so as to provide a method of conveying one’s clinical experience to others for the comparison of treatment methods without confusion or ambiguity” (2000, p. 210). Cancer staging provides a description of the extent of cancer at the time of diagnosis and is a key determinant in choice of therapy and assessment of prognosis (ACS, 2010, p. 2-3). The American Joint Committee on Cancer (AJCC) TNM (tumor, nodes, & metastasized) staging system is often used in coordination with FIGO stages in gynecologic cancer diagnoses. Both staging systems classify cancer on the basis of three factors: the extent of the primary tumor (T), extent of spread to regional lymph nodes (N), and whether the cancer has spread to distant sites, i.e.

metastasized (M). Once T, N, and M are determined these factors are used to assign a stage of I, II, III, or IV (American Cancer Society, 2010, p. 3).

FIGO staging is determined through surgical pathological processes and uses numerals I-IV to describe the overall extent of the disease progression (2000, p. 210-211). Stage I refers to an early disease state, in which lesions are restricted to the site of origin. Stage II indicates that the disease has spread beyond the organ of origin to involve adjacent organs and Stage III indicates further extension of the disease. Stage IV, advanced cancer, indicates that the disease has clearly metastasized to other parts of the body.

**ECOG performance scores.** Another frequently referenced method for understanding patient functioning was established by the Eastern Cooperative Oncology Group (ECOG), and is known simply as ECOG Performance Status (Oken et al., 1982). Similarly to FIGO stages, patients are classified as having an ECOG Performance Status ranging from 0-5 in order to assist doctors and researchers in assessing how a patient's disease is progressing, assessing how the disease affects the daily living abilities of the patient, and determining appropriate treatment and prognosis for the patient. A status of 0 indicates that the patient is fully able to perform all duties as they did before the onset of cancer. A status of 1 indicates that the patient is ambulatory and able to complete light activity, but that they might struggle with more strenuous activities. A status of 2 indicates that the patient is able to complete self-care activities and is bedbound for less than 50%

of their waking hours, but is unable to complete either light or strenuous activities. A status of 3 indicates that the patient is confined to a bed or chair for more than 50% of their waking hours and is able to complete only limited self-care. A status of 4 indicates that the patient is unable to complete any self-care activities, is confined to a bed or chair, and is completely disabled. A status of 5 indicates that the patient is deceased.

Table 1  
*Eastern Cooperative Oncologists Group (ECOG) Performance Status*

Grade	ECOG
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities. Up and about more than 50% of waking hours
3	Capable of only limited selfcare, confined to bed or chair more than 50% of waking hours
4	Completely disabled. Cannot carry on any selfcare. Totally confined to bed or chair
5	Dead

Oken, M.M., Creech, R.H., Tormey, D.C., Horton, J., Davis, T.E., McFadden, E.T., & Carbone, P.P. (1982). Toxicity and response criteria of the Eastern Cooperative Oncology Group. *American Journal of Clinical Oncology*,5(6), 649-655.

**Karnofsky performance status.** The Karnofsky Performance Status scale was originally published in 1948 as part of an article evaluating the therapeutic value of nitrogen mustards among patients diagnosed with neoplastic disease (Karnofsky, Abelmann, Craver, & Burchenal). The scale, expressed in

percentages, was developed as a measure of the patient's ability carry on normal activities autonomously versus with dependence on help of nursing care.

Table 2  
*Karnofsky Performance Status Scale*

Definition	%	Criteria
Able to carry on normal activity and to work. No special care is needed.	100	Normal ; no complaints ; no evidence of disease.
	90	Able to carry on normal activity; minor signs or symptoms of disease.
	80	Normal activity with effort; some signs or symptoms of disease.
Unable to work. Able to live at home, care for most personal needs. A varying amount of assistance is needed.	70	Cares for self. Unable to carry on normal activity or do active work.
	60	Requires occasional assistance, but is able to care for most of his needs.
	50	Requires considerable assistance and frequent medical care.
	40	Disabled; requires special care and assistance.
Unable to care for self. Requires equivalent of institutional or hospital care. Disease may be progressing rapidly.	30	Severely disabled; hospitalization indicated although death is not imminent.
	20	Very sick; hospitalization necessary; active supportive treatment necessary.
	10	Moribund, fatal processes progressing rapidly.
	0	Dead

Karnofsky, D. A., Abelmann, W. H., Craver, L. F., & Burchenal, J. H. (1948). The use of the nitrogen mustards in the palliative treatment of carcinoma with particular reference to bronchogenic carcinoma. *Cancer, 1*(4), 634-656.

In 1949, Karnofsky performance status was included as one of four general criteria suggested for evaluating the effectiveness of chemotherapeutic agents against cancer (Schag, Heinrich, & Ganz, 1984). The scale has been widely accepted as a basis for making clinical decisions since that time in the context of acting as a stratification and selection variable in randomized trials of

chemotherapeutic agents, evaluating the patient response to treatment in combination with objective measures, evaluating the impact of chemotherapeutic agents on patients' quality of life, and as a guide to treatment plans for individual patients (Schag et al., 1984, p. 187).

### **Treatment Alternatives**

Individuals diagnosed with cancer have several treatment options available to them, depending on the type and stage of their diagnosis. Traditionally, these options include some combination of surgery, chemotherapy, and radiation. The initial treatment approach is referred to as “first-line” whereas a subsequent treatment approach may be referred to as “second-line” therapy or treatment as defined on the National Cancer Institute (NCI) website ([www.cancer.gov](http://www.cancer.gov)). The American Cancer Society (ACS) and American Society of Clinical Oncology (ASCO) websites describe treatment options in detail and identify side effects patients may experience ([www.cancer.org](http://www.cancer.org); [www.cancer.net](http://www.cancer.net)). Patient responses to each treatment type range in presentation and intensity, and for some the side effects may be experienced as more distressing than the cancer itself.

As defined by Agarwal and Bodurka (2010), the term “symptom burden” refers to the overall effect of symptoms in terms of the “duration, severity, and frequency of occurrence of symptoms and the interference with daily life that they cause” (p. 385). In the case of any diagnosis, symptoms may be caused by the

disease itself, treatment of the disease, co-morbidities, or some combination of these (Agarwal, 2010; Cleeland, 2007). Symptom burden increases correspondingly with cancer stage and has a direct impact on distress, quality of life, and survival (Agarwal & Bodurka, 2010, p. 385). Unfortunately, cancer treatments not only have limited effectiveness in reducing symptom burden, but may paradoxically contribute to its increase.

**Surgery.** According to the American Cancer Society (ACS), surgery is the oldest form of cancer treatment and offers the greatest chance for a cure in many cases. In the context of cancer, surgery may have many roles, including being prophylactic, diagnostic, an aspect of staging, curative, cytoreductive (i.e. debulking), palliative, supportive, or reconstructive.

Prophylactic surgery is surgery performed to reduce the risk of developing cancer. Hysterectomies (surgical removal of the uterus) and oophorectomies (surgical removal of the ovaries) are common prophylactic surgeries among women who are at greater risk for developing a gynecologic cancer. Diagnostic surgeries typically involve either an incisional or excisional biopsy followed by a pathology report that assists in determining diagnosis and staging. When a tumor is restricted to one area and all of the tumor can be surgically removed, surgery may be curative. Curative surgery may be used alone or in combination with chemotherapy or radiation. Cytoreductive surgery, also known as debulking, is done when complete removal of the tumor would cause too much damage to an

organ or surrounding tissue. This type of surgery is one of the most common approaches for advanced ovarian cancer and, like curative surgery, is often accompanied by radiation or chemotherapy. (Eyre, Lange, & Morris, 2001; <http://www.cancer.org>; <http://www.cancer.net>)

Palliative surgery is surgery used to relieve the side effects caused by cancer, rather than to treat cancer itself. This type of surgery can take many forms, and the specific goals may include pain relief by relieving pressure or blockages, prevention of broken bones by insertion of metal rods, and controlling bleeding via suture ligation. Supportive surgery is a type of palliative surgery and is done to support other means of treatment, i.e. chemotherapy, through implantation of ports or feeding tubes. Reconstructive, or restorative, surgery is a type of surgery designed to improve some aspect of the patient's appearance after a major cancer surgery, or to restore the function of an organ or body part after surgery. Although reconstructive surgery is most commonly associated with breast or head and neck cancers, among gynecologic cancers reconstructive surgery may play an important role in offsetting negative impacts of treatment on the patient's sexual function and self-image. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>)

***Surgery side effects.*** Just as surgery ranges in type and objective, so it ranges in invasiveness and subsequent recovery. Traditionally, surgeries have required more extensive incisions through skin, muscle, and bone which have



resulted in slower recovery, longer inpatient stays, and significant postoperative pain. However, advances in technology have led to the advent of minimally invasive surgeries which involve smaller incisions and often have less postoperative pain and shorter recovery times. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>)

Most types of surgery involve use of anesthesia which can have additional side effects such as drowsiness and disorientation. Side effects of the surgery itself may include pain, fatigue, loss of appetite, swelling and/or bruising around the site of the surgery, drainage from the site of the surgery, bleeding, infection, lymphedema, and organ dysfunction which can subsequently cause nausea or vomiting. Difficulty passing urine may require a catheter. Furthermore, gynecologic surgery procedures, such as hysterectomies and oophorectomies, may impact hormone production, fertility, and sexual function. Less common side effects of cancer surgery may include lung infection, other infections, and blood clots. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>)

**Chemotherapy.** Chemotherapy, the use of drugs to kill cancer cells, may be used as a first-line, second-line, or adjuvant treatment. Chemotherapy may be administered in various settings and by various means. Chemotherapy, which is taken orally or applied topically, may be administered by the patient in their home, whereas chemotherapy administered intravenously, intramuscularly, intra-arterially, or intraperitoneally is more likely to be administered in a doctor's

office, outpatient clinic, or hospital. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>)

Although surgery and radiation are targeted treatments, chemotherapy is a systemic treatment delivered through the bloodstream. Chemotherapy works by interfering with cancer cell growth and division and by targeting cells that are actively growing. More than 100 chemotherapy drugs are available and multiple drugs are often combined in treatment to form what patients refer to as a “cocktail.” Traditional chemotherapy drugs work by interfering with growth processes that are common to normal cells and cancer cells, such as cell division. Therefore, traditional chemotherapy drugs affect normal cells as well as cancer cells. Although newer chemotherapy drugs target cancer cells specifically, these drugs are often used in combination with traditional chemotherapy drugs. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>)

Most patients receive chemotherapy in “cycles,” i.e. periods of treatment followed by periods of recovery. As explained on Chemocare.com, the duration, frequency, and number of treatments within a cycle are determined by various factors including the specific drugs being used, the diagnosis stage and type, the response of the cancer cells to treatment, and the overall health and wishes of the patient. A single session of chemotherapy may last anywhere from minutes to days and may need to be repeated weekly, biweekly, or monthly. A “course” of

chemotherapy consists of several cycles. (Eyre et al., 2001;

<http://www.cancer.org>; <http://www.cancer.net>)

*Chemotherapy side effects.* Because many chemotherapy drugs generally target cells that are actively growing and fail to distinguish between cancerous and noncancerous cells, chemotherapy treatment often damages normal, healthy cells. Common side effects of chemotherapy include fatigue, sores in the mouth and throat, nausea and vomiting, constipation, diarrhea, and blood disorders such as anemia, infection, and thrombocytopenia. Anemia may cause symptoms including fatigue, dizziness, and shortness of breath while thrombocytopenia may cause symptoms including unexpected bruising, bleeding from the nose or gums, heavy menstrual periods, blood in vomit or bowel movements, severe headaches, dizziness, muscle or joint pain, and increased weakness. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>)

Chemotherapy may additionally cause pain, appetite loss, hair loss, cognitive dysfunction, nervous system effects, and sexual and reproductive issues. Cognitive dysfunction, colloquially referred to as “chemo brain,” involves impairments in areas of concentration and attention, storage and retrieval of memories, comprehension, judgment and reasoning, multitasking, arithmetic, language, and organizational skills. Although cognitive dysfunction is often attributed to results of chemotherapy treatment, these symptoms may be impacted by cancers that have metastasized to the brain, brain surgery, radiation of the head

and neck, hormone therapy, immunotherapy, infections, fatigue, stress, depression, and vitamin or mineral imbalances. Nervous system effects of chemotherapy may include tingling, burning, shaking, weakness or numbness in extremities, weak or achy muscles, impaired balance and coordination, stiff neck, headache, impaired vision, impaired hearing, and difficulty walking. Cognitive dysfunction may also present as confusion, and behavioral and emotional changes, such as disinhibition and mood swings. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>)

Chemotherapy treatment continues to impact patients beyond the active treatment phase. Patients may continue to experience cognitive dysfunction for years after treatment. Although nervous system effects often decrease as chemotherapy treatment is decreased, permanent nervous system damage occurs in some cases. This damage may emerge years after treatment. In addition to long lasting cognitive and nervous system changes, some types of chemotherapy have been linked to permanent damage to the heart, lungs, liver, kidneys, or reproductive system. Finally, certain chemotherapy drugs have been linked to increased risk of developing other cancers. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>)

**Radiation.** Radiation is the use of high-energy waves or particles to damage and destroy cancer cells with the goal of either curing the cancer or slowing its growth. Like surgery, radiation is considered a targeted treatment

designed to treat only the part of the body infected with cancer although nearby normal cells may be affected by treatment. Radiation treatment may be administered externally or internally. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>).

External beam radiation is administered by machines that direct high-energy rays at the tumor and some of the body near the tumor site. Treatment sessions last 15-30 minutes and take place five days per week at an outpatient clinic over the course of 1 to 10 weeks. The duration of treatment is dependent on various factors such as the size and type of cancer, location of the tumor, other treatment, and the patient's overall health. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>)

Internal radiation is known as brachytherapy. In the case of brachytherapy a radioactive source, which might look like a wire or small pellet, is enclosed in an implant and then surgically implanted in the body either inside or very near the site of the tumor. Brachytherapy is more targeted than external beam radiation and so affects fewer normal cells. The radiation emitting implant may be left in place permanently or for a limited period of time. Implants that are left in place permanently stop emitting radiation within a few months. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>)

***Radiation side effects.*** Because radiation is a targeted treatment, many of the side effects are dependent on the part of the body being treated. Common

general side effects are fatigue and skin problems, such as dryness, itching, blistering, or peeling. The most common radiation sites for women diagnosed with gynecologic cancers are the abdominal and pelvic areas. Radiation of the stomach and abdomen can lead to side effects including nausea, vomiting, and diarrhea. Radiation of the pelvic area can lead to bladder irritation, digestive problems, and reproductive effects such as loss of menstruation, onset of menopause, and permanent infertility. As with chemotherapy, radiation may increase the likelihood of developing a secondary cancer later in life. (Eyre et al., 2001; <http://www.cancer.org>; <http://www.cancer.net>)

### **Gynecologic Cancers**

In their 2012 report, the American Cancer Society (ACS) estimated that 88,750 new cases of gynecologic cancer would be diagnosed and 29,520 women would die due to gynecologic cancers in 2012. Cancer diagnoses are often discussed in terms of 5-year survival rates, i.e. the percentage of people who are still alive five years after diagnosis. Because 5-year survival rates include deaths due to all causes, not only cancer, the National Cancer Institute (NCI) and other organizations often attempt to exclude death due to other factors to calculate 5-year relative survival. As shown in Table 3, survival rates among gynecologic cancers vary greatly. This difference is a reflection of various factors, including

symptom presentation, screening procedures, subsequent stage at diagnosis, and treatment options.

According to the American Cancer Society (ACS), the 5-year relative survival rates for endometrial cancers diagnosed at the local, regional, or distant stages are 96%, 67%, and 17% respectively (2010, p. 22). The overall 5-year relative survival rate is 92% for localized cervical cancer, and is 71% overall for cervical cancer (ACS, 2010, p. 22). Conversely, the 5-year relative survival rate for ovarian cancer is 46%. This is a reflection the fact that although the 5-year relative survival rate is 94% for ovarian cancers diagnosed at the localized stage, 62% of cases are diagnosed at the distant stage and have a 5-year relative survival rate of 28% (ACS, 2010, p. 19).

Table 3  
*Estimated Gynecologic Cancer New Cases & Deaths 2012*

Cancer Type	Estimated New Cases in 2012*	Estimated Deaths in 2012*
Gynecologic Cancers	88,750	29,520
Endometrial/Uterine corpus	47,130	8,010
Ovarian	22,280	15,500
Cervical/Uterine cervix	12,170	4,220
Vulvar	4,490	950
Vaginal & other genital	2,680	840

\*American Cancer Society. (2012). *Cancer Facts & Figures 2012*. Atlanta, GA: American Cancer Society.

**Sexuality & gynecologic cancers.** Research has shown that gynecologic cancer and its treatment dramatically impact a woman's sexuality, sexual functioning, intimate relationships, and sense of self via biological, psychological, and sociocultural mechanisms both during and after treatment (Bodurka & Sun, 2006; Brotto et al., 2008; Noyes, Knopman, Long, Coletta, & Abu-Rustum, 2011; Ratner, Foran, Schwartz, & Minkin, 2010). As previously indicated, diagnosis and treatment of gynecologic cancer includes some combination of chemotherapy, radiation, and surgical resection of the uterus and/or cervix (hysterectomy), ovaries (oophorectomy), fallopian tubes (salpingectomy), or vulva (vulvectomy).

Ratner et al. (2010) state, "Therapy for gynecological cancer often impacts the hormonal milieu of the woman, either through direct surgical exploration, radiation therapy, or chemotherapy" (p. 25). Pelvic radiation is associated with vaginal dryness, fibrosis, stenosis, and pain (Bodurka & Sun, 2006, p. 623 & 626). In addition to the general side effects such as nausea and fatigue, chemotherapy can trigger menopause in premenopausal women (Bodurka & Sun, 2006, p. 623). Oophorectomies are often accompanied by decreases in estrogen and testosterone, and also may precipitate menopause in premenopausal women (Bodurka & Sun, 2006). The changes in estrogen and testosterone may subsequently contribute to vaginal dryness, pain, itching, hot flashes, and decreased sexual desire (Bodurka & Sun, 2006, p. 623-24, 626). Women who undergo a hysterectomy may experience decreased vaginal length as well as



significant impairment in subjective and psychophysiological sexual arousal (Bodurka & Sun, 2006, p. 623; Brotto et al., 2008, p. 318-19). Vulvectomies can result in anatomic changes that impair sexual function (Bodurka & Sun, 2006, p. 623).

In their 2010 review of literature published between the years 2000-2008 reporting late-effects and/or long-term psychosocial symptoms associated with cancer survivorship. Harrington, Hansen, Moskowitz, Todd, & Feuerstein (2010) found "Sexual dysfunction was the most widely studied problem among gynecologic cancer survivors in cross-sectional studies. Eleven studies consistently demonstrated that cases had higher levels of sexual dysfunction than referenced norms up to 27 years post-diagnosis." The authors go on to identify the most prevalent types of sexual problems as pain during intercourse (34%-58%), decreased interest in sex (56%-70%), difficulty with orgasm (43%-53%), and anxiety about performance (31%-71%) (p. 172).

As pointed out by Brotto et al. (2008), the sexual arousal difficulties of many women diagnosed with and treated for gynecologic cancers meet the criteria for Female Sexual Arousal Disorder (FSAD) (p. 318). The American Psychiatric Association (2000) defines FSAD as "persistent or recurrent inability to attain, or to maintain until completion of the sexual activity, an adequate lubrication–swelling response of sexual excitement" such that "the disturbance causes marked distress or interpersonal difficulty." Similarly, Ratner et al. (2010)

suggest that the incidence of female sexual dysfunction (FSD) is substantially higher among women diagnosed with gynecological cancers than the 43% reported nationally among women (p. 24). Female sexual dysfunction is defined more broadly than FSAD and includes female sexual arousal disorder, female sexual desire disorder, female orgasmic disorder, and sexual pain disorders. Ratner et al. (2010) go on to state that clarify that although menopausal status contributes to FSD, psychosocial factors such as emotional and physical closeness to a partner, satisfactory communication, and a “positive relation to one’s own body” are important predictors of sexual satisfaction (p. 24).

It is important to recognize the negative impact of gynecologic cancers and their treatment on fertility. In their 2011 article, Noyes et al. state, “In the field of gynecologic oncology, effective treatments can unfortunately come at the price of a woman's ability to conceive and carry a child” (p. 332). As previously indicated, surgical and chemotherapy treatments may catalyze menopause in premenopausal women. Furthermore, chemotherapy has been shown to have a negative effect on ovarian competence thereby reducing reproduction rates and both chemotherapy and radiation have been implicated in contributing to increased risk of congenital and structural anomalies in children (Noyes et al., 2011). For women of reproductive age, concerns regarding loss of fertility may have a negative impact on sexual function and contribute to distress (Bodurka & Sun, 2006, p. 625).

In addition to physical sequelae, psychological and emotional functioning is greatly affected by gynecologic cancer and its treatment. Patients are challenged with issues concerning their sexual identity, self-esteem, loss of control over bodily functions, and end of reproductive capacity (Brotto et al., 2008; Bodurka & Sun, 2006). Women may further experience depression, anger, anxiety and fatigue (Brotto et al, 2008, p. 625). Not surprisingly, these concerns can have significant impacts on intimacy and relationship stability, thereby effecting social support.

### **Overall Impact of Cancer on Functioning and Daily Life**

Although different diagnoses of cancer may necessarily include different experiences that are specific to that diagnosis, some experiences are common to most diagnoses of cancer. The cancer experience confronts patients with challenges to their physical, financial, social, and psychological resources. In the processes of diagnosis, treatment, and disease progression, their bodies may be pushed to their limits. The same processes may make rigorous demands in the forms of time, money, and transportation. Furthermore, patients diagnosed with cancer, struggling with the physical and financial demands, may be prompted to call on social supports to assist them in meeting the demands of the disease. Patients are typically forced to compromise and redefine their roles and abilities in their personal and professional relationships in ways that have far reaching

impacts on the patients and their families. Finally, patients are required to do all of this while balancing the emotional and psychological demands of confronting existential issues such as mortality, spiritual faith, and life meaning. The experience and treatments of gynecologic cancers additionally challenge patients to confront issues relating to gender identity and sexuality.

