

VERBAL AND NONVERBAL SOCIAL SUPPORT BY COMPANIONS AND MEDICAL
PROVIDERS IN DECISION MAKING APPOINTMENTS FOR NEWLY DIAGNOSED
BREAST CANCER PATIENTS

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Communication – Doctor of Philosophy

2013

ABSTRACT

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Past studies have shown that breast cancer patients require social support from family members and friends, as well as their medical providers. Although much research has focused on the types of social support that cancer patients desire, considerably less research has focused on what types of social support are received by cancer patients, within the medical setting from medical providers, as well as from accompanying family members and friends, termed companions. This need for social support can be explained by the stress and coping perspective. According to the stress and coping perspective, it is important for individuals under stress to seek methods to manage stress in order to avoid negative consequences concerning one's physical and mental health. Social support has been found to be an effective coping method, particularly for those experiencing stress due to a breast cancer diagnosis.

This study reports an analysis of verbal social support utterances transmitted by nurses, breast cancer surgeons and patient companions to breast cancer patients in a medical setting. Specifically, 46 videotapes featuring nurses, breast cancer surgeons, breast cancer patients, and patient companions discussing treatment options were analyzed alongside pre and post-test survey measures of patient mental adjustment to cancer, satisfaction with her surgeon and intended adherence to her treatment regimen. The social support behavior code (SSBC) was used to examine verbal social support. Relationships between social support provided and patient mental adjustment to cancer, satisfaction with surgeon and intended adherence to one's treatment

regimen were investigated. Relationships between provider and companion social support, as well as provided social support and cancer stage were also analyzed. Finally, a nonverbal behavior code was developed for this study to perform an exploratory examination of nonverbal social support given by providers and companions.

Results demonstrated the majority of units spoken by surgeons and nurses were coded as verbal social support, mostly in the form of informational social support, while companion social support was significantly lower in nearly every category of social support assessed. Findings did not support a relationship between verbal social support and patient mental adjustment to cancer, satisfaction with one's surgeon, or intended adherence to one's treatment regimen. Additionally, companion presence was linked to the receipt of more network support from the patient's surgeon, whereas no links were found between patient cancer stage and received social support. The application of the nonverbal coding scheme developed for this project for exploratory purposes revealed the challenges of measuring a wide range of nonverbal behavior in this context, particularly due to the low instances of nonverbal social support exhibited by all three sources. Overall, the verbal results point to low emotional support for patients during these appointments, which calls for changes to be made in empathy trainings for medical providers. Additionally, future work should seek to validate the nonverbal social support measurement used in this research by conducting studies with a diverse array of audiences, and most importantly through interacting with patients. This work could lead to a greater understanding of the stress and coping perspective in the provider-patient setting.

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INTRODUCTION

Social support can be defined as “verbal and nonverbal communication between recipients and providers that helps manage uncertainty about the situation, the self, the other or the relationship and functions to enhance a perception of personal control in one’s life experience,” (Albrecht & Goldsmith, 2003, p.265). Research with breast cancer patients has found receipt of social support to be crucial, as it has been repeatedly linked to improvements in patients’ psychological health, physical health and quality of life (Arora, Finney Rutten, Gustafson, Moser & Hawkins, 2007; Kroenke, Kubzansky, Schernhammer, Holmes, & Kawachi, 2008; Neuling & Winefield, 1988; Roberts, Cox, Reintgen, Baile & Gibertini, 1994; Slevin, Nichols, Downer, Wilson, Lister, Arnott, Maher et al., 1996). Regarding types of social support, Cutrona and Russell (1990) have described five, including: emotional support which conveys comfort and caring, network support which allows individuals to feel connected to others like them, esteem support which promotes an individual’s self-esteem, tangible aid which involves giving physical assistance, and informational support which provides knowledge or ideas regarding problem resolution. Suhr, Cutrona, Krebs, and Jensen (2004) later identified negative behaviors that may actually reduce feelings of social support within an individual. Research with breast cancer patients finds that emotional support is valued from family and friends, while emotional and information support is valued from providers (Dakof & Taylor, 1987; Dunkel-Schetter, 1984; Neuling, & Winefield, 1988), and the impact of negative behaviors is not well known.