Symptoms and limitations caused by cancer and cancer treatment may last for years beyond active treatment and continue to impact patients' functioning and quality of life. Given the multitude of demands that the diagnosis and treatment of cancer necessarily entails, it is not surprising that the majority of patients diagnosed with cancer demonstrate a variety of emotional and behavioral responses, to include anxiety and depression, which are described as "distress" by the National Comprehensive Cancer Network (NCCN).

### **Distress**

In 1997, the National Comprehensive Cancer Network (NCCN) developed a multidisciplinary panel to begin examining psychosocial aspects of cancer care (Holland, 1997). Over time, the observations of the panel and subsequent research led to the addition of pain as a fifth vital sign and eventual proposal of "distress" as sixth vital sign to be assessed regularly throughout care (Bultz & Carlson, 2006).

The term “distress” was chosen in an effort to avoid the stigmatizing connotations of other words often used to describe the psychological, social, and spiritual aspects of cancer care (National Comprehensive Cancer Network, 2003). In addition, the term was chosen because it recognizes the full range of nonphysical experiences that can accompany individuals’ experiences following a diagnosis of cancer. The National Comprehensive Cancer Network (NCCN) Distress Management Panel has defined distress as:

... a multi-determined unpleasant emotional experience of a psychological (cognitive, behavioral, emotional), social, and/or spiritual nature that may interfere with the ability to cope effectively with cancer, its physical symptoms and its treatment. Distress extends along a continuum, ranging from common normal feelings of vulnerability, sadness and fears to problems that can become disabling, such as depression, anxiety, panic, social isolation and spiritual crisis. (NCCN, 2003)

Grassi, Nanni, and Caruso (2010) point out although it is understandable that diagnosis and treatment of cancer can precipitate a variety of emotional responses, it is clinically important to evaluate which characteristics (e.g. intensity of the emotions, duration, pervasiveness, etc.) indicate a level of impairment which signals the need for psychosocial intervention (p. 51-52). The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) of the American Psychiatric Association (APA) identifies specific diagnostic criteria which reflect

the range of this continuum to include adjustment disorders, depressive disorders (such as major depression and dysthymia), and anxiety disorders (such as generalized anxiety disorder and posttraumatic stress disorder) (APA, 2000).

### **Prevalence of Distress**

Research has yielded inconsistent results regarding the prevalence of distress among cancer patients. This is likely a reflection of the breadth of the definition and subsequent difficulty in quantifying prevalence. Prevalence is defined as “the percentage of a population that is affected with a particular disease at a given time” (prevalence). Lifetime prevalence refers to the percentage of a population that is affected with a particular disease at some point across their lifespan.

Lifetime prevalence of major depressive disorder is estimated to be 10-25% among women (APA, 2000). Dysthymia has a reported lifetime prevalence of 6% across both genders, while depression due to general medical conditions range from 8-60% depending on whether the medical condition is neurologically related (APA, 2000).

In terms of anxiety disorders, there is a 5% lifetime prevalence of generalized anxiety disorder (GAD) among the general population and an 8% lifetime prevalence of posttraumatic stress disorder (PTSD) among adults (APA, 2000). Within the general community, panic disorder has a reported prevalence of

1-2%, with 33-50% of the cases accompanied by agoraphobia. However, the prevalence is estimated to be 10% within clinical mental health populations, and 10-60% within clinical populations diagnosed with general medical conditions (APA, 2000). Prevalence rates of adjustment disorders show a similar pattern of variation. The DSM-IV-TR reports lifetime prevalence of 2-8% among the elderly, 12% in inpatient medical settings, and 10-30% among outpatient mental health populations. The prevalence of adjustment disorders is reported to be 50% among the general population in response to specific stressors.

Given these numbers and the impact of cancer on a patient's life, it is difficult to imagine a patient not experiencing distress at some point along the disease trajectory. Research consistently indicates that at least 30-40% of cancer patients in outpatient settings report clinically significant levels of psychological distress (Carlson et al., 2004; Grassi et al., 2010). According to Grassi et al. (2010) 50-60% of cancer patients present "normal" adaptation responses and, "A further 15-25% present other significant psychosocial conditions... which, although not usually identified through the categorical systems like the DSM-IV and the ICD-10, are dysfunctional and maladaptive and should be a focus of clinical attention and intervention" (p. 52). These responses may be expressed as health anxiety, irritability, demoralization, or general emotional distress. Perhaps due to the normalization of a distress response within the context of cancer, medical personnel and patients alike seem to struggle with identifying what level

of distress necessitates clinical care. Although distress is a largely subjective experience, impairment in social and occupational functioning can serve as a reliable indicator of need for intervention.

**Distress prevalence among gynecologic cancers.** Research has demonstrated that distress prevalence varies widely according to numerous factors. Gao et al. (2010) state, “there are wide variations in prevalence of psychological distress depending on cancer types, settings, illness stage and patient selection” (p. 2037). Even within cancer type, studies report discrepant distress prevalence. Unfortunately, a consensus regarding the prevalence of distress among gynecological cancer patients has not been reached. Estimates of distress among women diagnosed with gynecological cancer range from 29.6% to 57% (Gao, Bennett, Stark, Murray, & Higginson, 2010; Johnson, Gold, & Wyche, 2010). For example, Kaiser et al. (2010) identified gynecological cancer patients as being among those with the highest levels of distress. Mahdi et al. (2001) cite higher incidence of depression among women with gynecologic cancers compared to the general population, and indicate this is particularly so among women with ovarian cancer, those receiving triple chemotherapy, and those with poorly differentiated cancer. Conversely, Carlson et al. (2004) identified gynecological cancer patients as being among those with the lowest levels of distress. Despite these discrepancies, it is important to note that even the most



conservative estimate reports that one third of women with gynecological cancers will experience significant levels of distress.

### **Correlates of Distress**

**Predictors/Risk factors.** Andrykowski, Lykins, and Floyd (2008) assert, “In general, psychological response to the cancer experience is a function of two classes of variables: the *stress and burden* posed by the cancer experience and the *resources* available to cope with this stress and burden” (p. 195). The authors go on to identify stress and burden factors across physical, psychological, interpersonal, financial, and existential dimensions and resource factors across intrapersonal, interpersonal, informational, and tangible dimensions. For example, Andrykowski et al. (2008) highlight positive relationships between psychological health and intrapersonal resources including optimism, self-efficacy, emotional intelligence, and spirituality (p.196).

Research to date has identified numerous predictors, or risk factors, for the experience of elevated distress in the context of a cancer diagnosis. Generally, many of the identified risk factors for distress in cancer patients are the same as those found in both the healthy adult population and among adults struggling with chronic illnesses other than cancer (Kaiser, Hartoonian, & Owen, 2010). Some such risk factors include younger age, non-White ethnicity, female gender, less than high school education, lack of health insurance, being unmarried, having

pain, and having additional health concerns (Kaiser et al., 2010). In a recent study, Burris and Andrykowski (2010) examined disparities in mental health outcomes between rural and non-rural cancer survivors. Their study indicated that rural patients endorsed greater anxiety and depressive symptoms, distress, emotional problems, as well as poorer mental functioning and less life satisfaction (Burris & Andrykowski, 2010).

Despite observed common risk factors for distress among the healthy adult population and individuals struggling with chronic illness, Kaiser et al. (2010) found that a history of cancer significantly amplified the effects of the following risk factors on distress: age, access to health insurance, and number of children and elders in the household. The researchers suggest possible mechanisms for this magnification effect including fragmentation of healthcare services across oncology-related treatment providers, increased concerns about recurrence and mortality among cancer survivors, and “a greater degree of general life disruption (e.g., changes in social support networks, work status, quality of life, etc.) among cancer survivors” (Kaiser et al., 2010, p. 299). Carlson et al. (2004) identified similar patterns among groups with greater risk factors for distress and hypothesized that “dealing with cancer involves more challenges for these groups” or, alternatively, that a cancer diagnosis “may add to an already heightened level of distress” (p. 2302).

In a study designed to characterize the suicide rates among patients with gynecologic cancer in the United States and to identify factors associated with high suicide rates, Mahdi et al. (2011) reported that suicide rates are 50% higher among women diagnosed with cancer compared to the general US female population. The authors found that compared to women in the US general population, suicide risk is significantly increased among women diagnosed with gynecologic cancer, particularly among women diagnosed with ovarian cancer and in the first year following diagnosis (Mahdi et al., 2011). Younger age at diagnosis, high-grade disease, absence of surgical intervention, and poorly differentiated cancer were characteristics observed to be associated with suicide risk (Mahdi et al., 2011).

**Outcomes.** In addition to research designed to identify predictors of distress, numerous studies have explored how distress influences outcomes among individuals diagnosed with cancer. Studies have demonstrated associations between heightened distress and reduced quality of life for patients and their relatives, impaired social relationships, poor self-care, maladaptive coping, and greater psychosocial morbidity in general (Gao et al., 2010; Grassi et al., 2010; Kaiser et al., 2010; Merckaert et al., 2010). Studies have further demonstrated links between heightened distress and poor treatment adherence, higher utilization of medical services, longer rehabilitation time, increased desire for hastened death

and risk of suicide, and increased mortality (Gao et al., 2010; Grassi et al., 2010; Kaiser et al., 2010; Merckaert et al., 2010).

### **Distress Trajectory**

Experience of distress across the disease trajectory has emerged as an interesting variable. Studies using a criterion standard have reported distress prevalence rates as high as 48% among cancer patients (Baker-Glenn, Park, Granger, Symonds, & Mitchell, 2011, p.525). However, as stated by Gao et al. (2010), “an understanding of the relationship between a cancer diagnosis and the level of psychological distress, and how this changes over the cancer journey is essential to effectively time interventions and provide appropriate care.” Research indicates variations in distress across disease trajectory (Andrykowski et al., 2008; Gao, et al., 2010). For example, Carlson et al. (2004) observed a bimodal distribution of distress by duration of illness, with highest levels of distress at the time of diagnosis and following completion of active treatment (p. 2302).

In their systematic review of long-term symptoms among cancer survivors following completion of treatment, Harrington et al. (2010) shared results specific to studies of women with gynecologic cancers. The authors observed while some longitudinal studies reported increases in depression over time following treatment, others reported decreases in depression in the first three months following treatment (p.171). Studies reported depression prevalence of 11-19% at

3 months post-treatment and of 5.7% at 18 months post-treatment (Harrington et al., 2010). Harrington et al. (2010) further reported results of cross-sectional studies identified clinical levels of depression an average of 2-6 years post-diagnosis among 5.5-15% of the women, in addition to 4.5-11% demonstrating significant sub-clinical levels of depression. One study observed a 40% prevalence of depression an average of two years post-treatment among women who became infertile as a result of treatment (Harrington et al., 2010). According to the National Alliance on Mental Illness (NAMI), about 12% of women in the general population are affected by a depressive disorder each year (<http://www.nami.org/>).

Harrington et al. (2010) observed even greater discrepancy among longitudinal studies of anxiety. While one study reported increases in clinical cases of anxiety during the first three months following treatment, two other studies did not observe significant increases (p.171). Across studies, Harrington et al. (2010) found that 22-47% of the women experienced anxiety at 3 months post-treatment, and at 3.7-8 years post-treatment 14-28% of women experienced anxiety and a further 14.6% evidenced sub-clinical anxiety symptoms (p.171).

In general, Harrington et al. (2010) reported, “fatigue was found to increase over the course of treatment, correlating with an increase in depression,” and observed across studies that anxiety and fatigue were more prevalent than depression among survivors of gynecologic cancers. The authors reported a 17-

33% prevalence of fatigue among gynecologic cancer survivors and an average of 3-8 years post-diagnosis (Harrington et al., 2010).

Although some studies have examined the prevalence of specific types of distress across disease trajectory, others have examined distress across disease trajectory by setting. Prevalence of distress among patients in palliative care settings has drawn particular interest. Goa et al. (2010) stated, “Our analysis across the cancer trajectory showed that the prevalence of distress was 24.5% in cancer outpatients, dropped to 16.5% in general community patients, and rose in palliative care to 59.3” (p.2040). The researchers proposed explanations for higher levels of distress in palliative care settings, including the possibility that “patients with high levels of psychological distress are more likely to be referred to palliative care services,” and that psychological distress may increase as death approaches (Gao et al., 2010).

### **NCCN Guidelines**

Andrykowski et al. (2008) state, “Clinical management of distress in cancer survivors is predicated on successful recognition of distress when it is present...” (p.198). The authors go on to cite research which has demonstrated health providers’ difficulty recognizing clinically significant distress in cancer patients and survivors in the absence of formal screening procedures (Andrykowski et al., 2008). In recognition of these concerns, the NCCN Distress

Management Panel published clinical practice guidelines in 2003 for the psychosocial care of cancer patients (Grassi et al., 2010) (see Table 4).

Table 4  
*NCCN Standards of Care for Distress Management*

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- Distress should be recognized, monitored, documented, and treated promptly at all stages of disease.
  - Screening should identify the level and nature of the distress.
  - All patients should be screened for distress at their initial visit, at appropriate intervals, and as clinically indicated especially with changes in disease status (i.e., remission, recurrence, progression).
  - Distress should be assessed and managed according to clinical practice guidelines.
  - Interdisciplinary institutional committees should be formed to implement standards for distress management.
  - Educational and training programs should be developed to ensure that health care professionals and certified chaplains have knowledge and skills in the assessment and management of distress.
  - Licensed mental health professionals and certified chaplains experienced in psychosocial aspects of cancer should be readily available as staff members or by referral.
  - Medical care contracts should include reimbursement for services provided by mental health professionals.
  - Clinical health outcomes measurement should include assessment of the psychosocial domain (e.g., quality of life and patient and family satisfaction).
  - Patients, families, and treatment teams should be informed that management of distress is an integral part of total medical care and provided with appropriate information about psychosocial services in the treatment center and the community.
  - Quality of distress management should be included in institutional continuous quality improvement (CQI) projects.
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National Comprehensive Cancer Network, Inc. (2012).NCCN clinical practice guidelines in oncology (NCCN guidelines ®): Distress management © (version 2.2012). Retrieved from <http://www.nccn.org>

## **Measures of Distress**

Various measures have been developed in an attempt to measure and understand individuals' experiences of distress. The NCCN developed the Distress Thermometer (DT) and an accompanying Problem List as a screening measure to evaluate distress. Other, more comprehensive measures have also been developed. Among these, the Hospital Anxiety and Distress Scale (HADS) has demonstrated that most robust validity and reliability. As such, it is often considered the "gold standard" of distress measures within a medical setting (Grassi et al., 2010, p. 53).

**Distress Thermometer (DT).** As stated by Grassi et al. (2010), "Since a high percentage (35-40%) of patients report clinically significant emotional distress which has remarkably negative consequences on the patients' quality of life, screening instruments represent a simple method of detecting those needing psychosocial intervention." In terms of psychometrics, Vodermaeir et al. (2009) reported in their systematic review of emotional distress screening tools that the DT (without the corresponding Problem List) had been subjected to the most validation studies on the largest patient samples among ultrashort distress measures (1-4 items), but was not validated against a structured clinical interview (p.1483). Johnson et al. (2010) cited the DT as having acceptable sensitivity (0.77) and specificity (0.68) relative to the HADS and Brief Symptom Inventory-18 (BSI-18) when using a cutoff score of 4. Research has also shown the DT to



have stronger negative predictive value (84%) than positive predictive value (55.6%), i.e. the measure performs more strongly when used to confirm the absence of distress than when used to confirm the presence of distress in the context of prevalence (Tuinman, Gazendam-Donofrio, & Hoekstra-Weebers, 2008, p.871).

Studies of the DT have demonstrated associations between higher scores and known correlates of distress. Specifically, higher scores on the DT and the associated Problem List have been associated with female gender, higher supportive needs, poorer performance status, and reduced levels of satisfaction with treatment, staff, and communications (Grassi et al., 2010; Johnson et al., 2010). Grassi et al. (2010) reported that a study of 286 breast cancer patients demonstrated no relationship between distress levels and stage of disease, type of current treatment, time since diagnosis, age or other demographic factors. However, the same study indicated regular use of the DT led to increased communication between the patient and their treatment team, which in turn improved treatment of psychosocial and physical problems (Grassi et al., 2010, p.53 & 55).

***Screening limitations.*** Grassi et al. (2010) identified three notable limitations regarding the policy of screening for emotional distress in cancer patients and the role of short psychological instruments, such as the DT (p.55). First, the DT is not an effective replacement for more comprehensive measures in

terms of accurately identifying specific psychosocial disorders (Grassi et al., 2010). For example, Gao et al. (2010) cite a study that found that as many as two thirds of patients who demonstrated significantly elevated anxiety did not meet diagnostic criteria for an anxiety disorder in a subsequent diagnostic interview (p.2037).

The second limitation identified by Grassi et al. (2010) raises questions about the efficacy of the distress screening policy in oncology. Specifically, the authors cite a study by the American Society of Clinical Oncology that included approximately 1,000 American oncologists and suggested that only 14.3% employed a distress screening measure (p.56). That study identified poor distress screening predictors including “poor availability of mental health services, poor knowledge of NCCN guidelines, experience, lack of time, uncertainty about identifying distress and female gender of the practitioner” (Grassi et al., 2010). The authors subsequently interpreted this as an indication that, while most institutions recognize the importance of attending to mental health concerns, greater implementation of NCCN guidelines is needed (Grassi et al., 2010).

Finally, Grassi et al. (2010) identify the discrepancy between level of emotional distress and response to referral as the third major limitation of distress screening, i.e. “a high percentage of patients showing emotional problems do not accept referral after screening” (p.56). The authors surmise, “education not only about the routine use of screening instruments but also about the improvement of

the relational processes underlying the referral process to psychooncology services and the overcoming of cultural barriers regarding mental health are extremely important in oncology” (Grassi et al., 2010, p.56)

**Hospital Anxiety & Distress Scale (HADS).** In their meta-analysis of the diagnostic validity of the HADS in cancer and palliative settings, Mitchell, Meader, & Symonds (2010) identify the HADS as “the most extensively studied mood scale in cancer settings.” The HADS has been validated across disease types and stages, across languages and cultures, and against criterion standards to such an extent that the HADS has been used to assess discriminant validity in numerous studies (Vodermaeir et al., 2009, p.1483). In fact, “Studies that compared the discriminant validity of the HADS against other scales found that the HADS was superior or equivalent to other measures” (Vodermaeir et al., 2009, p.1483). Specifically, research has shown the HADS to be superior to the DT and other ultra-short measures in terms of overall accuracy for ICD-10 cases of mood and anxiety syndromes (Mitchell et al., 2010, p.12).

Research indicates that the HADS performs moderately well in a screening capacity, particularly when screening for depression (Mitchell et al., 2010; Vodermaeir et al., 2009). Overall, the HADS has demonstrated sensitivity between 65.7% and 75.7% and specificity between 66.3% and 80.6% (Mitchell et al., 2010, p.10). Mitchell et al. (2010) further reported HADS sensitivity of 71.6-

82.0% and specificity of 77.0-82.6% for depression, and sensitivity of 48.7-83.9% and specificity of 69.9- 78.7% for anxiety (p.10).

Despite extensive study of the HADS, several questions remain about its utility. For example, although distress is commonly assessed using the combined score from both subscales (HADS-T), use of the total score was not recommended by the original authors and there are mixed opinions among researchers about this application (Mitchell et al., 2010). In their systematic review, Vodermaeir et al. (2009) noted, “With regard to whether or not to use the total score or the subscale scores of the HADS, several studies showed that the total score was superior in nonpsychiatric patients” (p.1483).

Furthermore, Mitchell et al. (2010) point out, “it is unclear which version (HADS-D HADS-A or HADS-T) to use for which disorder.” The authors noted considerable overlap between the subscales and total score (Mitchell et al., 2010). Although the subscales have face validity of separate application, a meta-analysis yielded a mean correlation of 0.56 from 21 studies (Mitchell et al., 2010).

In the conclusion of their meta-analytic study, Mitchell et al. (2010) recommend using the HADS-T when screening for any mental disorder, and either the HADS-T or HADS-A when screening for anxiety or depression (p.13). The authors further recommend use of the HADS-T when the goal is to exclude healthy individuals without distress (Mitchell et al., 2010, p.13). However, the

authors caution, “the HADS should not be relied upon alone to define suspected depression, anxiety or mixed mental disorder” (Mitchell et al., 2010, p.12).

*HADS limitations.* Two primary limitations have been identified concerning the HADS. The first limitation stems from the lack of consensus regarding both applications of the scales (HADS-T, HADS-A, & HADS-D) and regarding inconsistent interpretations of cut-off thresholds for the scales (Mitchell et al., 2010; Vodermaeir et al., 2009). For example, Vodermaeir et al. (2009) observed HADS-T cut-offs ranging from 8-22 and subscale cut-offs ranging from 5-11 (p.1481). These inconsistencies in combination with the inherent heterogeneity of cancer research complicate interpretation of studies, thereby complicating direct applications of the HADS within clinical settings.

The second limitation of the HADS concerns its use within clinical settings. Research has demonstrated the HADS to be more effective when used in a screening rather than case finding capacity (Mitchell et al., 2010). However, as Mitchell et al. point out, the utility of the HADS as a screening measure may be limited by its length, overlap of subscales, and some complexity in scoring (2010, p.12). Additionally, the HADS is available for purchase whereas many ultra-short measures are available free of charge.

## **Implications for Detecting & Treating Distress**

Advances in cancer prevention, screening, and treatment have contributed to the evolution of conceptualizing cancer as a chronic rather than terminal disease (Kaiser et al., 2010; Tuinman et al., 2008). “Most gynecological cancers, except ovarian cancer, are associated with relatively high, and improving, 5-year survival rates (75% cervical, 83% uterine, and 55% ovarian cancer)” (Beesley et al., 2010, p.54). Vodermaeir et al. assert, “Because the availability of prevention, screening, and treatment resources related to distress in cancer survivors is limited, understanding cancer-specific correlates of distress is essential for guiding these efforts and overcoming barriers to care” (Kaiser et al., 2010).

Research indicates that for approximately 60% of patients no psychosocial intervention is necessary and, if provided, may have poor results (Grassi et al., 2010, p.52). However, Grassi et al. (2010) go on to state, “far less than 30% of distressed cancer patients needing intervention are recognised in clinical settings by oncology health professionals and thus referred to mental health or, more specifically, psychooncology services” (p.52). Traditionally, referrals for psychosocial services have been dependent on either self-referral or physician judgment (Vodermaeir et al., 2009, p.1464). Unfortunately, physicians and nursing staff frequently underestimate patient distress and few cancer centers administer distress screening tools routinely (Jacobsen, 2007; Merckaert et al., 2010; Vodermaeir et al., 2009).

Vodermaeir et al. (2009) report that at the time of their study, only 13 cancer centers in the United States had implemented emotional distress screening of patients with standardized tools (p.1465). Jacobsen et al. (2007) hypothesize potential barriers to systematic use of distress screening measures may include format and length of available tools, as well as the time required for administration, scoring, and interpretation (p.4526). Vodermaeir et al. (2010) add, “large-scale implementation of screening for emotional distress may not occur if a given test has to be purchased for each use” (p.1484).

Kaiser et al. (2010) point out that although many correlates of distress are non-modifiable, awareness of their influence could be used to target delivery of psychosocial resources to groups most likely to benefit (p. 299). The authors propose development of condition-specific models of distress in the interest of efficient provision of services (Kaiser et al, 2010, p.292). As previously stated, Kaiser et al. (2010) observed a magnification effect of certain variables on distress in individuals diagnosed with cancer. Namely, cancer survivors with few resources, high unexpected demands, and non-White ethnicity appear to experience notably higher levels of distress than cancer survivors generally (Kaiser et al., 2010, p.300). Systematic distress screening is more likely to promote equal access to psychosocial services and has been shown to result in a shift in the type of patients who receive treatment from those who are socially

competent and articulate toward less verbal patients who have lower social skills (Tuinman et al., 2008; Vodermaeir et al., 2009).

Vodermaeir et al. (2009) state, “To maximize the use of limited treatment resources and provide equitable access to mental health services, emotionally distressed cancer patients need to be reliably identified.” Generally, the limited time, personnel, and financial resources in cancer care settings suggests a need for screening measures with high sensitivity and high specificity (Vodermaeir et al., 2009, p.1465). Longer distress measures possess greater accuracy, thereby reducing workload for psychooncology staff, but require more time and often are more costly (Jacobsen, 2007; Vodermaeir et al., 2009). Although ultra-short distress screening measures require less time to complete, they often have a higher rate of false positives (Jacobsen, 2007; Vodermaeir et al., 2009). The mislabeling of patients as distressed places greater demands on already limited psychosocial resources as well as potentially having the unintended consequence of creating distress where it was not previously present (Jacobsen, 2007, p.4526).

Vodermaeir et al. (2009) assert the importance of recognizing a measure’s sensitivity and specificity as a function of the cutoff used to distinguish distressed from non-distressed patients in that a higher cutoff will improve a measure’s specificity, thereby reducing the rate of false positives. The authors advocate the use of relatively short screening tools to assess distress among patients in palliative care settings, those who are undergoing strenuous treatment (e.g.



chemotherapy), or as routine screening in an inpatient setting (Vodermaeir et al., 2009, p.1484). Conversely, they suggest the use of more extensive distress assessment among patients who have more physical resources and time, such as those who have completed treatment, are attending follow-up appointments, or are attending rehabilitative care (Vodermaeir et al., 2009).

A further complicating factor in assessing and treating patients' distress is that even when distressed patients are correctly identified, they may not wish to access psychosocial services (Tuinman et al. 2008, p.871). Vodermaeir et al. assert, "The usefulness of a screening program for emotional distress can be evaluated according to whether or not screened patients accept referral to a mental health professional" (p.1484). As stated by Merckaert et al. (2010), because medical staff often underestimate patient distress, and as few cancer center utilize systematic distress screening, patient use of psychosocial services is primarily influenced by their desire for support. Notably, the authors add, "Little is known to date however about the proportion of patients desiring psychological support from professionals in cancer care and about factors associated with this desire" (Merckaert et al., 2010, p.141).

Jacobsen (2007) summarizes:

Several arguments can be made for implementation of routine screening for distress. First, evidence suggests that heightened distress is associated with a number of negative outcomes that include poorer adherence to

treatment recommendations, worse satisfaction with care, and worse quality of life. Relationships have also been reported between heightened distress (such as greater depressive symptomatology) and poorer survival in people with cancer. Second, heightened distress is treatable. Numerous randomized controlled trials show that psychological distress, including anxiety and depression, can be alleviated by pharmacologic and nonpharmacologic interventions. Third, heightened distress is common. Prevalence estimates derived from large-scale studies typically exceed 30%. Fourth, and perhaps most important, evidence indicates that heightened distress often goes unrecognized by oncology professionals. (p.4526)

### **Psychosocial Services**

In recognition of the potential impact of distress and as a reflection of the NCCN Guidelines for Distress Management, medical organizations have begun integrating psychosocial services as a routine part of cancer care. Beesley et al. (2010) state, “Unmet psychological needs have been identified as a top priority by gynecological cancer survivors and it has been estimated that if all cancer survivors with mental health problems did receive professional counseling, use of such services could increase by as much as 62%” (p.58). Baker-Glenn et al. (2011) echo this concern, and report that about two thirds of cancer patients

endorse having at least one unmet psychosocial need. Despite reports of significant distress and unmet needs, only a small proportion of individuals access psychosocial services (Baker-Glenn et al., 2011; Ell et al., 2005; Ernstmann et al., 2009). As stated by Ernstmann et al. (2009), “psychological distress cannot explain much of the variance of the need for psychosocial support, i.e. the severity of anxiety and depression cannot predict satisfactorily the perceived need for psychosocial support. A wider perspective is required for the investigation of determining factors” (p.1418).

### **Types of Psychosocial Services**

Hersch et al. (2009) define psychosocial interventions as “any treatment intended to address psychological, social, and/or spiritual needs, rather than the medical disease itself” (p.796). Similarly, Zebrack, Hamilton, & Smith (2009) conceptualize psychosocial support services as activities, programs, and resources that promote and enhance quality of life for cancer patients “through education, research, and clinical service or interventions that address patients’ psychological (e.g., emotional), behavioral, and social responses to the diagnosis and treatment of cancer” (p.471). Psychosocial services are often multidisciplinary in recognition of the many aspects of distress. These services may include psychiatric care (medication), psychological care in the form of either individual

or group counseling, spiritual care in the form of pastoral counseling, and social care in the form of support groups and psychoeducational services.

### **Measures of Psychosocial Service Use**

Few formal measures exist to assess use of psychosocial services. This may be a reflection in part of the diversity of services available in various settings. The Perceived Need for Care Questionnaire (PNCQ) was developed and psychometrically validated in 1997 (Meadows & Burgess, 2009). The PNCQ is a fully structured interview that assesses the patient's perception of the presence of a mental problem, the perceived need for care, and the patient's utilization of health care services over the previous 12 months including services by a general practitioner, specialist, occupational physician, social worker, psychologist, psychiatrist, psychotherapist, or mental health institution regarding a mental health concern (van Beljouw et al., 2010). Five types of perceived need for care are examined: information, medication, counseling and psychotherapy, social intervention, and skills training (Meadows & Burgess, 2009). However, the PNCQ has only been validated in primary care settings and does not appear to have been validated among cancer, or chronic illness, populations (Meadows & Burgess, 2009).

## **Prevalence of Psychosocial Service Use**

Prevalence of psychosocial service use is not commensurate with observed levels of distress among cancer populations. While minimum estimates of distress among gynecological cancer patients are approximately 30%, Ell et al. (2005) reported that among 144 patients with gynecologic or breast cancer diagnosed with major depression, only 12% reported receiving antidepressants and only 5% reported participating in counseling services. Ernstmann et al. (2009) similarly found while 19% of their population endorsed having an unmet need for psychosocial support, only 10% were using a psychosocial service.

## **Correlates of Psychosocial Service Use**

**Outcomes of psychosocial service use.** Psychosocial interventions have been reported to have positive effects on global, functional, and emotional adjustment (Steginga et al., 2008; Zebrack et al., 2009). Such interventions have also been reported to aid in distress reduction for cancer patients and their families, and reduction of treatment- and disease-related symptoms (Steginga et al., 2008; Zebrack et al., 2009). However, results are inconclusive regarding the effectiveness of specific interventions (Hersch et al., 2009; Zebrack et al., 2009). Zebrack et al. (2009) summarize results of several studies examining the effectiveness of various psychosocial interventions. The authors identified professionally led support groups as more helpful than peer led support groups,

and indicated quality of life was enhanced by programs involving “promotion of self-efficacy through coping skills training, relaxation training, role playing, goal-setting, and problem-solving” (Zebrack et al., 2009, p.472). Hersch et al. (2009) summarized studies citing counseling services as beneficial for addressing depression, anxiety, sexual functioning, general emotional adjustment, attitudes toward health care. Cognitive behavioral interventions in particular appear to have positive effects regarding self-esteem and body image, but appear to be less beneficial regarding depression, anxiety, and emotional function generally (Hersch et al., 2009).

**Predictors of psychosocial service use.** Research indicates that psychosocial services use is impacted by numerous factors. For example, studies have consistently shown patients who are more likely to access services for mental health concerns include those who are female, middle-aged, unmarried, unemployed, have health insurance, and live in an urban area (Steginga et al., 2008; van Beljouw et al., 2010; Zebrack et al., 2009). Further predictors of psychosocial service use include the presence of comorbid medical conditions and a high level of physical disability, (van Beljouw et al., 2010). Tuinman et al. (2008) observed that patients who underwent a combination of treatments reported higher levels of distress and were more likely to want a referral to psychosocial services. The authors hypothesized that patients who received multiple types of treatments may have been diagnosed with more advanced

disease, and that either this knowledge or the disruptive impact of undergoing multiple treatments may contribute to their overall level of distress (Tuinman et al., 2008).

In their 2009 study, Ernstmann et al. found that emotional functioning was the most important predictor of subjective need for psychosocial support. Studies indicate that psychosocial service use is associated with poor mental health functioning, negative affect, moderate-to-high levels of depression, and cancer-specific distress (Baker-Glenn et al., 2011; Zebrack et al., 2009). Zebrack et al. (2009) also reported patients who demonstrated greater use of active coping strategies and lower use of avoidance or escape coping were more likely to access psychosocial services. However, the authors noted mixed associations between service use and social support, perceived control, and self-efficacy (Zebrack et al., 2009).

Regarding mental health attitudes, van Beljouw et al. (2010) reported patients who tend to perceive themselves as having a mental problem, have a more positive evaluation of their mental health care provider, and have greater trust in professional help and greater distrust in lay help seek psychosocial services more often. Similarly, Steginga et al. (2008) observed higher psychosocial service use among patients who expected that psychosocial care services would be helpful and believed their doctors and significant others expected them to use such services.

## **Barriers to Psychosocial Service Use**

**Institutional barriers.** Barriers to psychosocial service prompt examination of both institutional and patient barriers. As stated by van Beljouw et al. (2010):

Research among general practitioners who reported reasons for depressed patients' failure to receive guideline concordant care showed that physicians attribute 76% of the barriers to patient-centered factors, including psychosocial circumstances and patient attitudes and beliefs about depression and depression treatment. However, it is important to recognize that the reported explanations for not initiating treatment are not entirely patient centered. For instance, care providers make a substantial contribution to patients' attitudes and beliefs about anxiety and depression treatment. This implies that interventions for improving under-treatment of patients with a mental disorder should be aimed at both the care provider and the patient. (p.255)

Schofield, Carey, Bonevski, and Sanson-Fisher (2005) provide an eloquent summary of potential institutional barriers to the application of recommended best practices for psychosocial care as well as strategies to overcome those barriers. The authors use a precede-proceed model that classifies barriers in three categories: predisposing factors, enabling factors, and reinforcing factors (Schofield et al., 2006). Predisposing factors, which influence motivation



to behave in a particular way, include factors such as knowledge of best practices, expectations and beliefs regarding psychosocial care, valuing psychosocial care as important, and perceived ability to provide psychosocial care (Schofield et al., 2006). Enabling factors, i.e. those which facilitate the enactment of the behavior, are factors including time, skills and systems for detecting and managing psychosocial concerns, reminders about psychosocial care, resources to facilitate the management of psychosocial concerns, role definitions, and psychosocial support network (Schofield et al., 2006). Finally, reinforcing factors are those which increase the likelihood that the behavior will be maintained over time. The authors identify reinforcing factors including feedback on performance, rewards for performance, and negative consequences for failing to provide adequate psychosocial support (Schofield et al., 2006). Table 33 summarizes barriers and strategies identified by Schofield et al. (2006).

Steginga et al. (2008) endorse similar concerns and hypothesize that lack of integration of psychosocial services into routine cancer care may reflect clinician failure to identify patients' psychosocial needs, low awareness of the role of psychosocial care, limited response skills, and failure to refer patients to available services (Steginga et al., 2008). The authors found that although psychosocial care advice was provided to 30-50% of patients at diagnosis, few were given such advice at treatment completion (Steginga et al., 2008).

Furthermore, the authors observed that fewer than half of cancer patients were

aware of community-based support services and concluded, “Thus, despite the availability of locally produced psychosocial care guidelines and readily available community resources, integration of psychosocial care into patients’ oncology care was not systematic” (Steginga et al., 2008, p.1003).

**Referral.** Numerous studies have identified physician referral as a key element in facilitating patients’ use of psychosocial services (Beesley et al., 2010; Schofield et al., 2006; Steginga et al., 2008). Beesley et al. (2010) observed that while only 28% of their population received referrals, 86% of referred patients accessed psychosocial services. Another study found that fewer than half of the 25% of patients who scored above the cutoff on measures of depression or hopelessness at study entry were referred for psychosocial care at any point during their clinical follow-up (Ellis et al., 2009).

Research indicates patients who are more likely to receive referrals to psychosocial services are those who are younger, unmarried, live alone, and endorse greater hopelessness, depressive symptoms, and attachment anxiety (Ellis et al., 2009; Merkaert et al., 2010). Further correlates of referral include less social support, self-esteem, and spiritual well-being (Ellis et al., 2009). It is concerning to note that multiple studies identify older patients as less likely to receive referrals. Ellis et al. (2009) reported that, among patients with similar and significant depression symptoms, 100% of patients below 40 years old were referred for services while only 22% of those above 70 years old were referred.

Both Beesley et al. (2010) and Schofield et al. (2005) identify the importance of clinician role definition in the context of distress assessment and addressing psychosocial concerns. Both groups of authors further emphasize the importance of ensuring clinician awareness of psychosocial resources through tools such as reminders and pre-printed referral pads (Beesley et al., 2010; Schofield et al., 2005).

**Patient barriers.** As previously stated, the relationships between distress, referral, and use of psychosocial services are not clearly understood, in that patients may be appropriately referred to services and still not access those services (Ernstmann et al., 2009; Tuinman et al. 2008). Why is this? Steginga et al. (2008) point out that although interventions are increasingly being developed to raise awareness of distress and available services to encourage patients to access psychosocial services, “Such interventions assume that knowledge will change behavior; however, unless variables predictive of help seeking are directly targeted this approach may be ineffective” (p.998).

Numerous studies have investigated patient barriers to utilizing psychosocial services. One of the most commonly identified reasons for not seeking psychosocial support is a preference for self-managing symptoms (Baker-Glenn et al., 2011; van Beljouw et al., 2010). Another prevalent barrier to seeking psychosocial support is perception of available services as ineffective in addressing their concerns (Baker-Glenn et al., 2011; van Beljouw et al., 2010).

For example, van Beljouw et al. (2010) found that 21-36% of patients believed psychosocial intervention would be ineffective. Both of these barriers appear multifaceted and warrant further examination. Other identified barriers include receiving informal help elsewhere, being afraid to ask for help, not knowing how to obtain help, asking for help but not receiving it, affordability, cultural stigma, and prioritization in the context of time restrictions (Baker-Glenn et al., 2011; van Beljouw et al., 2010). Van Beljouw et al. (2010) reported that patients born in other countries and ethnic minority groups as more likely to have an unmet need for care. The authors hypothesized these trends may reflect cultural stigmas associated with mental health problems and their treatment as well as insufficient knowledge of the larger society and its health care system (van Beljouw et al., 2010).

*Awareness of services.* Van Beljouw et al. (2010) cited several studies that indicate the public may doubt the effectiveness of both psychiatric and counseling interventions, and may have negative attitudes toward mental health professionals generally. Merckaert et al. (2010) hypothesize that the difference between the number of distressed patients and those desiring psychological support may be explained in part by identifying distress as a normal aspect of cancer and by a lack of awareness regarding the potential positive impact of psychosocial intervention. Both studies suggest that these barriers could be addressed through greater patient education regarding psychological consequences of cancer, types of available

psychosocial support, and potential benefits of accessing such support (Merckaert et al., 2010; van Beljouw et al., 2010). Regarding patient preference for self-managing symptoms, van Beljouw et al. (2010) highlight framing patient education in the context of empowerment, i.e. “a social process of recognizing, promoting, and enhancing people’s abilities to meet their own needs, solve their own problems, and mobilize the necessary resources in order to feel in control of their own lives” (p.255-56).

*Desire for services.* As Zebrack et al. (2009) point out, “Estimates of service utilization may be confounded by patients’ awareness of and perceived needs for services; that is, patients are unlikely to utilize services if they are unaware of their existence or perceive no need” (p.471). Predictors of desire for psychological support include being female, younger, moderate-to-high levels of depression, receiving hormone therapy, not receiving radiation therapy, intensity of sexual difficulties, and having a support-seeking coping style (Baker-Glenn et al., 2011; Merckaert et al., 2010). Van Beljouw et al. (2010) reported that patients who expressed a need for care were those who suffered the most severe consequences of anxiety and depression in that they reported more severe symptoms of their disorders, greater disability, more loneliness, and less social support.

*Distress & desire for services.* Several of the predictors of psychosocial service use are in common with predictors of distress; however, the relationship

between distress and desire for psychosocial support appears complex. In their study of cancer patients' desire for psychological support, Merckaert et al. (2010) found that 26% of women endorsed desire for psychological support. However, the authors note that 44% experienced moderate to high levels of anxiety, 2% experienced moderate to high levels of depression, and 22% experienced moderate to high levels of both anxiety and depression (Merckaert et al., 2010). In other words, although approximately 70% of women in their study endorsed significant symptoms of distress, only 26% desired psychological support. The authors found that patients' level of distress was not associated with desire for psychological support, and further found that patients experiencing high levels of distress and using less support-seeking coping strategies were less inclined to desire psychological support (Merckaert et al., 2010).

Van Beljouw et al. (2010) cite estimates of unperceived need for psychosocial support as 16-51%. In contrast to Merckaert et al. (2010), van Beljouw et al. (2010) reported finding that greater clinical need was associated with a higher probability of having a perceived need for care. Their study found that of primary care patients with an untreated anxiety or depressive disorder (43% of their sample), "25% perceived themselves as mentally healthy, another 26% had no perceived need for any type of care, and 49% perceived a need for care which was not met" (van Beljouw et al., 2010, p.253)

Baker-Glenn et al. (2011) observed associations between higher levels of distress and greater desire for psychosocial support. However, the authors also noted that 64% of distressed patients did not feel that they required help with their symptoms or were not able to ask for help (Baker-Glenn et al., 2011). Interestingly, both Baker-Glenn et al. (2011) and Tuinman et al. (2008) found a significant percentage (5-20%) who did not identify as distressed but were receptive to referrals for additional psychosocial support. Results of these studies underscore the importance of regularly assessing not only patients' distress levels and general emotional functioning as recommended by the NCCN, but also the importance of independently assessing patients' desire for psychosocial support (Baker-Glenn et al., 2011; Merckaert et al., 2010; van Beljouw et al., 2010).

### **Social Support**

It would be remiss to neglect the potential impact of social support on an individual's experience of distress and their motivation to access psychosocial services. Given the estimated prevalence of distress and demonstrated benefits of psychosocial services, it seems counterintuitive that patients would refrain from accessing those services. However, as previously stated, studies show only 10-12% of cancer patients access psychosocial support (Ell et al., 2005; Ernstmann et al., 2009). Although the discrepancy may be partly explained by the previously identified patient and institutional barriers, research indicates that social support

also influences use of psychosocial services. In their study of cancer patients' desire for psychological support, Baker-Glenn et al. (2011) found, "The most common reason for declining in those with distress was receiving informal help elsewhere or preferring to manage on their own; a finding that has been documented in primary care." (p.529). On a related note, van Beljouw et al. (2010) found that in comparison with patients who did not express need for care, patients who expressed the greatest need for care endorsed less social support as well as more loneliness, more severe symptoms, and greater disability.