Family members, friends, and providers are common sources of support for breast cancer patients. The intersection of social support from these various sources is most likely to occur in

medical settings, because family and friends often act as medical appointment companions to patients by accompanying them to visits. Companions are especially common for individuals facing a severe diagnosis such as cancer (Glasser, Prohaska & Gravdal, 2001; Rosland, Piettle, Choi, & Heisler, 2011; Schilling, Scatena, Steiner, Albertson, Lin, Cyran, Ware, & Anderson, 2002), and are recommended for breast cancer patients during critical points of decision making (Roberts et al., 1994). The presence of companions is generally linked to positive outcomes for patients, including higher motivation to comply with physician recommendations, a broader discussion of topics during appointments, a greater understanding of physician advice, and higher overall physician satisfaction (Glasser et al., 2001; Labrecque, Blanchard, Ruckdeschel & Blanchard, 1991; Rosland et al., 2011). Although social support has been identified as a common role for companions (Beisecker et al., 1996; Cordella, 2011; Ellingson, 2002), social support provision by companions might actually detract from provider social support provision to the patient during medical appointments (Labrecque et al., 1991). Hence, more specific information such as the amount and types of social support enacted by both providers and companions in the medical setting is needed to better understand not only what types of social support are present, but perhaps more importantly, what types of social support are absent that patients may need to better cope and process important information in the interaction. It also is necessary to understand the outcomes associated with provider and companion social support within medical interactions. One theory that can explain the benefits of social support is Lazarus's (1966) stress and coping perspective. The stress and coping perspective defines stressful events as those which drain an individual of his or her abilities and resources (Lazarus, 1966; Lazarus & Folkman, 1984). A breast cancer diagnosis qualifies as a stressful event as it is a taxing experience that often creates stress in the lives of patients (Andrykowski, Cordova, Studts, & Miller, 1998;

Campos, Besser, Ferreira, & Blatt, 2012; Koopman, Angell, Turner-Cobb, Kreshka, Donnelly, McCoy, Turkseven et al., 2001). Being diagnosed with breast cancer can consume patients' time with associated burdens, including the inability to participate in everyday life activities, following detailed medical regimens, and attending frequent medical appointments. According to the stress and coping perspective, breast cancer patients then require methods for managing their stress in order to reduce the negative physical and mental consequences associated with stress. Within the stress and coping perspective, one of the most popular methods for dealing with stress is social support which has guided the construction of such frameworks as the stress and coping social support perspective (Lakey & Cohen, 2000), and the buffering hypothesis (Cohen & Wills, 1985). These frameworks, like the stress and coping perspective, detail that social support can promote healthier coping outcomes during times of stress.

Despite the wealth of studies documenting breast cancer patients' desire for and benefits from social support provided by medical professionals, family members and friends, there is a paucity of research seeking to understand the social support processes occurring in the medical appointment setting. This is a crucial area to examine as it is the most likely setting for patients to receive social support from medical professionals, yet this relationship may be altered with the introduction of companions to the provider-patient dyad. The current study examines this gap in the literature through documenting the types of verbal social support provided by nurses, surgeons and companions to breast cancer patients in a decision making medical appointment, as well as documenting the relationship between social support and breast cancer patient mental adjustment to cancer, satisfaction with surgeon, and intended adherence to the treatment plan. Additionally, the relationship between companion social support and provider social support, as

well as the relationship between patient cancer stage and received social support will be examined.

Although Cutrona & Russell's (1990) types of social support have been used successfully to code for social support in the provider-patient setting (Bradford, Roedl, Christopher, & Farrell, 2012), this coding scheme largely ignores nonverbal forms of social support. Nonverbal forms of social support, while having received little attention in the past (Miczo & Burgoon, 2008; Trees, 2000), are important to consider as patients during the illness experience are likely to be looking to all available communication channels for information, including nonverbal behaviors (Crane & Crane, 2010; Friendman, 1979). Burleson noted nonverbal behaviors can be seen as forms of emotional support (Burleson, 1982; 1984), although certain nonverbal behaviors may meet the definition of other types of social support (Cutrona & Russell, 1990). Nonverbal behaviors may also be capable of reducing feelings of social support, just as specific types of verbal messages can reduce feelings of social support (Street & Buller, 1987). Because the definition of social support is inclusive of nonverbal communication, this study will additionally undertake an exploratory analysis of nonverbal social support by creating and using a novel nonverbal social support coding scheme within the doctor, patient, and companion triad. The remainder of this manuscript will overview literature regarding the breast cancer experience, provider-patient communication, social support, the role of companions, the stress and coping perspective, and nonverbal social support prior to detailing the method, results and conclusions of this research.