Social support is a broad term that can take many forms and be conceptualized in numerous ways. Haber, Cohen, Lucas, & Baltes (2007) describe social support as a meta-construct which consists of several sub-constructs including received social support and perceived social support. Other recent studies have conceptualized social support as structural versus functional support (Carpenter, Fowler, Maxwell, & Andersen, 2010; Nausheen, Gidron, Peveler, & Moss-Morris, 2009; Queenan, Feldman-Stewart, Brundage, & Groome, 2010).

Received social support measures ask patients to retrospectively assess specific supportive behaviors provided by their support networks (Haber et al., 2007). Similarly, Queenan et al. (2010) define structural support as "the actual physicality of the support such as frequency of contact" with friends, family, faith communities, and other community organizations (p.252). According to Nausheen



et al. (2009), structural features of social support include quantitative aspects of the social network, such as its size and range.

Perceived social support measures assess patients' perceptions of the general availability of social support (Haber et al., 2007). The subjective nature of perceived social support measures offers opportunity to assess individual differences in "perceptual, judgment, and memory processes that may result in idiosyncratic perception of supportive events, or may be influenced by value judgments regarding the relationship contexts in which the supportive events occur" (Haber et al., 2007, p.134). The authors add that perceptions of support may be modified by characteristics of the support provider, the individual's relationship with the provider, and the cultural environment (Haber et al., 2007). Queenan et al. (2010) define functional social support as "happiness with" areas such as tangible help, communication of helpful information, guidance, and companionship (p.252). Correspondingly, Nausheen et al. (2009) differentiate functional support from structural support in that functional support "refers to the quality or function served by the structural support components, that is, the provision of instrumental, emotional, and informational support" (p.410).

In sum, measures of received support appear closely aligned with measures of structural support as both attempt objective assessment of quantitative elements of social support. On the other hand, perceived support measures and functional support measure evaluate subjective assessments of the

quality of received structural support. Researchers have developed various tools for assessing various aspects of social support. One such measure of perceived social support is the Social Provisions Scale (SPS, Cutrona and Russell, 1987), which assesses the degree to which an individual perceives their social relationships as supplying each of six provisions: guidance, reliable alliance, reassurance of worth, social integration, attachment, and opportunity to provide nurturance.

### **Theories of Social Support Effects**

Several theories have been put forth in an effort to better understand the interactions between social support and physical and mental health outcomes. Cohen and Willis (1985) proposed that social support acts as a buffer during times of extreme stress, i.e. social support is a protective factor in terms of health outcomes which remains latent until activated by stressful events. For example, Queenan et al. (2010) suggests that social support may function as a buffer regarding health-related quality of life outcomes, given evidence that some social support interventions appear to improve health-related quality of life and patients with less social support endorse poorer health-related quality of life. Queenan et al. (2010) define health-related quality of life (HR-QOL) as “a multidimensional concept that covers the life functions, specific symptoms and overall global health of an individual” (p.251).

Weak correlations between received support and perceived support measures have contributed to the development of social cognitive perspectives regarding the influence of social support on health (Haber et al., 2007). Social cognitive processing theory offers an alternate perspective to the buffering hypothesis. Carpenter et al. (2010) summarize social cognitive processing theoretic groundwork laid by Horowitz and built upon by Lepore which suggests that individuals have a need to integrate traumatic events into their cognitive models of themselves and the world, and that the distressing nature of the process may lead some to respond with avoidant behaviors, such as thought suppression. According to Horowitz, those avoidant behaviors disrupt the processes of assimilation and accommodation in the form of intrusive thoughts, thereby impeding integration of the cancer experience and generating a cycle of avoidance, which prevents habituation to trauma-related stimuli (Carpenter et al., 2010). Lepore suggested that this cycle can be broken or further perpetuated through a social-cognitive process in which a supportive environment facilitates discussion of the traumatic event, thereby encouraging integration of the experience and lessening the need for further cognitive processing (Carpenter et al., 2010).

Tedeschi, Park, and Calhoun (1998) propose the cognitive processing theory of posttraumatic growth echoes Lepore and Horowitz in asserting that the experience of a highly stressful life event may challenge personal values, goals,

and beliefs about self, the future, and the world. The term “posttraumatic growth” asserts that stressful or traumatic events may catalyze positive psychological changes that are reflected through positive changes in life priorities, appreciation of life, and perceptions of self and social relationships with family and friends (Schroevvers et al., 2010). Tedeschi et al. (1998) explain that cognitive processing with supportive others can facilitate individuals in finding meaning in the event by providing opportunities for self-disclosure, stimulating cognitive processing, and offering new perspectives. Schroevvers et al. (2010) cite social support theories that emphasize the importance of making distinctions between perceived availability of support, actual received amount of support, and satisfaction with actual received support. The authors assert the further need for distinguishing between various forms of emotional support (i.e. emotional support, informational support, and instrumental/tangible support) which may be assessed as either perceived or received support (Schroevvers et al., 2010). Studies indicate that emotional support is particularly relevant in patients’ adjustment to cancer, whereas perceived availability and satisfaction with support appear related to levels of distress and negative affect (Schroevvers et al., 2010).

### **Correlates of Social Support**

Several studies have identified relationships between social support and health outcomes (Carpenter et al., 2010; Kim, Han, Shaw, McTavish, &

Gustafson, 2010; Lee et al., 2011; Paukert et al., 2010; Pinqart & Duberstein, 2010). Both received (structural) and perceived (functional) social support have demonstrated associations with health outcomes, and social support theory indicates structural support is a necessary precursor to functional support (Queenan et al., 2010). However, research has also indicated, “perception of social support (functional) is more predictive of positive health than received or available social support (structural)” (Queenan et al., 2010, p.252). For these reasons, it is important to further investigate relationships between perceived social support and other elements of cancer patients’ presentation.

**Correlates of overall social support.** Generally, greater social support has been associated with reductions in cancer-related stress, improved emotional well-being, and better health-related quality of life (Carpenter et al., 2010; Kim et al., 2010). Individuals with greater social integration appear to have more energy and be better able to maintain role functioning (Carpenter et al., 2010). Kim et al. (2010) further assert that social support can act as coping assistance through reinforcing self-esteem and sense of control, thereby facilitating implementation of active coping strategies rather than passive or avoidant coping strategies. Folkman and Lazarus (1980) define coping as “cognitive and behavioral efforts made to master, tolerate, or reduce external and internal demands and conflicts” (p.223).

In terms of direct health outcomes, research indicates relationships between social support, physical symptomatology, and disease progression (Carpenter et al., 2010; Lee et al., 2011; Lutgendorf et al., 2009). Even when significant predictors of depression (i.e. history of depression, recent loss, comorbid chronic somatic illness, functional impairment) are controlled for, social support consistently predicts depression in older adults with physical health stressors (Paukert et al., 2010). Studies have repeatedly demonstrated associations between social support and distress, specifically negative affect, depressive symptoms, worry, and traumatic stress (Carpenter et al., 2010; Kim et al., 2010; Lee et al., 2011; Paukert et al., 2010). For example, Lutgendorf et al. (2009) reported that “progression of ovarian cancer may be accelerated in patients with high depressive symptoms and low social support;” however, the authors also noted that depressive symptoms and social support “were so highly correlated as to be statistically indistinguishable” (p.181-82).Paukert et al. (2010) found that social support appeared to act as a moderator between physical health and affect, such that greater social support in the context of better physical health was associated with increased positive affect, and less social support in the context of better health was associated with decreased positive affect. Interestingly, Paukert et al. (2010) observed a lack of association between social support and somatic anxiety.

**Correlates of perceived social support.** In a study designed to clarify relationships between functional social support, structural social support, and health-related quality of life, Queenan et al. (2010) observed a lack of significant correlations between health-related quality of life and structural social support. The authors surmised, “This finding supports the assertion that functional social support is more predictive of good health-related quality of life than structural social support” Queenan et al., 2010, p.257). Perceived social support has been positively associated with fighting spirit, better social adjustment, higher self-esteem, and lower levels of depression and has been negatively associated with stoic acceptance of illness (Cicero, Lo Coco, Gullo, & Lo Verso, 2009; Kim et al., 2010).

Researchers have formulated various theories in an attempt to explain these effects. Schroevers, Helgeson, Sanderman, and Ranchor (2010) cited several studies demonstrating that distress is associated with perceived availability of social support and satisfaction with support. Carpenter et al. (2010) suggest that perceptions of social support may be aligned with a subset of depressive symptoms such as loneliness, social isolation, and self-concepts of being unlikable or unworthy. Kim et al. (2010) hypothesize that perception of social support may influence will to live, thereby influencing coping behaviors and subsequently impacting emotional well-being. In a meta-analytic review of associations between social networks with cancer mortality, Pinqart and

Duberstein (2010) observed reductions of relative risk for mortality of 25% in patients with high levels of perceived social support.

### **Social Support & Psychosocial Service Use**

Given the apparent correlations between social support and health outcomes, researchers have attempted to identify opportunities for interventions designed to improve social support, and subsequently improve health outcomes. Although manualized interventions have been developed which focus on elements such as enhancing familial or partner support, providing psychoeducation about the benefits of social support, and reducing social isolation through group therapy, it is unclear who benefits most from which types of interventions and at what point along the disease trajectory (Carpenter et al., 2010). Schroevers et al. (2010) found that patients “who were more able to talk about their experiences with others and had received more support in terms of reassurance, advice, and encouragement, experienced more posttraumatic growth”; however, this was not true of patients who only perceived emotional support as available (p.51).

Interestingly, researchers have observed some distinctions between social support from friends versus family members. According to Cicero et al. (2009), perceived support from friends has been associated with tendencies for the patient to view cancer as a challenge and subsequently take a more active role in therapy and recovery. The authors cite studies that indicate that patients and their families



may avoid communication about cancer related concerns in an effort to avoid distress (Cicero et al., 2009). Family members have been known to experience psychological reactions comparable to that of a patient (Carpenter et al., 2010). Some research indicates that patients experience greater distress when they perceive friends and/or family as critical, uncomfortable, or disinterested in the patients' responses to illness (Cicero et al., 2009). Psychological distress can act as a motivator to seek help and social support from outside the family can provide opportunities to process aspects of the cancer experience that the patient is unable to discuss with family (Carpenter et al., 2010; Steginga et al., 2008). However, "believing that psychosocial care services will provide positive outcomes and having the encouragement of family, friends, and health professionals to seek such help are crucial" (Steginga et al., 2008, p.1004).

The cancer experience challenges patients and their support networks to access cognitive processing and coping skills in response to themes such as life meaning, personal control, and existential threat. While many patients are able to rely on strong networks of loved ones for provision of emotional, informational, and instrumental/tangible support, there are also patients who do not have reliable support networks or whose families buckle in the face of the cancer experience. For those patients, psychosocial support may supplement gaps in their social network. However, in order to access those services, such patients may be asked

to overcome not only the previously identified external barriers, but also internal barriers such as their views of the world and themselves.

### **Attachment**

Utilization of psychosocial services and perception of social support both have demonstrable impacts on patients' experience of distress and upon various health-related outcomes. As previously stated, preference for self-managing symptoms and perception of others as ineffective in addressing concerns are two of the most commonly identified explanations for not accessing psychosocial support (Baker-Glenn et al., 2011; van Beljouw et al., 2010). Each of these variables is impacted by individual patients' views of themselves and others. As stated by Cicero et al. (2009),

"The psychological adjustment of patients varies with a number of factors, including aspects of their intimate relationships. Interpersonal relationships play a key role in how people cope with distress and adjust to life crises of all kinds. In particular, styles of attachment were found to be relevant to coping with stressful events because they influence self-efficacy and expectations of care from 'significant others'. A main issue in studying attachment with cancer patients is whether consequent patterns associated with attachment development, such as affect regulation and

stress response patterning, may play a contributory role in individual response to cancer and disease vulnerability." (p.1045)

### **Theories of Attachment**

Attachment theory is a theory of social and emotional development that arose out of John Bowlby's observations of infants and children during periods of separation and reunion (Hunter, Davis, & Tunstall, 2006). Attachment theory draws on elements of evolutionary, ethological, cognitive, psychodynamic, and systems theory perspectives (Hunter et al., 2006). According to attachment theory, interactions of genetic and environmental (e.g. caregiver) factors lead to the development of an attachment system, which subsequently organizes emotion and behavior throughout life (Meredith, Ownsworth, & Strong, 2008; Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010). How does this happen?

Infants are thought to have a biological drive to resist separations from their caregiver and use attachment behaviors to gain proximity and achieve felt security, particularly in the context of separation, threat of separation, or when the infant feels vulnerable (Hunter et al., 2006; Meredith et al., 2008). Bowlby considered these attachment behaviors to be reflections of survival instincts in that maintaining close proximity to caregivers "counters vulnerability to predation and increases the likelihood of survival and reproduction" (Hunter et al., 2006, p.433). Attachment systems evolve through interactions between the child's

cognitive capacities and estimation of self as worthy of care and the degree of responsiveness, reliability/consistency, and appropriateness of their caregivers' responses (Hunter et al., 2006; Meredith et al., 2008).

Attachment research indicates that attachment styles evolve as a function of the primary caregiver's attunement and response to the child's physical and psychological needs. Over time, the child internalizes experiences with caregivers and develops cognitive schemas referred to as internal working models of attachment (Bartholomew & Horowitz, 1991; Hunter et al., 2006; Meredith et al., 2008). An internal working model is "a complex cognitive–emotional schema of self and others" that forms a prototype for later relationships and acts as a filter, thereby influencing perceptions, emotions, and interactions (Bartholomew & Horowitz, 1991; Meredith et al., 2008, 411). Working models of attachment are believed to function primarily outside of conscious awareness, generalize across relationships, and maintain relative stability in the absence of relationship change (Hunter et al., 2006).

### **Adult Attachment**

Research has demonstrated that the quality of the relationship between a child and their primary caregiver can have far-reaching impacts throughout the child's life and into adulthood. Although attachment theory originally functioned as an interpretation of children's behavior, researchers went on to apply the same

concepts to later childhood, adolescence, and, ultimately, adulthood (Meredith et al., 2008).

Adult attachment research has revealed systematic, habitual patterns of behavior and coping that are thought to reflect adult attachment. These patterns are understood as individual differences in working models of attachment and can be organized across two dimensions: attachment anxiety and attachment avoidance (Hunter et al., 2006).

Attachment anxiety is characterized by excessive dependence on others, excessive need for approval, and fear of separation, rejection, or abandonment (Cicero et al., 2009; Hunter et al., 2006; Porter, Davis, & Keefe, 2007).

Individuals with high attachment anxiety demonstrate exaggerated appraisals of threat, enhanced and prolonged emotional distress and threat-related rumination, higher baseline anxiety and depression, and poorer coping and outcomes (Porter et al., 2007).

Attachment avoidance, which is characterized by compulsive self-reliance, dismissal of the importance of close relationships, and fear of depending on others (Cicero et al., 2009; Hunter et al., 2006). Adults with high attachment avoidance demonstrate avoidance and minimization of threat-related cues, under-appraisal of threat, use of avoidant and emotion-focused coping strategies, and underutilization of social support (Porter et al., 2007).

These dimensions are consistent with the categories Bowlby identified as contributing to construction of internal working models: model of self (as worthy of care) and model of others (as effective caregivers) (Bartholomew & Horowitz, 1991). Attachment anxiety corresponds with Bowlby's view of self as worthy of care (Ciechanowski, Walker, Katon, & Russo, 2002; Meredith et al., 2008). Attachment avoidance corresponds with Bowlby's view of others as reliable and effective caregivers (Ciechanowski et al., 2002; Meredith et al., 2008).

Orthogonally, relationships between attachment anxiety and attachment avoidance yield a four-group typology of adult attachment styles, each of which represents a different prototype that individuals might approximate to various degrees (Bartholomew & Horowitz, 1991). As shown in Figure 1, these styles are secure, preoccupied, dismissing, and fearful-avoidant.

**Adult attachment styles.** About 59% of individuals in the United States are securely attached, although this percentage is estimated to be lower in clinical populations (Ravitz et al., 2010). Securely attached individuals are low on both attachment avoidance and attachment anxiety. They view themselves as worthy of love and anticipate that others will generally be accepting and responsive (Bartholomew & Horowitz, 1991). Individuals with secure attachment demonstrate self-confidence, value relationships, and are comfortable balancing fluctuations of autonomy and dependence in relationships (Maunder & Hunter, 2009). Zhang and Labouvie-Vief (2004) cite studies that indicate individuals with

secure attachment styles are more likely to acknowledge and address emotionally distressing situations through eliciting social support and adopting problem-focused strategies.

		<b>Model of Self</b> (Anxiety)	
		Positive (Low)	Negative (High)
<b>Model of Other</b> (Avoidance)	Positive (Low)	Secure	Preoccupied
	Negative (High)	Dismissing	Fearful-Avoidant

Figure 1. *Adult attachment style categories*  
Adopted from Bartholomew, K., & Horowitz, L. M. (1991).

Preoccupied, or anxious-ambivalent, attachments reflect a sense of personal unworthiness/unlovability (high attachment anxiety) and a positive view of others (low attachment avoidance) (Bartholomew & Horowitz, 1991).

Individuals with a preoccupied attachment style are likely to demonstrate tendencies toward dependency, strong need for emotional closeness, and exaggerated expressiveness (Maunder & Hunter, 2009). Bartholomew and Horowitz (1991) anticipate that individuals with a preoccupied attachment style seek acceptance from others as a way of learning to accept themselves.

Fearful-avoidant attachments, which are expressions of high attachment anxiety and high attachment avoidance, demonstrate a negative self-perception and expectation that relationships with other are generally negative (Bartholomew

& Horowitz, 1991). These individuals not only doubt their own efficacy and worthiness, but are also likely avoid close relationships with others as a means of protecting themselves from rejection or hurt, thereby resulting in social isolation (Bartholomew & Horowitz, 1991; Maunder & Hunter, 2009).

The fourth attachment style is referred to as dismissing or dismissive-avoidant (Bartholomew & Horowitz, 1991; Maunder & Hunter, 2009). Like individuals with fearful-avoidant attachment styles, those with dismissing attachment styles often avoid close relationships out of expectation of negative consequences (Maunder & Hunter, 2009). However, dismissing attachment styles also reflect a sense of personal worthiness, which is reflected through greater self-reliance and autonomy (Bartholomew & Horowitz, 1991; Maunder & Hunter, 2009). Maunder and Hunter (2009) suggest that dismissing attachment style reflects deactivation of the attachment system, such that “proximity seeking is reduced, attachment figures are considered unimportant and signs of personal distress or vulnerability are suppressed” (p.127).

### **Correlates of Attachment**

**Attachment and distress.** Zhang and Labouvie-Vief (2004) observed that greater attachment security was associated with fewer depressive symptoms and greater perceived well-being. The authors also noted that greater attachment security was associated with more integrative and less defensive coping (Zhang &



Labouvie-Vief, 2004). Generally, research indicates that securely attached individuals demonstrate more diverse and effective coping than do those with insecure attachments (Meredith et al., 2008). Individuals with insecure attachments appear more likely to utilize external coping strategies as emotional regulation, through behaviors such as substance use, social isolation, promiscuity, or violence (Meredith et al., 2008). From their observations, Zhang and Labouvie-Vief (2004) concluded, “fluctuation and change in attachment security is probably associated with a global shift in behavioral strategies and emotional experience” (p.431).

**Attachment, social support, & psychosocial service use.** As previously stated, attachment styles reflect internal working models which evolve out of the pattern of interaction between a child and their caregiver to form the child’s view of their self as un/worthy of love and others as un/reliable caregivers (Bartholomew & Horowitz, 1991; Hunter et al., 2006; Meredith et al., 2008). These internal working models “direct attention, organize and filter new information, and determine the accessibility of past experiences” (Bartholomew & Horowitz, 1991, p.241). Often, internal working models and their associated attachment styles remain largely stable due to information-processing biases which prompt ambiguous stimuli to be assimilated into existing models (Bartholomew & Horowitz, 1991). This is further reinforced by tendencies to both engage in behaviors that evoke specific reactions and by subsequently interpreting

those reactions in ways that confirm existing working models (Bartholomew & Horowitz, 1991). Additionally, individuals often engage in selective affiliation through either seeking or avoiding social contacts, and through the selection of social partners who are likely to confirm internal models (Bartholomew & Horowitz, 1991).

Research indicates that patients with insecure attachment styles are less likely to seek either social or psychosocial support than those with secure attachments (Riggs, Jacobvitz, & Hazen, 2002). As stated by Riggs et al. (2002), “because of distrustful attitudes formed in early attachment relationships... some insecure individuals may be unwilling to seek social support from friends or mental health practitioners until motivated by severe, overwhelming distress or possibly coerced by family or legal pressures” (p.345).

Hunter et al. (2006) summarized research which indicates that avoidant attachment is associated with ineffective support seeking, whereas anxious attachment is associated with lower levels of psychological adjustment and interactions are characterized by over-involvement, compulsiveness, and a tendency to be controlling (Hunter et al., 2006). Furthermore, both dimensions of insecure attachment appear to be directly associated with the quality of emotional support in spousal relationships (Hunter et al., 2006). Individuals with dismissing attachment styles appear particularly likely to be unwilling to seek counseling and to reject help from therapists (Riggs et al., 2002).

## **Adult Attachment in Medical Settings**

Although adult attachment theory began its applications in understanding romantic relationships, new applications have evolved. In their 1991 study, Bartholomew and Horowitz observed attachment anxiety and attachment avoidance as independently variable, and noted that most individuals report variability in attachment tendencies across time and across relationships. However, attachment characteristics have demonstrated relative stability through longitudinal studies (Meredith et al., 2008; Zhang & Labouvie-Vief, 2004).