LITERATURE REVIEW

The Breast Cancer Patient Experience

Breast cancer is a prevalent and deadly disease. In 2011, it is estimated nearly 290,000 women were newly diagnosed with breast cancer and just under 40,000 women died from the disease (ACS, 2011), making it the second most common female cancer (following skin cancer) in America. Furthermore, in high-income countries, breast cancer is ranked as the fifth leading cause of death for women (WHO, 2009). There are many known risk factors for breast cancer including sex, a familial history of the disease, being over age 40, being overweight, and never having had children before the age of 35 (NCI, 2011). However, it is important to note that a diagnosis of breast cancer can occur among women with few, if any, of these risk factors.

Diagnosis and treatment. Cancer, regardless of type, is caused by cells replicating in an abnormal manner (NCI, 2012), which results in the formation of masses in the body. Breast cancer can be detected mainly through breast self-exams, clinical exams, and mammograms which can identify lumps in the breast. If a lump is detected, the patient is then sent for a biopsy of the lump, and if the biopsy finds the lump to be malignant, the patient is formally diagnosed with breast cancer. Further tests such as lymph node biopsies and computed tomography (CT) scans are typically undergone to determine the stage of the cancer, with increasing stages indicating more advanced cancer (NCI, 2009). A nurse navigator is often assigned at this point to assist the patient in setting up appointments with his or her cancer care team which usually consists of the patient's general physician, radiologist, oncologist, and surgeon (Wilcox & Bruce, 2010). When diagnosing and staging are known, a patient and the cancer care team come together to make crucial treatment decisions. At this time, clear communication between providers and patients is vital.

Provider-Patient Cancer Communication

In 1995, the Liaison Committee on Medical Education (LCME), which accredits U.S. medical schools, and its Canadian counterpart, Committee on Accreditation of Canadian Medical Schools (CACMS), wrote that communication was essential to medical education and called for instruction and evaluation of these skills for physicians (Kurtz, Laidlaw, Makoul, & Schnabl, 1999). The importance of provider-patient communication was echoed by the Healthy People 2010 and 2020 objectives (DHHS, 2000; 2010). This noted salience has stemmed from research finding that quality provider-patient communication, both verbal and nonverbal, has numerous benefits for both providers and patients (Belle Brown, Stewart, & Ryan, 2003; Crane & Crane, 2010).

A considerable amount of provider-patient communication research has been specifically dedicated to medical encounters with cancer patients. Cancer care is a prominent area for research as cancer is the second leading cause of death in the United States (Murphy, Xu, & Krochaneck, 2012). Additionally, this is a unique context to analyze as cancer is a chronic condition which requires frequent provider visits and demands high levels of adherence by patients to detailed regimens. Not only is this taxing on the patients and their families, but also the providers, as difficult conversations must occur about delicate processes that involve tasks such as bad news giving, providing empathy, discussing treatment decisions and, at times, approaching end of life care (Kreps, 2003; Hack, Dergner, & Parker, 2005). Epstein and Street (2007) note that effective patient-centered communication in cancer care is driven by fostering healing relationships, exchanging information, responding to emotions, managing uncertainty, making decisions, and enabling patient self-management, which is done through verbal and nonverbal pathways. The communication skills necessary for physicians to succeed in this realm

are not second nature for many physicians, and often must be learned (Baile & Aaron, 2005). Communication skills are crucial to learn as provider-patient communication in cancer settings is associated with improved patient satisfaction, quality of life, health outcomes, and especially pertinent to the current research at hand, decision making (Arora, 2003; Baile & Aaron, 2005; Lerman, Daly, Walsh, Resch, Seay, Barsevick, Birenbaum et al., 1993; Venetis, Robinson, LaPlant Turkiewicz, & Allen, 2009).

Decision Making in Cancer Communication

The cancer journey involves much decision making for patients, mainly focused on treatment options. Provider-patient communication during these decisions is important to study as these conversations undeniably impact ultimate health outcomes for patients. The decision making process between a medical provider and patient can be reflected in part by classic models regarding provider-patient interaction. These models focus on how characteristics of the provider and patient work interdependently to influence the decision making process (Emanuel & Emanuel, 1992; Roter & Hall, 1993). Both Emanuel and Emanuel (1992; interpretive, deliberative, informational, and paternalistic) and Roter and Hall (1993; mutuality, consumerism, paternalism and default) describe four models of provider-patient communication. A key differentiating factor of these models is level of participation. Patient participation has been defined by Street as patients who ask questions, express concerns, and assert opinions (Street, 2001). However, both patient and provider participation are important to take into consideration within the medical context (Epstein & Street, 2007). In a mutuality, interpretive or deliberative model both parties are highly participative in a joint decision making process. In a consumerism or informational model the patient is highly participative, but the provider is only used as a source of medical information rather than for advice and consultation. In a paternalistic model,

the reverse occurs with a highly participative provider and a simply obedient patient. Finally, in the default model, neither the patient nor provider is highly participative.

Those joint models (interpretive, deliberative, and mutuality) exemplifying teamwork between providers and patients are generally advocated because patient participation has been linked to improved adherence, higher satisfaction, better health outcomes for patients, and more thorough information provided by medical professionals (Cegala, Street, & Clinch, 2007; Stewart, 1995; Kaplan, Greenfield, & Ware, 1989), especially in the context of chronic conditions like cancer (Joosten, DeFuentes-Merillas, de Weert, Sensky, van der Staak, & de Jong, 2008). A recent study which videotaped newly diagnosed breast cancer patients speaking with their respective surgeons about treatment decisions also determined that patient participation behaviors can lead to reduced patient feelings of hopelessness through satisfaction with their visit (Robinson, Hoover, Street, Venetis, Kearney, 2012).

Still, not all cancer patients desire to participate in their health care decisions. A British study comparing 200 women recently diagnosed with benign breast disease to 150 women newly diagnosed with breast cancer found that the majority of breast cancer patients preferred to not participate in treatment decision making, whereas benign breast disease patients were inclined to participate (Beaver, Luker, Owens, Leinster, Degner, & Sloan, 1996). The authors concluded these results may be due to the overwhelming experience of breast cancer which can often leave a patient drained of emotional, cognitive, and physical capabilities. Additional studies surveying cancer patients' desires to be involved in treatment decisions have been mixed (Blanchard, Labrecque, Ruckdeschel, & Blanchard, 1988; Pieterse, Bass-Thijssen, Marijnen, & Stiggelbout, 2008). However, besides the benefits of participation already listed, a study completed in the Netherlands found that the majority of cancer survivors wanted to participate in their treatment

decisions, as 74% of them perceived that clinicians could not appropriately determine advantages and disadvantages of treatment for patients (Pieterse et al., 2008). Hence, an individualized approach to encouraging patient participation is often advocated (Cegala, 2007).

Although the provider and patient are at the center of these decisions, this classic dyad is expanding. One key variable outside this basic model is other partners in health care. These additional individuals may be medical providers – such as nurses, social workers, or specializing physicians who work together on a single patient’s case and comprise his or her health care team (Wilcox & Bruce, 2010). At other times, these individuals are family members or friends of the patient who desire a role in their loved one’s health care.

The Influence of Family and Friends on Health

When a patient is diagnosed with some form of illness this news rarely affects only the patient. A network of family and friends are also influenced due to their attachment to the patient (Brashers, Goldsmith, & Hsieh, 2002; Jecker, 1990). For instance, individuals are likely to talk to people in their lay network about health symptoms before talking to their doctor (Jones, Beach & Jackson, 2004). Just as an assortment of health care providers may come together to determine the best treatment for a patient, a patient’s family members and friends may form a similar lay health care team to assist the patient with various needs including companionship, information, and help with day to day activities such as making meals. Similar to medical provider health care teams, these lay teams may become more integral for patients the more complex and serious an illness. For this reason, many health organizations and medical providers strongly advocate that patients bring a friend or family member with them to medical appointments (AHRQ, 2011; NCI, 2011; Roberts et al., 1994). Acting as a patient companion, defined as a family member or friend who accompanies a patient to their medical appointment(s) (Adelman, Greene, & Charon,

1987; Beisecker, 1989; Ellingson, 2002; Ishikawa, Roter, Yamazaki, Hashimoto, & Yano, 2006; Schilling et al., 2002), is a frequent role taken on by the loved ones of an ill individual. These companions have accumulated many other titles which refer to the same concept including third person (Schilling et al., 2002), accompanying individual (Brown, Brett, Stewart, & Marshall, 1998), and advocate (Adelman et al., 1987). Roles and titles will be further delineated later in this manuscript.