Researchers increasingly acknowledge the relevance of attachment style in the context of health. Attachment behaviors are activated by three types of threats: threats to subjective availability of a caregiver, internal distress, or external threats to safety or well-being (Mauder & Hunter, 2009; Porter et al., 2007). Cancer patients and their loved ones are typically confronted with each of these. Furthermore, patients' relationships with their health care providers may function as an attachment relationship, albeit temporarily, as the patients may use the health care provider as a source of safety during times of distress (Mauder & Hunter, 2009). Cicero et al. (2009) observed results that suggested attachment styles may be helpful in predicting adjustment to cancer. As stated by Hunter et al. (2006), "Because threat of separation and loss pervades the end-stage cancer context, the influence of the normative aspect of the attachment system should be considerable" (p.434). Mauder and Hunter (2009) provide extensive outlines of

adult attachment style characteristics and discuss these styles in the context of medical settings.

Research is beginning to demonstrate the value of investigating attachment in the context of health given reported associations of attachment and numerous relevant biopsychosocial phenomena (Maunder & Hunter, 2009; Ravitz et al., 2010). In terms of health effects, attachment style has been related to health care utilization, patient-provider relationships, treatment adherence, and symptom reporting (Maunder & Hunter, 2009; Meredith et al., 2008; Ravitz et al., 2010). Further demonstrated relationships between attachment and health effects have been reported for chronic pain, unexplained physical symptoms, ability to implement lifestyle change, level of exercise, and morbidity (Maunder & Hunter, 2009; Meredith et al., 2008; Ravitz et al., 2010). Regarding emotional and mental health functioning, association have been observed between attachment style and social functioning, quality of intimate relationships, coping, communication, attributional style, self-esteem, depression, anger and hostility, and suicidal ideation (Maunder & Hunter, 2009; Meredith et al., 2008; Ravitz et al., 2010).

**Correlates of attachment styles in medical settings.** Several studies have observed the influence of adult attachment styles within medical settings (Cicero et al., 2009; Lo et al., 2009; Maunder & Hunter, 2009; Meredith et al., 2008; Porter et al., 2007; Zhang & Labouvie-Vief, 2004).

***Patients with secure attachment.*** Maunder and Hunter (2009) caution that the resilience and ability to collaborate with others effectively does not preclude distress or interpersonal difficulty among individuals with secure attachment. However, expressions of distress are typically proportionate to triggering stressors (Maunder & Hunter, 2009). Furthermore, abilities to appropriately modulate and express affect facilitate coping efforts and increase likelihood of empathic responses from health care providers (Maunder & Hunter, 2009; Meredith et al., 2008). Zhang & Labouvie-Vief (2004) report secure attachment as being associated with better adjustment, increased subjective well-being, and greater life satisfaction.

***Patients with insecure attachment.*** Generally, patients with insecure attachment styles respond less adaptively to stressors than do those patients with secure attachments. In the case of either high anxiety or high avoidance, insecure attachments are associated with less favorable caregiver behaviors and emotional responses (Porter et al., 2007). Patients with insecure attachments are reported to experience greater emotional variability in relationships, have smaller social networks, endorse less satisfaction with their support, and experience more distress (particularly depression) (Cicero et al., 2009; Lo et al., 2009). Research indicates that patients with insecure attachments are also more likely to report pain and pain-related fear (Lo et al., 2009).

Healthcare providers may experience the poor affect regulation, high affective expression, and dependency on others among patients who have high levels of attachment anxiety as needy (Meredith et al., 2008). Anxious attachment has been associated with increased rates of primary care utilization, higher medical costs, and higher levels of pain-related health care visits (Porter et al., 2007). Cicero et al. (2009) observed high levels of hopelessness and anxious preoccupation among patients with anxious attachment styles.

Conversely, patients with high levels of attachment avoidance may present as undemanding and as not experiencing much distress due to patterns of minimizing symptoms, both outwardly and inwardly (Cicero et al., 2009; Meredith et al., 2008). Cicero et al. (2009) add that although patients with high avoidance may present and consider themselves to be functioning adaptively, “covert distress may be high, and effective coping is compromised because others are seen as untrustworthy” (p.1050). Attachment avoidance has been associated with poorer communication with health care providers, treatment adherence, and health outcomes (Lo et al., 2009).

*Preoccupied.* Among patients with preoccupied attachment (i.e. high anxiety and low avoidance), a sense of personal fragility and hypervigilance to threat may contribute to heightened sensitivity to bodily sensations, which may then present as amplified symptoms, unexplained medical symptoms, and high levels of perceived stress (Mauder & Hunter, 2009). These patients appear

particularly likely to over-utilize health care resources and impaired reflective abilities may present difficulties for health care providers (Maunder & Hunter, 2009).

*Fearful-avoidant.* Patients who have a primarily fearful-avoidant attachment style are particularly concerning due to a combination of experiencing increased medically unexplained symptoms and demonstrating the lowest levels of health care utilization (Maunder & Hunter, 2009). Maunder and Hunter (2009) report that these tendencies, as well as ambivalence about seeking help, may be expressed as both scheduling last-minute appointments and high rates of missed appointments, which potentially impair relationships with health care providers.

*Dismissing.* Patients with dismissing attachment styles may minimize symptoms or delay reporting symptoms, demonstrate limited adherence with treatment suggestions, or may cancel or miss appointments (Maunder & Hunter, 2009). These behaviors are likely expressions of characteristic reluctance/inability to acknowledge distress, distrust of health care providers, and insistent self-reliance respectively, and could potentially have negative impacts on treatment and outcomes (Maunder & Hunter, 2009).

### **Measures of Adult Attachment**

Numerous measures have been developed to assess attachment. Overall, attachment measures evaluate affect regulation, interpersonal awareness, and

behaviors in close relationships (Ravitz et al., 2010). However, different formats address different attachment phenomena. Interview methods, such as the Adult Attachment Interview (AAI), assess elements including subjective experiences of others, ability to introspect, and narrative coherence as indications of secure attachment (Ravitz et al., 2010). Projective measures assess self-other boundary maintenance and self-agency in resolving attachment dilemmas (Ravitz et al., 2010). Finally, self-report measures assess conscious awareness of behaviors and attitudes related to experiences of separation, loss, intimacy, dependence, and trust (Maunder & Hunter, 2009; Ravitz et al., 2010).

Self-report measures tend to be employed more frequently by social psychologists, while psychodynamic and developmental psychologists more commonly use measures that do not rely on conscious self-evaluation, i.e. interview and projective measures (Ravitz et al., 2010). Given that each format is designed to assess attachment, it is somewhat surprising that research indicates a correlation of .09 between interview and self-report methods (Ravitz et al., 2010). Certainly, each format has its advantages. However, interview and projective measures often require specialized training for administration and scoring, and so are less practical for research applications (Brennan, Clark, & Shaver, 1998).

Ravitz et al. (2010) provide a thorough outline of considerations to take into account when choosing an attachment measure. They identify considerations including self-report versus coding observed data, categorical versus dimensional



measurement, assessing attachment as a state versus a trait, what type of relationship the measure focuses on, varying nomenclature for similar and overlapping constructs, and relevance of the measure to psychosomatic research (Ravitz et al., 2010). Although each of these is an important consideration, select issues are particularly relevant to the study of attachment style in the context of relationships between distress, social support, and use of psychosocial services among women with gynecological cancers.

The tendency of self-report measures to focus on assessment of conscious assessment of self and others in current, close relationships is relevant to psychosomatic research given that such research is typically interested in “the contemporary state of the individual in terms of health behavior, course of illness, and impact on future health” (Ravitz et al., 2010, p.420). Furthermore, self-report measures assess core features of the predictive schemas thought to contribute to the longitudinal stability of attachment style (Maunder & Hunter, 2009). Unfortunately, no known attachment measures have been developed for application to psychosomatic research (Ravitz et al., 2010). Subsequently, patients may be confused by questions regarding their attitudes toward romantic relationships (Ravitz et al., 2010). This gap identifies a need for development of measures that assess attachment styles within the context of illness.

Often, self-report measures of attachment assign individuals to either categories or dimensions as a way of defining attachment style (Meredith et al.,

2008; Ravitz et al., 2010). Dimensional measures are continuous and identify attachment styles according to the degree to which attachment anxiety and attachment avoidance are each present (Meredith et al., 2008; Ravitz et al., 2010). As might be presumed, categorical (typological) measures derive patterns in attachment style and subsequently assign individuals to discrete categories (Meredith et al., 2008; Ravitz et al., 2010).

Each approach has its strengths. Dimensional measures offer greater statistical power and are more nuanced, but may not be appropriate when conscious attitudes or behaviors are being investigated, or when interview or observational assessment is unfeasible (Meredith et al., 2008; Ravitz et al., 2010). Categorical measures may be preferred in clinical settings due to prototypic “textbook” descriptions that allow for rapid diagnosis and clinical decision making and aid clinicians in tailoring interventions (Meredith et al., 2008; Ravitz et al., 2010). Bartholomew and Horowitz’s four-category model is reported to be the most widely accepted categorical conceptualization of adult attachment styles (Meredith et al., 2008; Ravitz et al., 2010). This may be partially due to the fact that the design of the model also provides for interpretation across the continuous dimensions of attachment anxiety and attachment avoidance, thereby reconciling the conflict of whether to use categorical or dimensional assessment (Meredith et al., 2008; Ravitz et al., 2010).

**Experiences in close relationships scale (ECR).** The Experiences in Close Relationships (ECR) scale was developed by Brennan et al. (1998) through a principal components analysis of 14 self-report measures of attachment, which included a 60 subscales or 323 items (Ravitz et al., 2010). Items for the ECR were selected after the principal components analysis yielded factors related to attachment anxiety and attachment avoidance (Ravitz et al., 2010; Vogel & Wei, 2005). Thirty-six items were selected which correlated highly with either avoidance or anxiety (18 items per dimension) (Ravitz et al., 2010). Relationships between scores on each dimension yield one of four attachment categories: secure, preoccupied, fearful-avoidant, and dismissing (Brennan et al., 1998). The ECR has been widely used to evaluate associations between attachment and perception of social support, negative affect, and mental health symptomology (Ravitz et al., 2010).

Although attachment theory asserts that although attachment styles are largely stable, new life events and relationship experiences that disconfirm existing attachment representations may catalyze shifts in attachment style (Meredith et al., 2008; Zhang & Labouvie-Vief, 2004). Support-seeking is an expression of attachment-related coping behavior and social networks fulfill the role of a secure base in adulthood as caregivers did during childhood (Meredith et al., 2008). Attachment behavior is activated during times of stress and major life transitions, such as the cancer experience, may present a unique window of

opportunity for providing intervention (Bartholomew & Horowitz, 1991; Riggs et al., 2002). Clinical appreciation of the relevance of attachment styles in patient presentation and support-seeking may allow clinicians to provide interventions from an attachment-informed perspective, thereby increasing their effectiveness (Baker-Glenn et al., 2011; Maunder & Hunter, 2009; Meredith et al., 2008).

## CHAPTER THREE

### METHOD

#### **Scope of Current Analysis**

Determining which demographic and disease related variables are associated with distress and willingness to access psychosocial services within this population can help clinicians identify those patients needing additional psychosocial care and target interventions appropriately. Recent research has linked individual differences in attachment style to numerous clinically relevant factors, including distress, communication, and health behaviors such as symptom reporting, accessing health care, quality of the patient-provider relationship, and treatment adherence. Assessing the barriers to psychosocial interventions for patients with cancer has not been evaluated within the area of attachment theory.

The proposed study examined patterns of perceived social support, reported distress, and utilization of psychosocial services among adult attachment styles within a gynecological cancer population. Specifically, the first aim was to evaluate the influence of adult attachment style and perceived social support on an individual's reported level of distress. It was hypothesized that individuals with either a preoccupied or fearful attachment style would report a higher level of distress than individuals with a secure or dismissing attachment style and that perceived social support would function as a mediating variable. The second aim

was to evaluate how adult attachment style interacts with perceived social support and level of distress to influence self-reported likelihood and actual use of psychosocial services. We hypothesized that perception of social support would mediate the influence of adult attachment style and level of distress on use of psychosocial services, such that individuals with either a secure or dismissing adult attachment style would report lower levels of distress and lower utilization of psychosocial services than individuals who reported either a fearful or preoccupied adult attachment style.

### **Subjects**

Participants included 81 English-speaking women between the ages of 18 and 80 diagnosed with a gynecological cancer who were under the care of a gynecological oncologist at the Texas Oncology Physicians Association (TOPA) Gynecological Oncology Clinic at Baylor University Medical Center (BUMC). Preliminary analyses indicated that a minimum of 80 participants would be necessary. In an effort to achieve results that are generalizable to multiple populations, subjects from diverse educational and economic backgrounds were recruited and enrolled to the extent possible. Women were excluded from the study if 1) they were unable to verbally communicate in English; or 2) they were known to have an IQ <70 (mental retardation).

## **Procedure**

Approval from the Baylor University Medical Center Institutional Review Board was obtained prior to the initiation of this project. Participants were referred to the study in one of three ways: 1) Patients expressed an interest in learning more about the study via a Patient Introduction Letter which they received when they checked-in at the clinic, 2) The treating gynecologic oncologist described the study to prospective subjects during a routine visit and referred those who expressed an interest in participating, or 3) Patients learned about the study through a short presentation to the BUMC Ovarian Cancer Support Group.

Once referred, a research investigator contacted the patient either during a clinic visit or by phone to describe the study in more detail. All contact information was provided directly by the patient. If the patient declined to participate or did not meet inclusion criteria, the reason for their exclusion was noted. If the patient met inclusion criteria and expressed an interest in participating, the research investigator scheduled the initial appointment. For all patients, participation status, and date and outcome of communication were noted in the Gynecological Oncology Study Subject Enrollment Log as well as on the back of the Patient Introduction Letter. The Patient Introduction Letter was then

placed in either the “Gyn. Onc. Study Participants – Declined” or “Gyn. Onc. Study Participants – Enrolled” files as appropriate.

At the initial appointment, the research investigator provided a thorough explanation of the study and obtain written informed consent. All questions and concerns were addressed prior to agreement to participate. Furthermore, the study investigator emphasized the voluntary nature of participation and that a patient’s choice to accept or decline did not affect her relationship with her physician, treatment team, or Baylor University Medical Center. Signed informed consent forms were placed in the patients’ study and medical charts and a duplicate was be given to the participant.

Upon giving informed consent, the research investigator worked with the participant to complete a demographic questionnaire, disease characteristics questionnaire, and mental health history questionnaire. Additionally, the participant completed self-report measures including the Hospital Anxiety and Depression Scale (HADS), Experiences in Close Relationships scale (ECR), and Social Provisions Scale (SPS). At the end of the initial appointment, the research investigator scheduled a follow-up phone appointment with the participant for approximately six weeks after the initial appointment. The appointment date, time, and contact number were indicated on the Follow-Up Call form. At that time, each participant also received a Psychosocial Resource List, which included



cancer-specific as well as nonspecific psychosocial resources. The time to complete the initial appointment was 45-70 minutes. Following the initial appointment, the participant's medical chart was reviewed by a study investigator to confirm diagnosis, International Federation of Gynecology and Obstetrics (FIGO) stage, treatment history, and Karnofsky Performance and Eastern Cooperative Oncology Group (ECOG)/Zubrod scores. For any additional questions regarding the medical information, the investigator contacted the physician.

The follow-up appointment was scheduled to occur approximately six weeks after the initial appointment. The research investigator attempted to contact the participant at the date and time scheduled at the initial appointment. If the research investigator was unable to contact the participant at that time, the investigator continued attempting to contact the participant. Once contact was made, the research investigator completed the Follow-Up Call form with the participant over the phone. The time to complete the follow-up appointment was 5-20 minutes.

Participants were evaluated for suicidality at both appointments. BUMC suicidality protocol was adhered to at all times, including immediate notification of the supervising licensed psychologist. Specifically, participants who endorsed current suicidal ideation without a plan or intent to act on their ideation were

strongly encouraged to pursue increased psychosocial support. No participants endorsed current suicidal ideation with plan or intent. If this had occurred, any participant who endorsed suicidal ideation with a plan and/or intent to act on their ideation would have been removed from the study and then evaluated by the outpatient social worker, who would determine what level of intervention would be needed.

Following each appointment, relevant measures were scored and participant data were entered into a password-protected electronic database. Electronic data were backed up weekly to prevent loss of the database due to computer failure. All paper study materials were kept in a locked file cabinet behind a locked door at Baylor University Medical Center. At the time of enrollment, each participant was assigned a study identification number. Only that number was used to link data with a specific participant.

### **Instruments and Outcome Measures**

All measures, except the Follow-Up Call Form were administered to patients at enrollment in the study. Patients were contacted for a scheduled phone call 4-6 weeks after enrollment for completion of the Follow-Up Call Form.

**Demographics Form.** Demographic information was collected after obtaining written informed consent. This form included information about the

patient's age, education, marital status, whether the patient was living alone or cohabitating, ethnicity, household income, employment, and insurance status.

**Disease Characteristics Form.** A disease characteristics form was completed for each participant by a research investigator who reviewed the patient's medical chart and, if necessary, clarified any questions with the patient's physician. Information obtained from the medical chart included: type of cancer, International Federation of Gynecology and Obstetrics (FIGO) stage, date of and months since diagnosis, disease status, treatment history, relapse history, and Karnofsky Performance and Eastern Cooperative Oncology Group (ECOG)/Zubrod scores.

**Mental Health Information Form.** The mental health information form included questions to assess current and previous mental health diagnoses and treatment history, family mental health history, and current and previous interest in and use of psychosocial services. This form was also used to assess participant suicidality.

**Hospital Anxiety and Depression Scale** (HADS; Zigmond, A. & Snaith, R., 1983). The Hospital Anxiety and Depression Scale is a 14-item scale that has been widely used within oncology populations as a measure of psychological distress (Cull, A. et al., 2001 & Mitchell, A., 2007). This scale consists of two subscales measuring anxiety and depression symptoms. A total cutoff score of

equal to or above 15 is indicative of clinically significant distress. A score of eight or greater is used as a cutoff for significant distress on the Anxiety and Depression subscales. In a meta-analytic review of 747 studies using the HADS, Bjelland et al. (2002) reported that Cronbach's alpha varied on the HADS-A from .68 to .93 (mean .83), and on the HADS-D from .67 to .90 (mean .82).

**Social Provisions Scale (SPS;** Cutrona, C. & Russell, D., 1987). The Social Provisions Scale is a 24-item measure of the degree to which an individual perceives their social relationships as meeting each of 6 provisions: Guidance, Reliable Alliance, Reassurance of Worth, Social Integration, Attachment, and Opportunity to Provide Nurturance. Each provision is measured as a 4-item subscale, of which two items measure the presence of the provision and two items measure the absence of the provision. High scores indicate that an individual is receiving that provision. In their introduction of the SPS, Cutrona & Russell (1987) reported an alpha coefficient of 0.91 for the total SPS score, and alpha coefficients ranging from 0.65-0.76 for the six subscale provisions.

**Experiences in Close Relationships (ECR;** Brennan, K. et al., 1998). The Experiences in Close Relationships scale is a 36-item self-report measure of adult attachment style on which higher scores indicate greater degrees of either anxious or avoidant attachment. The measure consists of two primary subscales: Avoidance and Anxiety. The Avoidance subscale is composed of Discomfort with

Closeness and Discomfort Depending on Others. The Anxiety subscale is composed of Fear of Abandonment and Fear of Rejection. Adult attachment styles are derived from relative performances on the Anxiety and Avoidance scales. Scores of equal to or greater than 2.93 are considered to identify individuals with high attachment avoidance. Scores of equal to or greater than 3.46 are considered to identify individuals with high attachment anxiety. Most samples have demonstrated little correlation between the Avoidance and Anxiety scales and a recent meta-analytic review of studies completed within various populations indicated that overall test-retest coefficients are between .50 and .75 (Ravitz et al., 2010). In a review of self-report measures of adult attachment, Brennan et al. (1998) reported alpha coefficients of .94 and .91 for the ECR Avoidance and Anxiety scales respectively.

**Follow-Up Call Form.** The follow-up call form included questions to assess mental health treatment, and interest in and use of psychosocial services since the time of enrollment. This form was also used to assess participant suicidality.

### **Design and Statistical Analyses**

**Aim 1:** To evaluate the influence of adult attachment style and perceived social support on an individual's reported level of distress.

***Hypothesis A:*** Individuals with either a preoccupied or fearful attachment style will report a higher level of distress than individuals with a secure or dismissing attachment style.

Dependent Variable: Distress will be measured using HADS scores as a continuous variable.

Independent Variable: Adult attachment style will be calculated using the ECR. These scores will identify participants as having one of four adult attachment styles: secure, preoccupied, fearful, or dismissing.

Analysis: A Two-way ANOVA will be utilized to compare the four adult attachment styles on their overall scores on the HADS. If the two-way analysis is significant, appropriate post-hoc analyses will be performed to identify where the significant differences lie.

***Hypothesis B:*** Individuals with either a preoccupied or fearful attachment style will report a higher level of distress than individuals with a secure or dismissing attachment style with perceived social support functioning as a mediating variable.

Criterion Variable: Distress will be measured using HADS scores as a continuous variable.

Predictor Variable: Predictors of distress will include the following variables:

- a) Experiences in Close Relationships (ECR; Brennan, K. et al., 1998).

Adult attachment style will be calculated using the ECR. These scores will identify participants as having one of four adult attachment styles: secure, preoccupied, fearful, or dismissing.

- b) Social Provisions Scale (SPS; Cutrona, C. & Russell, D., 1987).

Perceived social support will be calculated using the SPS.

Analysis: Mediation analyses will be performed to evaluate the impact of perceived social support on the relationship between adult attachment style and reported level of distress.

**Aim 2:** To understand how adult attachment style interacts with perceived social support and level of distress to influence interest in and use of psychosocial services.

*“Likelihood” of Psychosocial Service Use*

**Hypothesis C:** Individual who report a higher level of distress will report greater “likelihood” of psychosocial service use.