The data for this study are 46 videotapes of breast cancer patients (23 with companions and 23 without companions) meeting with their breast cancer surgeon for the first time to discuss treatment options an average of ten days after they have been diagnosed. Past studies have found that this first appointment post diagnosis is a fundamental time to examine the companion-provider-patient interaction, as newly diagnosed cancer patients who are making treatment decisions are among those most likely to bring companions (Beisecker et al., 1996). Guidelines made by medical professionals have also advocated bringing a companion during this specific time in breast cancer treatment (Roberts et al., 1994). A review of the companion literature, inclusive of all types of patients, is presented next.

Companions in Health Care Encounters

Over the past two and a half decades, scholars have been interested in patient companions. Scholars have investigated many demographic characteristics, roles, and outcomes related to having a companion in the medical encounter. Patient surveys have determined that approximately a quarter to a half of all patients bring companions to their medical appointments on a regular basis (Belle Brown, Brett, Stewart, & Marshall, 1998; Labrecque et al., 2011; Schilling et al., 2002). Companions are more likely to be family members than friends, and most frequently are spouses followed by daughters and sons (Beisecker et al., 1996; Belle Brown et

al., 1998; Glasser et al., 2001; Hasselkus, 1994). However, friends and neighbors have also been documented as companions (Beisecker, et al., 1996).

Numerous possible roles of these companions have been proposed, varying from overly active to completely passive companions. These proposed roles are often largely based on scholarly opinion or small amounts of data. Adelman, Greene, and Charon (1987) were the first to identify three main roles of companions: advocate, antagonist, or passive. The advocate can either be a promoter who encourages, an extender who stands in as the patient to answer questions, or a mediator who works with both parties to develop outcomes. More recent work has largely expanded on the advocate role with additions such as assisting with emotional support, acting as a watchdog, providing pre-visit preparation and post-visit follow through (Beisecker, 1989; Ellingson, 2002). The antagonist can be either a saboteur who sidelines the patient's agenda aggressively, or an opportunist, who prefers to discuss his or her own medical problems, rather than those of the patient. Finally, the passive patient is defined by Adelman et al (1987) as someone who is simply present and does not verbally participate in the appointment.

These conceptualized roles mirror empirical data on the topic. Most research in this area has observed the companions of elderly patients, noting that companions are necessary for the elderly because of deteriorating physical and cognitive capacities (Greene Majerovitz, Adelman, & Rizzo, 1994; Hasselkus, 1994). In this instance, companions act as a surrogate patient, answering questions and filling out forms. However, some studies have determined the need for a companion by a patient is not brought on by increasing patient age, but rather decreasing patient health and health literacy (excluding those studies done on pediatric patient companions). This is as a result of studies which have shown that regardless of patient age, those patients who

report being more ill are more likely to bring a companion, as compared to healthier patients (Glasser et al., 2001; Rosland et al., 2011; Schilling, et al., 2002).

Surveys of patients who frequently brought companions to their physician visits indicated they did so in order to receive assistance with communication and emotional and instrumental support, along with more practical assistance with transportation or walking (Beisecker et al., 1996; Glasser et al., 2001; Schilling et al., 2002). In a study by Glasser and colleagues, companions were surveyed alongside patients regarding reasons for including the companion in a medical appointment (finding that companions were brought most commonly for transportation, general assistance, and to help with providing information) and a .92 Spearman Rho correlation between the two parties was found, showing high consistency in views. Consistency between patients and companions is important as Japanese researchers studied 63 geriatric patients and their companions to find that perceived helpfulness of the companion was highest when patients expected their respective companions to actively participate in the medical encounter and the companions did indeed participate (Ishikawa et al., 2006). However, consistency was not the only key to perceived helpfulness; when patients were expecting lower levels of participation from companions, the companions were perceived as less helpful regardless of actual activity level. Overall, more active companions were viewed as more helpful.

Empirical work also has focused on outcomes of including a companion in the medical encounter. Positive outcomes include increased patient participation (question asking, assertiveness, opinion expression), receiving more information, higher satisfaction with one's physician, a greater range of topics discussed during the appointment (including more difficult topics the patient would not have otherwise felt comfortable discussing), higher understanding of a physician's advice, and greater intent to comply with physician advice (Glasser et al., 2001;

Labrecque et al., 1991; Rosland et al., 2011). Negative outcomes have been reported as well. Generally, fewer than one in six patients who bring a companion report a negative outcome from the situation (Belle Brown et al., 1998; Rosland et al., 2011; Schilling et al., 2002). Negative effects that a companion may experience during a medical appointment include removing patients from their own health care decisions, discouraging patients, voicing their own concerns rather than those of the patient, sharing too much information, and fighting with the patient during the medical appointment (Greene et al., 1994; Rosland et al., 2011; Schilling et al., 2002).

Physicians have also been surveyed regarding their perceptions of patient companions. In a survey of 88 physicians of patients experiencing diabetes or heart failure, 66% indicated that the companion added at least one type of barrier to the appointment (Rosland et al., 2011). Barriers perceived by physicians have been found in multiple studies and include, fear for the patient's safety, fear of a confidentiality breach, conflict over a patient's agenda, stress of having to deal with another individual during the appointment, and loss of intimacy with the patient (Beisecker & Moore, 1994; Barone, Yoels, & Clair, 1999; Rosland et al., 2011). The addition of a companion can also add minutes to the appointment (Greene et al., 1994; Labrecque et al., 1991), although this is not a consistent effect (Beisecker, 1989; Street & Gordon, 2008).

Despite existing barriers, most physicians count themselves as advocates for the practice of bringing along a companion as they often feel the presence of a companion leads to greater understanding for both the physician and patient (Barone et al., 1999; Schilling et al., 2002). In order to skew the outcomes of companion appointments in favor of positive outcomes, some scholars have advocated for physicians to be trained in dealing with companions, as a quarter of physicians report feeling untrained in this area (Barone et al., 1999; Campbell, McDaniel, Cole-Kelly, Hepworth, & Lorenz, 2002; Rosland et al., 2011). Some studies have been completed

successfully to this end (Delvaux, Merckaert, Marchal, Libert, Conradt, Boniver et al., 2005), which include training physicians on negotiating and summarizing skills.

Companion studies have been completed specifically with cancer patients. Roles of companions for geriatric oncology patients have been found to include memory aid, emotional support, transcriber, decision making aid, companionship, elaboration, advocate, partner, financial assistant, and interpreter (Cordella, 2011; Ellingson, 2002). Similarly, telephone interviews with 18 cancer patients and 17 of their companions found that companions mostly attend medical visits in order to provide social support, harness understanding, ask questions, and ensure transportation (Beisecker et al., 1996). A continually re-occurring theme regarding the role of these companions is social support., particularly because social support is important for patients to receive from both their companions as well as medical providers (Slevin et al., 1996). This important construct will be fully detailed next.

Social Support in Cancer Encounters

Social support, as defined previously, is “verbal and nonverbal communication between recipients and providers that helps manage uncertainty about the situation, the self, the other or the relationship and functions to enhance a perception of personal control in one’s life experience,” (Albrecht & Goldsmith, 2003, p.265). Early work in the field of social support identified that social support comes in different types. In his 1976 presidential address to the American Psychosomatic Society, Cobb described social support as information which makes an individual feel they are 1) “cared for and loved,” 2) “esteemed and valued,” or 3) “part of a network of communication and mutual obligation” (p. 300). Later, Gottlieb and Todd (1979) discussed how social support could come in the form of emotionally sustaining behaviors, problem-solving, indirect persuasive influence, and environmental action. House (1981) then

developed the categories of emotional support, appraisal support, giving information, and providing instrumental support. In a review, Albrecht and Adelman (1984) found that social support is most generally thought of in terms of affect and/or instrumental aid exchange, with network support beginning to surface as a reoccurring category. All of these themes are present in Cutrona and Russell's (1990) social support types.

Verbal Social Support

Cutrona and Russell noted there are five different types of social support an individual can give to another in need; 1) emotional support - "the ability to turn to others for comfort and security during times of stress, leading the person to feel that he or she is cared for by others," 2) network support - "a person feeling part of a group whose members have common interests and concerns," 3) esteem support - "the bolstering of a person's sense of competence or self-esteem by other people," 4) tangible aid - "concrete instrumental assistance" and, 5) informational support - "advice or guidance concerning possible solutions to a problem (Cutrona & Russell, 1990, p. 322)." These five types can be placed into two larger umbrella categories of action-facilitating support (information and tangible support) and nurturant support (emotional, network and esteem support) (Cutrona & Suhr, 1992).