Dependent Variable: “Likelihood” of psychosocial service use will be reported using a 0-10 scale at the initial appointment and again at the follow-up appointment using the Mental Health Information and Follow-Up Call forms respectively.

Independent Variable: Distress will be measured using HADS scores as a dichotomous variable.

Analysis: A two-way (one-between, one-within) ANOVA will be utilized to compare “likelihood” of psychosocial service use at each time point among distressed versus non-distressed individuals. If the analysis is significant, appropriate post-hoc analyses will be performed to identify where the significant differences lie.

***Hypothesis D:*** Individuals with a preoccupied attachment style will endorse greater “likelihood” of psychosocial service use than individuals with secure, fearful, or dismissing attachment styles.

Dependent Variable: “Likelihood” of psychosocial service use will be reported using a 0-10 scale at the initial appointment and again at the follow-up appointment using the Mental Health Information and Follow-Up Call forms respectively.

Independent Variable: Adult attachment style will be calculated using the ECR. These scores will identify participants as having one of four adult attachment styles: secure, preoccupied, fearful, or dismissing.

Analysis: A three-way (two between, one within) ANOVA will be utilized to compare the four adult attachment styles on their reported “likelihood” of psychosocial service use. If the three-way analysis is significant, appropriate



post-hoc analyses will be performed to identify where the significant differences lie.

***Hypothesis E:*** Perception of social support will mediate the influence of adult attachment style and levels of distress on likelihood of psychosocial service use, such that individuals with either a secure or dismissing adult attachment style will report lower levels of distress and lower “likelihood” of psychosocial service use compared to individuals who report either a fearful or preoccupied adult attachment style.

Criterion Variable: “Likelihood” of psychosocial service use will be reported using a 0-10 scale at the initial appointment using the Mental Health Information form.

Predictor Variable: Predictors of likelihood of psychosocial service use will include the following variables:

- a) Experiences in Close Relationships (ECR; Brennan, K. et al., 1998).

Adult attachment style will be calculated using the ECR. These scores will identify participants as having one of four adult attachment styles: secure, preoccupied, fearful, or dismissing.

- b) Social Provisions Scale (SPS; Cutrona, C. & Russell, D., 1987).

Perceived social support will be calculated using the SPS.

- c) Hospital Anxiety and Depression Scale (HADS; Zigmond, A. & Snaith, R., 1983). Distress will be measured using HADS scores as a continuous variable.

Analysis: Mediation analyses will be performed to evaluate the relationships among adult attachment style, perceived social support, distress, and reported “likelihood” of psychosocial service use.

*Actual Psychosocial Service Use*

***Hypothesis F:*** Individuals who report a higher level of distress will report greater utilization of psychosocial services.

Dependent Variable: Utilization of psychosocial services will be measured at the initial appointment and again at the follow-up appointment using the Mental Health Information and Follow-Up Call forms respectively.

Independent Variable: Distress will be measured using HADS scores as a dichotomous variable.

Analysis: A two-way (one-between, one-within) ANOVA will be utilized to compare use of psychosocial services at each time point among distressed versus non-distressed individuals. If the analysis is significant, appropriate post-hoc analyses will be performed to identify where the significant differences lie.

***Hypothesis G:*** Individuals with a preoccupied attachment style will be more likely to utilize psychosocial services than will individuals with secure, fearful, or dismissing attachment styles.

Dependent Variable: Utilization of psychosocial services will be measured at the initial appointment and again at the follow-up appointment using the Mental Health Information and Follow-Up Call forms respectively.

Independent Variable: Adult attachment style will be calculated using the ECR. These scores will identify participants as having one of four adult attachment styles: secure, preoccupied, fearful, or dismissing.

Analysis: A three-way (two between, one within) ANOVA will be utilized to compare the four adult attachment styles on their reported use of psychosocial services. If the three-way analysis is significant, appropriate post-hoc analyses will be performed to identify where the significant differences lie.

***Hypothesis H:*** Perception of social support will mediate the influence of adult attachment style and levels of distress on use of psychosocial services, such that individuals with either a secure or dismissing adult attachment style will report lower levels of distress and lower utilization of psychosocial services compared to individuals who report either a fearful or preoccupied adult attachment style.

Criterion Variable: Utilization of psychosocial services will be measured at the follow-up appointment using the Follow-Up Call form.

Predictor Variable: Predictors of psychosocial service use will include the following variables:

- a) Experiences in Close Relationships (ECR; Brennan, K. et al., 1998).

Adult attachment style will be calculated using the ECR. These scores will identify participants as having one of four adult attachment styles: secure, preoccupied, fearful, or dismissing.

- b) Social Provisions Scale (SPS; Cutrona, C. & Russell, D., 1987).

Perceived social support will be calculated using the SPS.

- c) Hospital Anxiety and Depression Scale (HADS; Zigmond, A. & Snaith, R., 1983). Distress will be calculated using HADS scores.

Analysis: Mediation analyses will be performed to evaluate the relationships between adult attachment style, perceived social support, distress, and utilization of psychosocial services.

**Secondary Analyses:** Secondary multiple regression analyses will be performed to include additional predictor variables that have been shown to influence the use of psychosocial services in the general population, including level of education and race/ethnicity, as well as cancer specific predictor variables.

## CHAPTER FOUR

### RESULTS

Data were entered and managed by the Statistical Package for Social Sciences (SPSS) version 20.0 (SPSS, Inc., Chicago, IL) and statistics were analyzed using SPSS. We used an alpha of 0.05 for all statistical tests. The assumptions for all statistical analyses were checked for violations. Assumptions were satisfied for all analyses except where noted. We conducted corresponding nonparametric analyses in cases where assumptions were not met. However, in each case results of nonparametric analyses were similar to those of the parametric analyses.

#### **Sample Characteristics**

##### **Recruitment**

In total, 394 women were approached for possible enrollment in the study. Of those, 81 enrolled and 274 declined to participate. The primary reason given for declining to participate was “not interested” ( $n = 123$ ). This includes women who responded to the Patient Introduction Letter by indicating they did not wish to be contacted regarding the study. Of the remaining women who declined to participate, we were unable to contact a large number ( $n = 56$ ) either due to inaccurate contact information or because the women failed to return our calls after several attempts to reach them. Other common reason for declining included

not having a cancer diagnosis ( $n = 29$ ), being too busy ( $n = 19$ ), and the hospital being too far from their home ( $n = 15$ ). Several women declined participation due to being too ill ( $n = 6$ ), did not provide a reason ( $n = 6$ ), or were deceased at the time of contact ( $n = 3$ ). Several women were not enrolled because they did not meet inclusion criteria either because they were no longer patients at the clinic ( $n = 3$ ), had limited English fluency ( $n = 3$ ), or could not complete the forms without assistance ( $n = 2$ ). Two women indicated they were too busy and the hospital was too far from their home. Several of the women gave provided reasons for declining that may reflect their distress level or attachment style. For example, “I don’t want to think about cancer,” “I don’t want the negativity,” “I’m trying to get on with my life,” and “I’m just not able to do it.”

### **Demographic Characteristics**

The women who enrolled in the study ranged in age from 32 to 83 years old ( $M = 61.17$ ,  $SD = 12.29$ ). The sample was predominantly Caucasian (87.7%). Sixty-three percent of the sample lived with their spouse/partner. The majority of the women had attended some college (35.8%) or graduated from college (21.0%). In terms of employment, 33.3% were retired, 28.4% were employed full-time, 13.6% were employed part-time, 11.1% were currently on a medical leave of absence, 7.4% received income only from disability, and 6.2% identified themselves as homemakers.

A large percentage (38.3%) of the sample reported household income of greater than \$100K per year, and 12.3% reported income of \$90-99K per year. Three (3.7%) of the women reported income of \$20-29K and one woman was unwilling to report her income. Every woman endorsed having at least one form of insurance coverage. Of the sample, the majority (91.4%) of women reported having private insurance, while 7.4% reported Medicare insurance and 1.2% reported Medicaid insurance. However, 38.3% of the women reported having Medicare coverage in addition to private insurance coverage. See Table 5 for further detail regarding sample demographics.

Table 5  
*Sample Demographics*

	<i>n</i>	%	Cumulative %
<b>Ethnicity</b>			
Caucasian	71	87.7	
Hispanic	5	6.2	
African American	4	4.9	
Hispanic	1	1.2	
<b>Marital Status</b>			
Single	11	13.6	
Married	54	66.7	
Divorced	8	9.9	
Widowed	8	9.9	
<b>Education</b>			
Some high school	1	1.2	1.2
High school graduate	9	11.1	12.3
Some college	29	35.8	48.1
College graduate	17	21.0	69.1
Some graduate school	10	12.3	81.5
Graduate degree	15	18.5	100.0

Table 5 (Continued)  
*Sample Demographics*

	<i>n</i>	%	Cumulative %
<b>Employment Status</b>			
Employed full-time	23	28.4	
Employed part-time	11	13.6	
Homemaker	5	6.2	
Medical leave of absence	9	11.1	
Retired	27	33.3	
Disability	6	7.4	
<b>Annual Household Income</b>			
20K-29,999	3	3.7	3.7
30K-39,999	7	8.6	12.3
40K-49,999	8	9.9	22.2
50K-59,999	6	7.4	29.6
60K-69,999	5	6.2	35.8
70K-79,999	5	6.2	42.0
80K-89,999	5	6.2	48.2
90K-99,999	10	12.3	60.5
≥100K	31	38.3	98.8

### **Disease Characteristics**

Nearly half (45.7%) of the sample had a primary diagnosis of ovarian cancer. In addition, 19.8% of the sample was diagnosed with an additional form of gynecologic cancer. Of the 81 women, seven (8.6%) had an additional diagnosis of uterine cancer, 4.9% of endometrial cancer, 2.5% of peritoneal cancer, and 1.2% each of cervical, ovarian, and vaginal cancers. Regarding FIGO stage at diagnosis, 44.4% were diagnosed at stage I, 37.0% at stage III, 12.3% at stage IV, and 6.2% at stage II. Fifteen of the women (18.5%) were diagnosed as



having a recurrent gynecologic cancer. See Table 6 for further information regarding disease characteristics.

Table 6  
*Disease Characteristics*

	<i>n</i>	%	Cumulative %
<b>Primary Gynecologic Cancer</b>			
Ovarian	37	45.7	
Uterine	19	23.5	
Cervical	13	16.0	
Endometrial	7	8.6	
Peritoneal	4	4.9	
Vulvar	1	1.2	
<b>FIGO at Diagnosis</b>			
I	36	44.4	44.4
II	5	6.2	50.6
III	30	37.0	87.6
IV	10	12.3	100.0
<b>Disease Status at Enrollment</b>			
No Evidence of Disease	56	69.1	69.1
Active with Disease	25	30.9	100.0
<b>Types of Treatment</b>			
Surgery	76	93.8	
Chemotherapy	60	74.1	
Radiation	27	33.3	

The majority of the women were reported to have “no evidence of disease” and to have Karnofsky Performance Scores greater than 80 (69.1% and 91.4% respectively) at the time of enrollment. The mean time elapsed since gynecologic cancer diagnosis was 43.8 months. However, the represented range was 1-381 months and the standard deviation was 57 months, i.e. nearly 5 years. Most women had an ECOG score of zero (63.0%). Twenty-three women (28.4%) had an ECOG score of 1, 6.2% had a score of 2, and 2.5% had a score of 3.

In terms of treatment, 93.8% of the women had undergone surgery at least once. About one third (33.3%) of the women had been treated with radiation and 74.1% had been treated with chemotherapy. Twenty-four (29.6%) of the women were receiving chemotherapy at the time of enrollment.

### **Mental Health Information**

Nearly half (48.1%) of the women denied a history or presence of mental health concerns. Of the remaining women, 22.2% endorsed a history of only depression and 6.2% endorsed a history of only anxiety. Several women endorsed a history of more than one mental health concern. Of the 81 women in the sample, 14.8% reported a history of anxiety and depression, 3.7% reported a history of anxiety, depression, and substance abuse, and 2.5% reported a history of depression and substance abuse. One woman reported a history of only substance abuse and another reported a history of depression and a sleep disorder.

Two women (2.5% of the sample) endorsed current suicidal ideation without plan or intent. Previous suicidal ideation without plan or intent was endorsed by 19.8% of the women and 4.9% endorsed a history of suicidal ideation with a plan. Two of the women had experienced mental health hospitalization once for depression, and one woman had been hospitalized on two occasions for cancer-related anxiety.

Table 7  
*Mental Health Information*

	<i>n</i>	%
Mental Health Concerns		
None	39	48.1
Depression	36	44.4
Anxiety	20	24.7
Substance Abuse	6	7.4
Sleep Disorder	1	1.2
Psychiatric Medication - Current	38	46.9
Antidepressant	27	33.3
Sleep aid	15	18.5
Anxiolytic	13	16.0
Psychiatric Medication - Past	36	44.4
Antidepressant	23	28.4
Sleep aid	10	12.3
Anxiolytic	9	11.1
Counseling Services - Current	17	21.0
Cancer support group	11	13.6
Online support group	1	1.2
Other group therapy	2	2.5
Individual therapy	6	7.4
Pastoral therapy	0	0.0
Other therapy	0	0.0
Counseling Services - Past	48	59.3
Cancer support group	13	16.0
Online support group	1	1.2
Other group therapy	14	17.3
Individual therapy	27	33.3
Pastoral therapy	6	7.4
Other therapy	20	24.7

**Family mental health history.** One-third (33.3%) of the women denied a history of family mental health concerns. A reported family history of substance abuse was most prevalent (17.3%), followed by depression (13.6%) and anxiety (9.9%). Three women (3.7%) reported family history of anxiety and depression

and another 3.7% reported family history of depression and substance abuse. The remaining 18.5% of the sample endorsed family history of various combinations of anxiety, depression, substance abuse, bipolar disorder, attention-deficit/hyperactivity disorder, paranoia, and schizophrenia.

**Psychosocial referrals.** Of the 81 women, 25.9% had been referred to some form of psychosocial support since their cancer diagnosis. Eleven women (13.6%) were referred by their oncologist and 7.4% were referred by another medical doctor. Four women were referred by either a psychiatrist, psychologist, family member, or friend. Of those referred to psychosocial services, five women (6.1% of the sample) were also referred to psychosocial services by either a clergy member, family member, or friend.

**Psychiatric medication use.** Overall, 46.9% of the women were prescribed psychiatric medication at the time of enrollment. Sixteen percent were prescribed anxiety medication, 33.3% were prescribed antidepressants, and 18.5% were prescribed medication for sleep. A large portion of the women (44.4%) endorsed a history of psychiatric medication use. Past antidepressant use was reported most frequently (28.4% of the women), followed by sleep medication (12.3%), and anxiety (11.1%).

**Counseling service use.** Seventeen women (21.0%) reported they were participating in some form of counseling service at the time of enrollment. Participation in a cancer support group was reported most frequently (13.6% of

the women). Thirty-three women (40.7%) reported they had participated in some form of counseling prior to enrollment. The most commonly reported form of prior therapy were individual therapy (33.3%) and marital therapy (23.5%). Regarding other counseling modalities, several of the women reported a history of participation in marital therapy (14.8%), family therapy (4.9%), or both (3.7%). One woman reported a history of therapy with a hypnotist.

### **Performance across Measures**

Whole sample performance across measures is outlined in Tables 8-13. Sample sizes across scales and subscales are included as several women failed to answer all items despite efforts to prevent this.

**Hospital Anxiety and Depression Scale (HADS).** As shown in Table 8, 81 women completed all items on the HADS. Of the 81 women, 11 (13.6%) reported clinically significant levels of distress, 22 (27.2%) reported clinically significant levels of anxiety, and 11(13.6%) reported clinically significant levels of depression.

Table 8  
*Sample Distress with the HADS as a Continuous Measure*

Scale	<i>n</i>	Min.	Max.	<i>M</i>	<i>SD</i>
HADS-Total	81	0	30	8.64	5.713
HADS-Anxiety	81	0	17	5.36	3.766
HADS-Depression	81	0	13	3.28	2.904

Table 9

*Sample Distress with the HADS as a Dichotomous Measure*

Dichotomized Scale	<i>n</i>	%
HADS-Total		
Distressed	11	13.6
Not Distressed	70	86.4
HADS-Anxiety		
Anxious	22	27.2
Non-Anxious	59	72.8
HADS-Depression		
Depressed	11	13.6
Non-Depressed	70	86.4

**Social Provisions Scale (SPS).** As shown in Table 10, the sample endorsed overall high levels of perceived social support ( $M = 88.38$ ,  $SD = 7.012$ ). Women endorsed greatest perceived support in the areas of Reliable Alliance and Guidance, and lowest perceived support in the areas of Attachment and Opportunity to Provide Nurturance.

Table 10

*Sample Perceived Social Support as Measured by the SPS*

Scale	<i>n</i>	Min.	Max.	<i>M</i>	<i>SD</i>
SPS-Total	80	66	96	88.38	7.012
SPS-Reliable Alliance	80	10	16	15.44	1.221
SPS-Guidance	81	9	16	15.02	1.589
SPS-Social Integration	81	10	16	14.89	1.673
SPS-Reassurance of Worth	81	11	16	14.73	1.414
SPS-Attachment	81	7	16	14.67	1.891
SPS-Opportunity for Nurturance	80	8	16	13.67	2.133

**Experiences in Close Relationships (ECR).** Only 80 women agreed to complete the ECR. As shown in Table 11, attachment styles were not represented

equally within the sample. The high attachment anxiety styles (i.e. Preoccupied and Fearful-Avoidant) were endorsed much less frequently than the low attachment anxiety styles (i.e., Secure and Dismissing). Therefore, we conducted analyses involving adult attachment styles by dichotomizing the anxiety and avoidance attachment dimensions.

Table 11  
*Sample Attachment Styles as Measured by the ECR*

Dichotomized Scale	<i>n</i>	%
Secure	44	54.3
Insecure	36	44.0
Dismissing	24	29.6
Fearful-Avoidant	7	8.6
Preoccupied	5	6.2

Table 12  
*Sample Attachment Across Dichotomous ECR Anxiety & Avoidance Dimensions*

Dichotomized Scale	<i>n</i>	%
ECR-Anxiety		
High Attachment Anxiety	12	14.7
Low Attachment Anxiety	68	84.0
ECR-Avoidance		
High Attachment Avoidance	31	38.3
Low Attachment Avoidance	49	60.5

Table 13  
*Sample Attachment Across Continuous ECR Anxiety & Avoidance Dimensions*

Scale	<i>n</i>	Min.	Max.	<i>M</i>	<i>SD</i>
ECR-Anxiety	80	1.00	5.17	2.41	0.944
ECR-Avoidance	80	1.00	6.67	2.65	1.222

## **Aim 1**

The first aim of the study was to assess the influence of adult attachment style and perception of social support on the reported level of distress. To do this, we first examined the relationship between adult attachment and distress, and then added perception of social support as a potential mediating variable. Although we initially hoped to examine these relationships in the context of each adult attachment style, dichotomized anxiety and avoidance subscales were used rather than the adult attachment style categories due to the small numbers of participants in the Preoccupied ( $n = 5$ ) and Fearful-Avoidant ( $n = 7$ ) categories. Additionally, one woman refused to complete the ECR, so ECR calculations include data from only 80 participants.

### **Hypothesis A**

Initially, we had hypothesized that women with either a preoccupied or fearful-avoidant attachment style (i.e. those with high anxiety) would report more distress than women with either a secure or dismissing attachment style (i.e. those with low anxiety). However, we used dichotomized versions of the ECR Anxiety and Avoidance subscales as independent variables due to small sample sizes in the high anxiety attachment categories. We conducted separate two-way analyses of variance (ANOVA's) using each of the HADS scales (Total, Anxiety, and



Depression) as the dependent variable. None of these analyses yielded significant interactions or main effects.

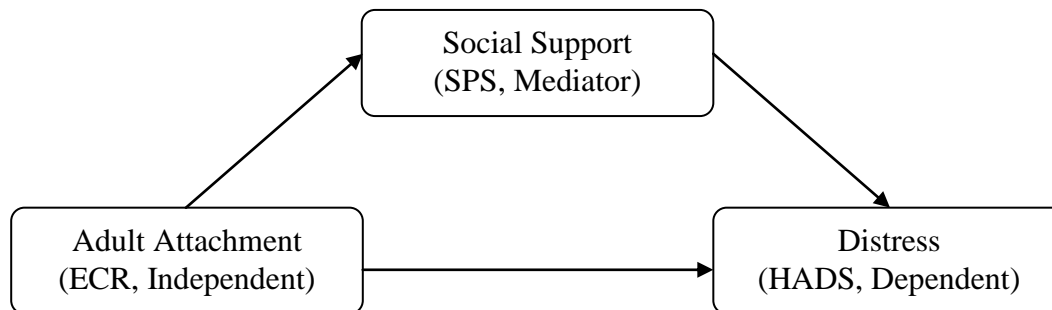
The two-way ANOVA using the HADS Total score as the dependent variable yielded a non-significant interaction,  $F(1, 76) = 0.147, p = 0.703$ . The main effect for ECR Avoidance was not significant,  $F(1, 76) = 0.363, p = 0.549$ . Neither was the main effect for ECR Anxiety significant,  $F(1, 76) = 1.508, p = 0.223$ . The overall mean for this analysis was 9.68, 95% CI [7.86, 11.50].

The two-way ANOVA using the HADS Anxiety subscale as the dependent variable yielded a non-significant interaction,  $F(1, 76) = 1.506, p = 0.224$ . The main effect for ECR Avoidance was not significant,  $F(1, 76) < 0.001, p = 0.992$ . Neither was the main effect for ECR Anxiety significant,  $F(1, 76) = 0.723, p = 0.398$ . The overall mean for this analysis was 5.95, 95% CI [4.75, 7.14].