Cutrona (1990) also proposed that all social support types are not created equal as social support types may be most effective when correctly matched with the type of stress the individual in need is facing. House (1981) was the first to address this idea of matching, indicating that informational support is needed when the goal of the support is to solve a problem, whereas emotional support is needed when the goal of the support is not to solve a problem but to comfort. Cohen and McKay (1984) then developed a stress and coping model specific to social support that specified the importance of matching the social support given to

the type of stress felt. Similarly, Cutrona (1990) divided stresses into those that are controllable (which need instrumental, esteem, or emotional support), or uncontrollable (which needed tangible, network, or esteem support).

Social support behavioral code. In order to operationalize Cutrona and Russell's categories of social support, Suhr and colleagues (2004) developed the social support behavioral code (SSBC). Although the SSBC was developed in studies using intimate partners, which makes it appropriate for coding companion social support, the SSBC has also been used in health settings. For example, the SSBC has been used to code for types of social support given by peer educators of an HIV prevention program to sex workers (Sarafian, 2012), social support comments posted on an online HIV/AIDS support group (Mo & Coulson, 2008) and an online Huntington's disease support group (Coulson, Buchanan, & Aubeeluck, 2007). Most relevantly, this coding scheme was used to identify social support types used by primary care providers when delivering news that a newborn tested positive for Sickle Cell Anemia carrier status to standardized patients (Bradford, Roedl, Christopher, & Farrell, 2012). Eighty percent of the 125 primary care physicians assessed in this study via transcripts of telephone conversations were found to use at least one of the five types of social support when conveying a diagnosis, most commonly social network and informational support. This research also found that the SSBC fit well with coding providers' provision of social support, and the authors did not find any evidence of social support that did not fit into these categories.

Although not using the SSBC, numerous past studies have examined the different types of social support and their relationship to cancer. Seminal social support cancer research conducted by Dunkel-Schetter (1984) surveyed 79 cancer patients. Both family members and medical providers were identified as helpful sources of social support for patients, and emotional

support was perceived as nearly twice as helpful as appraisal (approval) or informational support. However, when source was taken into account, informational support was perceived as helpful when coming from medical providers and unhelpful when coming from friends/family, while emotional and tangible aid was viewed equally as helpful regardless of source (Dunkel-Schetter, 1984). Research conducted slightly later echoed these findings (Dakof & Taylor, 1987; Neuling, & Winefield, 1988), including a review of the impact of emotional, informational and instrumental social support on cancer patients, which found that correlational and descriptive studies favored emotional support in terms of patient preference and adjustment to diagnosis (Helgeson & Cohen, 1996). Studies specifically with breast cancer patients also support this trend, demonstrating that emotional support is highly desired (Pistrang & Barker, 1995; Reynolds & Perrin, 2004; Roberts et al., 1994).

Emotional and informational social support, specifically, have been found to lead to positive health outcomes. Emotional support from providers, family members and friends at the time of diagnosis has been linked to positive feelings of self-efficacy toward dealing with their health issue, better mental health, and improved health related quality of life for breast cancer patients (Arora et al., 2007; Bloom, Stewart, Johnston, Banks, & Fobair, 2001). Informational support has additionally been related to self-efficacy and improved health related quality of life five months post diagnosis for breast cancer patients (Arora et al., 2007). Informational social support is closely tied to the broader concept of information giving by a provider, which has also been found to be highly desired and beneficial to newly diagnosed cancer patients (Miles & Sullivan, 1999). The key difference between these two concepts is that informational social support is specifically provided to solve the problem at hand (i.e. a cancer diagnosis), whereas information giving may not be directly related to the problem at hand. Bilodeau and Degner

(1996) compiled a list of informational needs breast cancer patients have including to know the extent of the disease, treatment approaches, and how the disease will affect a patient's social life. Although informational support would cover many of these topics as well, information on a patient's family's risk for cancer would not be directly related to solving the problem of a cancer diagnosis, and therefore would not be included as informational support.