The two-way ANOVA using the HADS Depression subscale as the dependent variable yielded a non-significant interaction,  $F(1, 76) = 0.698, p = 0.406$ . The main effect for ECR Avoidance was not significant,  $F(1, 76) = 1.437, p = 0.234$ . Neither was the main effect for ECR Anxiety significant,  $F(1, 76) = 1.731, p = 0.192$ . The overall mean for this analysis was 3.73, 95% CI [2.81, 4.66].

## Hypothesis B

We performed a series of simple and multiple linear regressions to examine relationships between adult attachment and distress with social support acting as a mediator (see Figure 2). Dichotomized adult attachment dimensions (ECR Anxiety and Avoidance subscales) were treated as independent variables with the HADS Total and subscales (Anxiety and Depression) acting as dependent variables. The SPS Total and each of the subscales were examined as potential mediators. We evaluated potential mediation effects for every combination of scales and subscales across the measures.



*Figure 2.* Generic social support mediation model being tested (on the basis of Baron & Kenny, 1986).

We examined these relationships using the three-step process outlined by Baron and Kenny (1986). First, the dependent variable (HADS) was regressed on the independent variable (ECR) to confirm the independent variable as a significant predictor of the dependent variable. Second, the mediator (SPS) was regressed on the independent variable to confirm the independent variable as a

significant predictor of the mediator. Third, the dependent variable was regressed on both the mediator and the independent variable. The third step acted to confirm the mediator as a significant predictor of the dependent variable while controlling for the influence of the independent variable. Significant results of the full analysis are displayed in Tables 14 and 15.

As shown in Table 14, the SPS Total acted as a significant mediator in the relationship between the ECR Anxiety subscale and the HADS Total. The Reassurance of Worth and Attachment subscales of the SPS also acted as significant mediators in the relationship between the ECR Anxiety subscale and the HADS Total.

Table 14

*Regression Analysis of Social Support as Mediator between Attachment Anxiety & Distress Total*

Mediator	Regression			Variance		
	$\beta$	$t$	$p$	$R^2$	$F$	$p$
SPS Total	0.230	2.158	0.034	0.188	8.810	<0.001
Reassurance of Worth	0.213	2.000	0.049	0.202	9.770	<0.001
Attachment	0.223	2.205	0.030	0.252	12.975	<0.001

Similarly, the SPS Total acted as a significant mediator in the relationship between the ECR Anxiety subscale and the HADS Anxiety subscale. The Reassurance of Worth and Attachment subscales of the SPS also acted as

significant mediators in the relationship between the ECR Anxiety subscale and the HADS Anxiety subscale (see Table 15).

Table 15

*Regression Analysis of Social Support as Mediator between Attachment Anxiety & Distress Anxiety Subscale*

Mediator	Regression			Variance		
	$\beta$	$t$	$p$	$R^2$	$F$	$p$
SPS Total	0.265	2.435	0.017	0.155	6.991	0.002
Reassurance of Worth	0.229	2.150	0.035	0.202	9.743	<0.001
Attachment	0.245	2.386	0.019	0.226	11.237	<0.001

**Aim 2**

The second aim of the study was to investigate how interactions between adult attachment style, perception of social support, and reported level of distress influence reported openness to psychosocial service use and actual use of psychosocial services. Openness to psychosocial services was assessed using a 0-10 Likert-type scale, where 0 represented a complete lack of openness to services and 10 represented complete openness to psychosocial service use. Openness to psychiatric medication was evaluated separately from other types of services (e.g. counseling). We evaluated openness to psychosocial services at enrollment and during the follow-up call. Analyses include enrollment data from 81 women and follow-up data from 75 women. Overall sample means for openness to psychosocial services at enrollment and follow-up are provided in Table 16.

Table 16  
*Sample Openness to Psychosocial Services*

Scale	<i>n</i>	Min.	Max.	<i>M</i>	<i>SD</i>
Psychiatric Medication					
Enrollment	81	0	10	5.10	3.784
Follow-Up	75	0	10	4.95	3.770
Counseling Services					
Enrollment	81	0	10	6.64	3.075
Follow-Up	75	0	10	6.76	2.818

### **Hypothesis C**

We hypothesized that women who reported higher levels of distress would correspondingly report greater openness to psychosocial services. We conducted separate repeated-measures analyses of variance (RM-ANOVA's) for each combination of type of psychosocial service (medication and counseling) and each HADS scale/subscale (Total, Anxiety, and Depression).

We dichotomized the HADS Total scale and the Anxiety and Depression subscales into distressed versus non-distressed. We used these dichotomized versions of the HADS Total and subscales as independent variables. We evaluated openness to psychiatric medication separately from openness to counseling services at enrollment and again at the follow-up. Openness to psychosocial services was the dependent variable in each RM-ANOVA.

None of the analyses yielded significant interactions. However, both the HADS-T and HADS-D demonstrated significant main effects on openness to psychiatric medication across time. That is, participants who endorsed a greater

level of distress generally or depression particularly also endorsed greater openness to psychiatric medication. See Tables 17-22 for detailed results of each RM-ANOVA.

Table 17  
*Openness to Psychiatric Medication Across Time Among Distressed & Non-Distressed Participants*

HADS-T	Time	Mean	95% CI
Distressed ( <i>n</i> = 10)	Enrollment	7.40	[5.08, 9.72]
	Follow-Up	7.20	[4.88, 9.53]
Non-Distressed ( <i>n</i> = 65)	Enrollment	4.62	[3.70, 5.53]
	Follow-Up	4.60	[3.69, 5.51]
Effect	<i>F</i>	<i>df</i>	<i>p</i>
Time	0.069	1, 73	0.793
HADS-T	5.171	1, 73	0.026
Interaction	0.051	1, 73	0.822

Table 18  
*Openness to Psychiatric Medication Across Time Among Depressed & Non-Depressed Participants*

HADS-D	Time	Mean	95% CI
Depressed ( <i>n</i> = 9)	Enrollment	7.56	[5.11, 10.00]
	Follow-Up	8.11	[5.72, 10.51]
Non-Depressed ( <i>n</i> = 66)	Enrollment	4.64	[3.73, 5.54]
	Follow-Up	4.52	[3.63, 5.40]
Effect	<i>F</i>	<i>df</i>	<i>p</i>
Time	0.260	1, 73	0.612
HADS-D	7.088	1, 73	0.010
Interaction	0.632	1, 73	0.429

Table 19  
*Openness to Psychiatric Medication Across Time Among Anxious & Non-Anxious Participants*

HADS-A	Time	Mean	95% CI
Anxious (n = 20)	Enrollment	5.85	[4.20, 7.53]
	Follow-Up	5.35	[3.66, 7.04]
Non-Anxious (n = 55)	Enrollment	4.67	[3.66, 5.69]
	Follow-Up	4.80	[3.78, 5.82]
Effect	F	df	p
Time	0.357	1, 73	0.552
HADS-A	0.851	1, 73	0.359
Interaction	1.010	1, 73	0.318

Table 20  
*Openness to Counseling Across Time Among Distressed & Non-Distressed Participants*

HADS-T	Time	Mean	95% CI
Distressed (n = 10)	Enrollment	7.00	[5.05, 8.95]
	Follow-Up	7.60	[5.82, 9.38]
Non-Distressed (n = 65)	Enrollment	6.62	[5.85, 7.38]
	Follow-Up	6.63	[5.93, 7.33]
Effect	F	df	p
Time	0.401	1, 73	0.529
HADS-T	0.590	1, 73	0.445
Interaction	0.362	1, 73	0.549

Table 21  
*Openness to Counseling Across Time Among Depressed & Non-Depressed Participants*

HADS-D	Time	Mean	95% CI
Depressed (n = 9)	Enrollment	7.67	[5.62, 7.29]
	Follow-Up	8.11	[6.26, 9.97]
Non-Depressed (n = 66)	Enrollment	6.53	[5.78, 7.29]
	Follow-Up	6.58	[5.89, 7.26]
Effect	F	df	p
Time	0.232	1, 73	0.632
HADS-D	2.145	1, 73	0.147
Interaction	0.154	1, 73	0.696

Table 22

*Openness to Counseling Across Time Among Anxious & Non-Anxious Participants*

HADS-A	Time	Mean	95% CI
Anxious ( <i>n</i> = 20)	Enrollment	7.70	[6.35, 9.05]
	Follow-Up	7.20	[5.94, 8.46]
Non-Anxious ( <i>n</i> = 55)	Enrollment	6.29	[5.48, 7.11]
	Follow-Up	6.60	[5.84, 7.36]
Effect	<i>F</i>	<i>df</i>	<i>p</i>
Time	0.066	1, 73	0.798
HADS-A	2.250	1, 73	0.138
Interaction	1.186	1, 73	0.280

**Hypothesis D**

We originally hypothesized that women with a preoccupied attachment style would endorse greater openness to psychosocial services than women with any other attachment style. However, as mentioned in previous analyses, we dichotomized attachment styles by the anxiety and avoidance dimensions due to small sample sizes in the high anxiety categories (i.e. preoccupied and fearful-avoidant attachment styles). As in Hypothesis C, we evaluated openness to psychiatric medication separately from openness to counseling services, and both were evaluated at enrollment and again at follow-up.

We conducted separate repeated-measures analyses of variance (RM-ANOVA's) for each combination of type of psychosocial service (medication and counseling) and each dichotomized attachment dimension (anxiety and avoidance). Independent variables included adult attachment dimensions and change in openness to psychosocial services across time. In each case, openness



to psychosocial services was the dependent variable. As outlined in Tables 23-26, none of the analyses yielded significant interactions or main effects.

Table 23

*Openness to Psychiatric Medication Across Time by Attachment Anxiety*

ECR-Anxiety	Time	Mean	95% CI
High Anxiety ( <i>n</i> = 11)	Enrollment	6.46	[4.21, 8.70]
	Follow-Up	6.27	[4.00, 8.55]
Low Anxiety ( <i>n</i> = 63)	Enrollment	4.81	[3.87, 5.75]
	Follow-Up	4.71	[3.77, 5.66]
Effect	<i>F</i>	<i>df</i>	<i>p</i>
Time	0.130	1, 72	0.719
ECR-Anxiety	1.881	1, 72	0.174
Interaction	0.013	1, 72	0.910

Table 24

*Openness to Psychiatric Medication Across Time by Attachment Avoidance*

ECR-Avoidance	Time	Mean	95% CI
High Avoidance ( <i>n</i> = 29)	Enrollment	5.55	[4.16, 6.95]
	Follow-Up	5.17	[3.76, 6.59]
Low Avoidance ( <i>n</i> = 45)	Enrollment	4.73	[3.61, 5.85]
	Follow-Up	4.80	[3.67, 5.93]
Effect	<i>F</i>	<i>df</i>	<i>p</i>
Time	0.315	1, 72	0.576
ECR-Avoidance	0.480	1, 72	0.491
Interaction	0.642	1, 72	0.426

Table 25

*Openness to Counseling Across Time by Attachment Anxiety*

ECR-Anxiety	Time	Mean	95% CI
High Anxiety ( <i>n</i> = 11)	Enrollment	6.55	[4.68, 8.41]
	Follow-Up	6.09	[4.38, 7.80]
Low Anxiety ( <i>n</i> = 63)	Enrollment	6.64	[5.86, 7.41]
	Follow-Up	6.86	[6.14, 7.57]
Effect	<i>F</i>	<i>df</i>	<i>p</i>
Time	0.062	1, 72	0.805
ECR-Anxiety	0.253	1, 72	0.617
Interaction	0.522	1, 72	0.472

Table 26

*Openness to Counseling Across Time by Attachment Avoidance*

ECR-Avoidance	Time	Mean	95% CI
High Avoidance ( <i>n</i> = 29)	Enrollment	6.79	[5.65, 7.94]
	Follow-Up	6.90	[5.84, 7.95]
Low Avoidance ( <i>n</i> = 45)	Enrollment	6.51	[5.59, 7.43]
	Follow-Up	6.64	[5.80, 7.49]
Effect	<i>F</i>	<i>df</i>	<i>p</i>
Time	0.119	1, 72	0.731
ECR-Avoidance	0.185	1, 72	0.668
Interaction	0.002	1, 72	0.965

**Hypothesis E**

We hypothesized that perception of social support would mediate the effects of adult attachment style and level of distress in predicting openness to psychosocial services. We tested this hypothesis using a process similar to the three-step analysis outlined in Hypothesis B. That is, we performed a series of simple and multiple linear regressions to examine relationships between adult

attachment, distress, and openness to psychosocial services with social support as a mediator.

Dichotomized adult attachment dimensions and the HADS Total and subscales were independent variables. Openness to psychosocial services was the dependent variable. The SPS Total and each of the perceived social support subscales were examined as potential mediators. We evaluated potential mediation effects for every combination of scales and subscales across the measures.

As in Hypothesis B, we examined these relationships using the three-step process outlined by Baron and Kenny (1986). First, the dependent variable (openness to psychosocial services) was regressed on the independent variables (ECR and HADS) to confirm the independent variables as significant predictors of the dependent variable. Theoretically, the second step would have been to regress the mediator (SPS) on the independent variables to confirm the independent variables as significant predictors of the mediator. The third step would have been to regress the dependent variable on the mediator and both of the independent variables. The third step would have acted to confirm the mediator as a significant predictor of the dependent variable while controlling for the influences of the independent variables. However, we did not conduct analyses beyond the first step as none of the ECR/HADS combinations yielded significant effects as predictors of openness to either psychiatric medication or counseling.

## **Hypothesis F**

We hypothesized that women who reported a higher level of distress would correspondingly report greater utilization of psychosocial services. To assess change in utilization of psychosocial services between enrollment and follow-up, we examined these relationships by first conducting McNemar tests for each pairing of the same type of psychosocial service use at enrollment and at follow-up. That is, we compared psychiatric medication use at enrollment to psychiatric medication use at follow-up for overall psychiatric medication, anti-anxiety medication, antidepressants, and prescription sleep aids. The same process was conducted for types of counseling service use at enrollment and at follow-up for each type of counseling service. None of the McNemar tests demonstrated significant change in utilization of psychosocial services between enrollment and follow-up. Given the lack of significant change and given that distress was only measured enrollment, we conducted subsequent analyses for Hypothesis F using only psychosocial service use at enrollment.

We completed chi square ( $\chi^2$ ) analyses to evaluate associations between utilization of each type of psychosocial service and total distress, anxiety, and depression as measured dichotomously by the HADS total scale and subscales (see Tables 27 and 28). We evaluated significance using Fisher's exact test in cases where cells had expected cell counts of less than five. The total sample size ( $N$ ) was 81 and  $df = 1$  for all chi square analyses.

Table 27

*Association between Psychiatric Medication Use & Distress*

Medication Type	HADS	↑HADS <sup>b</sup>	↓HADS <sup>b</sup>	$\chi^2$	<i>p</i>
Overall Use	Total	8 (72.7%)	30 (42.9%)	3.406	0.065
	Anxiety	13 (59.1%)	25 (42.4%)	1.798	0.180
	Depression	9 (81.8%)	29 (41.4%)	6.227	0.013
Anti-Anxiety	Total	6 (54.5%)	7 (10.0%)	14.000	0.002 <sup>a</sup>
	Anxiety	8 (36.4%)	5 (8.5%)	9.251	0.005 <sup>a</sup>
	Depression	5 (45.5%)	8 (11.4%)	8.169	0.013 <sup>a</sup>
Anti-Depressant	Total	7 (63.6%)	20 (28.6%)	5.260	0.028 <sup>a</sup>
	Anxiety	10 (45.5%)	17 (28.8%)	1.997	0.158
	Depression	8 (72.7%)	19 (27.1%)	8.889	0.005
Sleep	Total	3 (27.3%)	12 (17.1%)	0.646	0.330 <sup>a</sup>
	Anxiety	4 (18.2%)	11 (18.6%)	0.002	0.619
	Depression	4 (36.4%)	11 (15.7%)	2.686	0.114

*Note.* <sup>a</sup>Fisher's Exact 2-sided significance used due to expected cell count <5.

<sup>b</sup>Portion of sample meeting condition as *n* (%).

As shown in Table 27, we observed significant associations between overall medication use and elevated scores on the HADS depression subscale. Significant associations were also evident between anti-anxiety medication use and elevated scores on the HADS total score as well as anxiety and depression subscales. Antidepressant use at the time of enrollment demonstrated significant associations with elevated overall distress (HADS-T) and an elevated depression subscale (HADS-D). Sleep medication use did not appear significantly association with either the HADS total scale or the subscales (HADS-A and HADS-D). The only significant association we observed regarding counseling service use existed between elevated anxiety on the HADS-A and participation in individual therapy.

Table 28

*Association between Counseling Service Use & Distress*

Counseling Type	HADS	↑HADS <sup>b</sup>	↓HADS <sup>b</sup>	$\chi^2$	<i>p</i>
Overall Use	Total	3 (27.3%)	14 (20.0%)	0.303	0.417 <sup>a</sup>
	Anxiety	6 (27.3%)	11 (18.6%)	0.719	0.288 <sup>a</sup>
	Depression	3 (27.3%)	14 (20.0%)	0.303	0.417 <sup>a</sup>
General Group	Total	0 (0.0%)	2 (2.9%)	0.322	0.745 <sup>a</sup>
	Anxiety	2 (9.1%)	0 (0.0%)	5.499	0.071 <sup>a</sup>
	Depression	0 (0.0%)	2 (2.9%)	0.322	0.745 <sup>a</sup>
Cancer Group	Total	1 (9.1%)	10 (14.3%)	0.219	0.538 <sup>a</sup>
	Anxiety	1 (4.5%)	10 (16.9%)	2.101	0.137 <sup>a</sup>
	Depression	2 (18.2%)	9 (12.9%)	0.230	0.462 <sup>a</sup>
Internet Group	Total	0 (0.0%)	1 (1.4%)	0.161	0.862 <sup>a</sup>
	Anxiety	0 (0.0%)	1 (1.7%)	0.384	0.725 <sup>a</sup>
	Depression	0 (0.0%)	1 (1.4%)	0.161	0.862 <sup>a</sup>
Individual Therapy	Total	2 (18.2%)	4 (5.7%)	2.154	0.186 <sup>a</sup>
	Anxiety	4 (18.2%)	2 (3.4%)	5.112	0.044 <sup>a</sup>
	Depression	1 (9.1%)	5 (7.1%)	0.053	0.596 <sup>a</sup>

*Note.* <sup>a</sup>Fisher's Exact 2-sided significance used due to expected cell count <5.

<sup>b</sup>Portion of sample meeting condition as *n* (%).

### Hypothesis G

Originally, we had hypothesized that women with a preoccupied attachment style would report greater use of psychosocial services than those with any other attachment style. However, we evaluated associations between psychosocial service use and attachment style using dichotomized attachment anxiety and avoidance dimensions due to small sample sizes in the high anxiety attachment categories. Given the lack of significant change we observed in utilization of psychosocial services between enrollment and follow-up, and given

that adult attachment was only measured at enrollment, we conducted subsequent analyses for Hypothesis G using only psychosocial service use at enrollment.

Similarly to Hypothesis F, we completed chi square ( $\chi^2$ ) analyses to evaluate associations between utilization of each type of psychosocial service and dichotomous anxiety and avoidance attachment dimensions. We evaluated significance using Fisher's exact test in cases where cells had expected cell counts of less than five. The total sample size (N) was 81 and  $df = 1$  for all chi square analyses.

Table 29

*Association between Psychiatric Medication Use & Adult Attachment*

Medication Type	ECR	↑ECR <sup>b</sup>	↓ECR <sup>b</sup>	$\chi^2$	<i>p</i>
Overall Use	Anxiety	6 (50.0%)	32 (47.1%)	0.035	0.851
	Avoidance	18 (58.1%)	20 (40.8%)	2.265	0.132
Anti-Anxiety	Anxiety	1 (8.3%)	12 (17.6%)	0.650	0.377 <sup>a</sup>
	Avoidance	5 (16.1%)	8 (16.3%)	0.001	0.981
Anti-Depressant	Anxiety	6 (50.0%)	21 (30.9%)	1.667	0.168 <sup>a</sup>
	Avoidance	13 (41.9%)	14 (28.6%)	1.517	0.218
Sleep	Anxiety	3 (25.0%)	12 (17.6%)	0.362	0.398 <sup>a</sup>
	Avoidance	8 (25.8%)	7 (14.3%)	1.654	0.198

*Note.* <sup>a</sup>Fisher's Exact 2-sided significance used due to expected cell count <5.

<sup>b</sup>Portion of sample meeting condition as *n* (%).

Table 29 outlines chi square analyses of psychiatric medication use and adult attachment dimensions. Table 30 outlines chi square analyses of counseling service use and adult attachment dimensions. Only those counseling services participants reported participating in at the time of enrollment are included in Table 30. As shown in Tables 29 and 30, none of the analyses indicated

significant associations between psychosocial service use and adult attachment dimensions.

Table 30

*Association between Counseling Service Use & Adult Attachment*

Counseling Type	ECR	↑ECR <sup>b</sup>	↓ECR <sup>b</sup>	$\chi^2$	<i>p</i>
Overall Use	Anxiety	2 (16.7%)	15 (22.1%)	0.177	0.507 <sup>a</sup>
	Avoidance	8 (25.8%)	9 (18.4%)	0.628	0.428
General Group	Anxiety	0 (0.0%)	2 (2.9%)	0.362	0.721 <sup>a</sup>
	Avoidance	1 (3.2%)	1 (2.0%)	0.109	0.628 <sup>a</sup>
Cancer Group	Anxiety	0 (0.0%)	11 (16.2%)	2.251	0.146 <sup>a</sup>
	Avoidance	5 (16.1%)	6 (12.2%)	0.242	0.430 <sup>a</sup>
Internet Group	Anxiety	0 (0.0%)	1 (1.5%)	0.181	0.848 <sup>a</sup>
	Avoidance	0 (0.0%)	1 (2.0%)	0.620	0.620 <sup>a</sup>
Individual Therapy	Anxiety	2 (16.7%)	4 (5.9%)	1.710	0.219 <sup>a</sup>
	Avoidance	3 (9.7%)	3 (6.1%)	0.346	0.429 <sup>a</sup>

*Note.* <sup>a</sup>Fisher's Exact 2-sided significance used due to expected cell count <5.

<sup>b</sup>Portion of sample meeting condition as *n* (%).

### Hypothesis H

Finally, we hypothesized that social support would mediate the influence of adult attachment style and levels of distress on use of psychosocial services. Specifically, we hypothesized that individuals with either a secure or dismissing adult attachment style would report lower levels of distress and lower utilization of psychosocial services compared to individuals who report either a fearful or preoccupied adult attachment style. We evaluated these potential mediation relationships using a three-step process similar to that applied in Hypotheses B and E. However, we modified the process by applying logistic regressions rather



than multiple regressions in the first and third steps to accommodate for the dichotomous nature of the dependent variable. We examined psychosocial service use by overall psychiatric medication use and overall counseling service use. As outlined previously, we conducted adult attachment analyses using dichotomized versions of the anxiety and attachment dimensions due to small sample sizes in the high anxiety categories. We investigated total scales and subscales for perceived social support and dichotomized distress.

First, we conducted a binary logistic regression to regress psychosocial service use on the independent variables (adult attachment and distress). We observed Hosmer-Lemeshow significance to assess the fit of the data to our model. We also observed logistic coefficient ( $B$ ) and Wald test significance ( $p$ ) values. Lower logistic coefficient values indicate less influence in predicting the dependent variable. If either of the independent variables demonstrated significance ( $p \leq 0.05$ ), we continued to the second step. The HADS depression subscale demonstrated significance when regressed on overall psychiatric medication use with both adult attachment dimensions.

In the second step, we conducted linear regression by regressing the mediator (social support) on the independent variables (adult attachment and distress) to confirm attachment and distress as significant predictors of perceived social support. Attachment avoidance demonstrated significance as a predictor of several dimensions of perceived social support.

In the third step, we conducted binary logistic regressions by regressing the dependent variable (psychosocial service use) on the mediator (perceived social support) and the independent variables (adult attachment and distress). This process acted to confirm social support as a significant predictor of psychosocial service use while controlling for adult attachment and distress. As in the first step, we observed Hosmer-Lemeshow significance to assess the fit of the data to our model as well as logistic coefficient ( $B$ ) and Wald test significance ( $p$ ) values for the independent variables.

As shown in Table 31, elevated depression and attachment avoidance acted as significant predictors for psychiatric medication use with perceived social support as a mediator. This pattern was observed across mediators including overall perceived social support as well as social support subscales of guidance, social integration, and attachment. In each case, perceived social support was inversely related to depression, attachment avoidance, and openness to psychiatric medication. The guidance subscale assesses perceived availability of information and advice whereas the social integration subscale assesses a feeling of belonging to a group (Cutrona & Russell, 1987). Analyses indicated that women who endorsed elevated levels of depression and greater attachment avoidance were 6.5 – 7.5 times more likely to use psychiatric medication in the context of lower overall perceived social support or subscales of guidance, social integration, or attachment.

Table 31

*Perceived Social Support as a Mediator in the Influence of Depression and Attachment Avoidance on Use of Psychiatric Medication*

Mediator	<i>B</i>	Wald	<i>p</i>	Odds Ratio	95%CI for OR	
					Lower	Upper
SPS Total	1.943	5.361	0.021	6.981	1.348	36.168
Guidance	1.886	5.063	0.024	6.594	1.275	34.095
Social Integration	1.902	5.212	0.022	6.702	1.309	34.313
Attachment	2.017	5.633	0.018	7.519	1.421	39.779

### Summary of Significant Results

Table 32

*Summary of Significant Results*

#### Hypothesis

- B. ↑ ECR Anxiety → (↓ SPS Total) → ↑ HADS Total & Anxiety  
 ↑ ECR Anxiety → (↓ SPS RoW<sup>a</sup>) → ↑ HADS Total & Anxiety  
 ↑ ECR Anxiety → (↓ SPS Attachment) → ↑ HADS Total & Anxiety
- C. ↑ HADS Total → ↑ Openness to Psychiatric Medication  
 ↑ HADS Anxiety → ↑ Openness to Psychiatric Medication
- F. ↑ HADS Total ≈ ↑ Psych. Med. Use & ↑ Anxiolytic Use  
 ↑ HADS Anxiety ≈ ↑ Anxiolytic Use & ↑ Individual Therapy Use  
 ↑ HADS Depression ≈ ↑ Psych. Med., ↑ Anxiolytic, & ↑ Antidepressant
- H. ↑ HADS Depression with ↑ ECR Avoidance →  
 (↓ SPS Total, Guidance, Social Integration, & Attachment) →  
 ↑ Psychiatric Medication Use

*Note.* <sup>a</sup> RoW = Reassurance of Worth. Terms in parentheses indicate mediation effects. ↑ = Elevated. ↓ = Inverse relationship. Forward arrows (→) do not indicate causality. ≈ Indicates statistically significant association.

## CHAPTER FIVE

### DISCUSSION

#### **Findings**

##### **Sample Characteristics**

**Demographics.** Despite efforts to enroll a diverse sample, the majority of women who agreed to participate in the study were Caucasian, had private insurance coverage, had at least some college education, and had an annual household income of greater than or equal to \$90K. Research has demonstrated non-White ethnicity, lack of health insurance, and less than high school education as risk factors for elevated distress (Kaiser et al., 2010). The demographic characteristics of our sample likely influenced the levels of reported distress.

**Disease characteristics.** The sample was also skewed in terms of disease characteristics. Diagnoses of ovarian cancer were disproportionately represented among the women. The poor prognosis associated with a diagnosis of ovarian cancer may be expected to elevate distress levels. However, a large portion of the sample (44.4%) were diagnosed at Stage I and the average ECOG and Karnofsky Performance scores for the sample suggest the majority of participants were medically stable at the time of enrollment. These factors would likely lower reported distress.

In their systematic review, Harrington et al. (2010) reported levels of depression and anxiety among women with gynecologic cancers appear highest during the first three months following diagnosis. In our sample, the average time since diagnosis was nearly four years and the standard deviation for the mean number of months elapsed since diagnosis was nearly 5 years. Given that cancer prognoses are often referenced in terms of 5-year survival rates, and given that patterns of distress fluctuate across the disease trajectory, number of months since diagnosis likely influenced other study variables such as levels of distress.

**Mental health information.** It is important to acknowledge a few caveats regarding mental health history reported by the women. First, almost half of the sample was prescribed a psychoactive medication at the time of enrollment. While some were prescribed medications for mental health symptoms, many of the women were prescribed antidepressants as an adjunctive treatment for menopausal symptoms, e.g. hot flashes. Second, many of the women were using over-the-counter supplements (e.g. essential fatty acids, herbal sleep aids, melatonin, etc.) or other complementary approaches (e.g. acupuncture, hormone therapy, etc.) to address symptoms that might otherwise be addressed through psychiatric medications. Levels of distress among the women were likely impacted by use of complementary treatments and psychoactive medications, whether adjunctive or otherwise.

Third, some of the women demonstrated difficulty recalling their current or past medication use and some appeared uncertain of the medication's purpose. Fourth, as with many areas of mental health, women may be reluctant to fully disclose their current or past psychoactive medication use out of concern for stigma. Finally, the therapy services most frequently endorsed were cancer support groups and individual therapy. These are also services available through the hospital to patients free of charge. Each of these factors potentially influenced hypotheses involving use of psychosocial services.

**Performance across measures.** Our sample performance across measures yielded somewhat surprising distributions. For example, only 11 women (13.6%) endorsed clinically significant levels of distress. In addition, the women endorsed high levels of perceived social support. However, these results are less surprising in the context of demographic and illness factors outlined above.

The distribution of attachment styles was more surprising, particularly the low sample sizes in the Preoccupied ( $n = 5$ ) and Fearful-Avoidant ( $n = 7$ ) adult attachment categories. However, in their 6-year longitudinal study, Zhang and Labouvie-Vief (2004) observed, "Older people tended to report higher secure and dismissing ratings" (p. 432). The authors hypothesized this shift may reflect cohort effects or, alternatively, "older people who experience declines in resources may deal with losses of attachment relationships (such as losses of spouses and close friends) and declined self-capacity by defensively placing more

emphasis on independence and self-reliance and less emphasis on interdependence” (Zhang & Labouvie-Vief, p. 432). Previous research has identified associations between attachment and distress, social support, and use of psychosocial services (Cicero et al., 2009; Lo et al., 2009; Riggs et al., 2002). Given these associations, it is likely our sample distribution of attachment styles influenced other variables. Unfortunately, small sample sizes in the high attachment anxiety categories limited our statistical analyses in understanding relationships between attachment style and other study variables.

### **Aim 1**

Given the limited research available on relationships between adult attachment, perceived social support, and distress, we chose to begin by examining these variables in relationship to one another. As such, the first aim of the study was to assess the influence of adult attachment style and perception of social support on the reported level of distress.

**Hypothesis A.** We began by investigating relationships between adult attachment and distress. Based on previous research, we expected to observe women with high attachment anxiety to endorse higher levels of distress than those with high attachment avoidance (Maunder & Hunter, 2009; Vogel & Wei, 2005). However, none of our analyses of each of the distress scales and dichotomized attachment dimensions demonstrated significant interactions or

main effects. This may reflect influences of disease characteristics, such as time since diagnosis and an overall medically stable sample. However, it may also indicate a more complex relationship between attachment style and distress or interactions with other variables.

**Hypothesis B.** Our next series of analyses introduced the possibility of social support as a mediator in the influence of adult attachment style on endorsed levels of distress. Total perceived social support and the reassurance of worth and attachment subscales demonstrated significant mediating effects on the relationships between attachment anxiety and level of distress. The reassurance of worth subscale measures the degree to which the individual feels their abilities are recognized, whereas the attachment subscale measures the degree to which their needs for closeness and intimacy are met (Cutrona & Russell, 1987).

We observed social support mediation patterns for total distress and anxious distress with attachment anxiety. Specifically, the social support attachment subscale accounted for 25.2% of the variance in the model evaluating attachment anxiety and total distress and accounted for 22.6% of the model variance in evaluating the relationship between attachment anxiety and anxious distress. These results are not surprising given that attachment anxiety reflects doubt in being worthy of care, and is characterized by fear of abandonment and enhanced emotional distress (Cicero et al., 2009; Hunter et al., 2006; Porter, Davis, & Keefe, 2007).



## **Aim 2**

The second aim of the study was to investigate how interactions between adult attachment style, perception of social support, and reported level of distress influence reported openness to psychosocial service use and actual use of psychosocial services. These hypotheses attempt to understand the disparity between reported levels of distress and use of psychosocial services.

**Hypotheses C and F.** Investigation of the relationships between distress and openness to psychosocial services indicated that levels of depression and overall distress have a significant effect on openness to psychiatric medication across time. That is, participants who endorsed a greater level of depression or overall distress also endorsed greater openness to psychiatric medication. These findings are consistent with previous research regarding interests in and general use of psychosocial services in the context of distress (Baker-Glenn et al., 2011, Zebrack et al., 2009).

It is interesting that levels of distress and depression did not have a significant effect on openness to counseling services, particularly given that other research has demonstrated the opposite effect, i.e. greater interest in counseling services than medication (Baker-Glenn, 2011). It is possible this reflects a cohort effect as research indicates individuals above the age of 55 are less likely to use psychotherapy services than those between the ages of 18 and 54 years old, and

mental health treatment with medication alone has increased significantly in recent years (Olfson & Marcus, 2010).

When we examined actual use of psychosocial services in the context of distress, we observed significant associations between elevated distress and utilization of psychiatric medication. Specifically, elevated overall distress was associated with use of anxiolytics and antidepressants. Elevated depression was associated with overall psychiatric medication use, anxiolytic medication use, and antidepressant use. Elevated anxiety was associated with anxiolytic use and participation in individual therapy. That is, while openness to psychosocial services was only significantly associated with overall distress and anxiety, use of various types psychiatric medication was associated with overall distress, anxiety, and depression.

**Hypotheses D and G.** Based on previous research, we anticipated that individuals with high attachment anxiety would endorse greater openness to and use of psychosocial services (Maunder & Hunter, 2009). However, adult attachment did not demonstrate significant relationships with either openness to psychosocial services nor actual use of services. Although our results may be partially due to small sample sizes the high anxiety attachment groups, they are interesting to consider in the context of other results. For example, we observed significant mediating effects of social support in the relationship between adult attachment and distress. Given this, the lack of significant direct relationships

between adult attachment and psychosocial services supports the need to consider potential mediating influences, e.g. social support and distress.

**Hypotheses E and H.** Our most complex hypotheses explored potential mediation effects of perceived social support on the influences of distress and adult attachment on openness to and use of psychosocial services. Curiously, we did not observe significant mediation relationships for openness to psychosocial services, but did observe significant mediation relationships for use of psychosocial services. This may be partially explained by inconsistent wording on questions of openness to psychosocial services, which is subjective, versus the objective report in the case of current service use.

In our analyses, lower perceived social support significantly mediated the relationship of elevated depression and high attachment avoidance with increased use of psychiatric medication. This effect was observed for overall support and the guidance, social integration, and attachment social support subscales.

### **Limitations**

Most of the limitations of this study are related to study design. To begin with, the study would have yielded more meaningful information if it had been conducted as a multi-site, longitudinal design in which participants were enrolled shortly following diagnosis and followed at 3-6 months periods over the course of five years. Conducting a multi-site, longitudinal study would have allowed greater

opportunity to re-administer measures (e.g. distress, perceived social support, and use of psychosocial services), thereby providing much richer information about relationships between these variables across the disease trajectory. Doing so also would have helped reveal differences across cancer diagnosis and stage at diagnosis and increased generalizability overall.

Generalizations based on our current sample would be most appropriate for wealthy Caucasian women over the age of 60 with a diagnosis of ovarian cancer. Although we did not assess religious beliefs directly, many participants clearly referenced their faith beliefs and faith communities when identifying barriers to psychosocial service use. Each of these factors limit the usefulness of applying our results to other populations.

Inclusion of age-matched controls would have been a significant addition to the study, particularly given the broad age range represented within our sample and changing attitudes toward psychosocial service use. We also may have gained useful information by including home location (i.e. urban, suburban, or rural) given that previous research has identified relationships with healthcare disparities and use of psychosocial services (Beesley et al., 2010; Burris & Andrykowski, 2010). Although participants were given a list of psychosocial resources, those resources were limited to the Dallas area. Multi-site administration would help address many of these concerns.

Self-selection bias may have influenced participation, particularly in terms of adult attachment style and level of distress. For example, numerous women remarked anecdotally that their distress levels would have been more significant closer to the time of their diagnosis. However, many of the same women acknowledged they would have been less willing to participate voluntarily in research at that time.

Another significant concern related to study design is the selection of formal measures, particularly the adult attachment measure. Although the ECR has demonstrated acceptable psychometrics, the measure seems poorly suited to a medical setting given that the items are oriented toward assessing romantic relationships. The orientation of the ECR toward romantic relationships was also problematic for women who had either limited history of romantic relationships, had experienced drastically different types of relationships across their life, had been single/widowed for numerous years, or had been committed to the same partner for a long period of time (Lo et al., 2009).

The face validity of the ECR may have negatively impacted the accuracy of its assessment. A clear example of this is one woman who began answering the items but adamantly refused to proceed once she read the content of the items. In addition to potential effects of face validity, numerous women endorsed difficulty understanding the items, particularly those that were reverse scored. Although the ECR does not include a consistency index, we observed drastic

contrasts in responses to similar items. Finally, scoring revealed a strong tendency for women to respond in terms of extremes. Given the time and financial resources, an adult attachment interview would have likely provided much more accurate information regarding the participants' adult attachment styles.

In terms of informal measures, the Mental Health and Disease Characteristics questionnaires both demonstrated notable problems. The Mental Health questionnaire would have been greatly improved by writing specifically worded items, rather than more simplistic prompts. This would have helped improve administration consistency, which suffered due to changing phrasing of prompts over time and due to multiple administrators. Administration consistency was especially problematic in assessment of openness and barriers to psychosocial services. Use of a formalized measure would greatly reduce these design concerns. Furthermore, the quality of information would have been improved by administration of a clinical interview or provision of previous mental health records to improve diagnostic accuracy. For example, we noted several inconsistencies between the participant's self-reported mental health history and the limited mental health history provided through the electronic medical records.

Regarding Disease Characteristics, reliability of data would have been improved by being recorded by an administrator with medical training. Although we gathered information from electronic medical records (with participant approval), participants were treated by one or more of five different gynecologic

oncologists, each of whom recorded patient health information slightly differently. Additionally, several women reported a history or presence of a cancer diagnosis other than their primary gynecologic cancer diagnosis. The experiences of being diagnosed with more than one type of cancer and undergoing treatment for any additional diagnoses undoubtedly impacted their symptom presentation and emotional experience. Finally, several women reported using complementary and alternative medicine (CAM) approaches in addition to surgery, chemotherapy, or radiation. These treatments often include supplement, hormone therapy, acupuncture, dietary changes, and so forth, which can further impact the physical and emotional experience of cancer.

### **Clinical Implications**

The precise nature of relationships between adult attachment, distress, perceived social support, and openness to and use of psychosocial services remains unclear. However, this study reinforces the utility and importance of considering these factors when providing psychosocial services to women with gynecologic cancers. The discrepancy between the prevalence of distress and use of psychosocial services is concerning given the extensive health implications for the individual patient as well as medical institutions. Our results suggest that adult attachment dimensions influence not only distress, but also use of psychosocial services.

In addition to the results of our analyses, many of women who participated in the study indicated it would have been helpful to receive a list of psychosocial resources at the time of their diagnosis. Past research has indicated that women may be reluctant to initiate conversation with medical providers about emotional distress and ways of addressing distress for various reasons (Baker-Glenn et al., 2011; van Beljouw et al., 2010). Providing a list of psychosocial referrals would enhance patient autonomy and increase patients' empowerment and awareness of available resources (van Beljouw et al, 2010).

### **Future Research Directions**

Despite the limitations, our study provided further evidence of complex relationships between adult attachment style, perception of social support, reported distress, and openness to and use of psychosocial services in the context of gynecologic cancer. Our analyses appear consistent with results reported by Vogel and Wei (2005) in their study of adult attachment, perception of social support, reported distress, and intention to seek counseling. However, the respective contributions of adult attachment style and perceived social support remain unclear. These contributions would be clarified by conducting a multi-site, longitudinal study with a much greater sample size as outlined above. Greater understanding of barriers to psychosocial service in the context of these variables



would improve the ability to offer services to patients from a clinically informed perspective.

### **Conclusion**

Despite limited sample size and significant design limitations, our analyses provide support for meaningful interactions between adult attachment style, perceived social support, reported distress, and openness to and use of psychosocial services. Clearer understanding of these relationships could guide care providers in being able to more effectively provide services to women who are experiencing significant distress but fail to access services. More effective provision of services and subsequent reduction in distress would likely improve health outcomes. Future research would benefit from further study of these variables.

APPENDIX A

FIGURES



APPENDIX B

TABLES

Table 33

*Barriers to implementing best evidence psychosocial care and proposed strategies to address them*

Barriers to care	Proposed strategies to overcome barrier
<i>Predisposing factors</i>	
Knowledge of best practice social care	Undergraduate and postgraduate training on what constitutes best evidence psychosocial oncology care
Doctors' & patients/ beliefs' & expectations regarding psychosocial care	Local professional opinion leaders creating an expectation that psychosocial issues should be addressed by doctors Empowering patients to discuss psychosocial issues
Valuing psychosocial care as important	Valuing psychosocial care as important Documented agreement by health-care providers, health administrators and consumer representatives that psychosocial issues are a high priority
Perceived ability to provide best practice psychosocial care	Provide training opportunities for observing and practicing desired psychosocial skill set
<i>Enabling factors</i>	
Time	Education using experimental data to correct misperceptions that addressing psychosocial issues is excessively time consuming
Skills to detect psychosocial concerns	Training programs to provide clinicians with behavioral skills necessary for accurate detection of psychosocial concerns in patients
Skills to manage psychosocial concerns	Training programs to provide clinicians with behavioral and pharmacological knowledge and skills to manage psychosocial distress
Systems to support assessment and management of psychosocial concerns	Introduction of data collection systems to monitor patients' psychosocial needs which should be rapidly available to doctors and provide direction on evidence-based management
Reminders about psychosocial care	Systemic, routine reminders to providers prompting them to implement appropriate psychosocial care
Resources to facilitate the management of psychosocial concerns	Organizational and government prioritizing of funds to provide appropriate resources such as, private consultation spaces, allied health professionals for referrals, and patient information
Role definition	Organizational agreement to clarify which health-care provider has primary responsibility for dealing with psychosocial issues and when specialist referral is necessary
Psychosocial support network	Provision of formal systems of peer support to address professional stress
<i>Reinforcing factors</i>	
Feedback on performance	Introduction of cost-effective systems to assess how well patients' psychosocial needs are managed Information collected should allow individual provider's behavior' to be compared to best-evidence practice and with peers
Rewards for performance	Provision of intangible rewards, such as, public recognition, and tangible rewards, such as, promotion for those who meet best-evidence guidelines
Negative consequences	While a strongly punitive approach should be avoided, intractable failure to provide adequate psychosocial care should result in specific, additional training for the identified provider
Schofield, P., Carey, M., Bonevski, B., & Sanson-Fisher, R. (2006). Barriers to the provision of evidence-based psychosocial care in oncology. <i>Psycho-oncology</i> , 15(10), 863-872	

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