The obvious importance of emotional support for cancer patients is particularly interesting as physicians have reported struggling to deal with patient emotion (Baile, Buckman, Lenzi, Glober, Beale, & Kudelka, 2000). Still, cancer patients repeatedly report needing their physicians to be able to provide emotional support. One study of 472 British cancer patients found that receiving emotional support from senior doctors was as important as receiving emotional support from their family (Slevin et al., 1996). Similarly, a survey of 100 breast cancer patients found the caring conveyed by their surgeon was of high importance, with information giving during this essential decision making time valued much less (Roberts et al., 1994). Given the repeated findings which demonstrate that emotional support is favored by cancer patients from companions and providers, whereas informational support is favored from providers, it will be valuable to investigate what types of support are actually provided in medical interactions. The support given by medical providers in this setting is particularly relevant because this is the prime setting in which providers have the opportunity to transmit the social support desired by patients. This leads to the study's first research question:

RQ1: What types of verbal social support (emotional support, network support, esteem support, tangible aid, and informational support) do providers and companions offer patients?

Negative behaviors. It should be noted there also have been verbal behaviors recognized for their ability to negatively impact the social support process (Cunningham & Barbee, 1995).

Suhr and colleagues (2004) identified types of negative statements that may reduce feelings of social support. For example, statements that move the focus of the conversation to the intended supporter rather than the individual in need of support, statements that criticize the support seeker, and non-response to an individual's request for support may negatively impact the social support process. These negative aspects are important to recognize as past literature has noted both providers and patients are capable of these acts (Greene et al., 1994; Rosland et al, 2011; Schilling et al., 2002; Street & Buller, 1987), leading to a call for investigation into these negative acts specifically for providers (Wortman, 1984). This leads to the second research question:

RQ2: What negative verbal behaviors do providers and companions perform that may reduce feelings of social support for patients?

Patient satisfaction and adherence. Furthermore, provider communication strategies have been linked to patient satisfaction (DiMatteo et al, 1986; Conlee et al., 1993; Richmond et al., 2001) and adherence (Crane & Crane, 2010; Haskard Zolneirek & DiMatteo, 2009). Patient satisfaction in this study can be specifically conceptualized as patients' perceptions of their breast cancer surgeon's ability to create a positive relationship with them through use of effective communication skills (Brown, Boles, Mullooly, & Levinson, 1999), while adherence in this study can be defined as a patient's intentions to follow through the with treatment plan discussed during her medical appointment (Venetis, 2010). Due to these past findings, it is likely this research will find similar results with nonverbal, and likely verbal social support as well. This led to the study's first two hypotheses.

H1: Verbal social support from providers will be positively related to patient satisfaction with their surgeon at post-test, whereas negative behaviors inhibiting social support will be negatively related to patient satisfaction with their surgeon.

H2: Verbal and nonverbal social support from providers will be positively related to patient adherence at post-test, whereas negative behaviors inhibiting social support will be negatively related to adherence.

Companions. Finally, a primary overarching interest of the present research is how companions may influence the social support process taking place in medical encounters. As discussed previously, past research has largely focused on the demographic characteristics of companions, types of companions, and perceptions of companions. Although providing social support is a known service of companions, relatively little is known about the types of social support enacted by companions in medical settings and how it may influence social support given by providers. It is possible that the presence of a companion conflicts with providing emotional support to patients by providers. Labrecque and colleagues (1991) recorded 473 oncologist visits, including 100 where a family member was present, and found that oncologists provided less emotional support to accompanied patients. Furthermore, Street and Gordon (2008) analyzed transcripts of 48 unaccompanied and 84 accompanied patients who were newly diagnosed with lung cancer. Single patients were found to express more negative affect during visits. Knowledge of the influence of companions in this settings will be beneficial for providers, in terms of knowing what to expect when a patient brings a companion, as it has been noted that some physicians feel untrained in this area (Barone et al., 1999; Campbell, et al., 2002; Rosland et al., 2011), and may also help forward guidelines for this setting. This leads to the third research question:

RQ3: How is companion verbal social support associated with provider verbal social support?

Cancer stage. Additionally, patient cancer stage should be investigated as a mediating factor in the role of verbal social support provided by both providers and companions. Patient cancer stage may influence these factors as a higher cancer stage can lead to higher levels of patient stress (Tesarova, Kalousova, Trnkova, Soukupova, Arglasova, Mestek, Petruzeka, et al., 2007), and subsequently greater need for social support. Hence, the fourth research question was proposed:

RQ4: How is patient cancer stage associated with provider and companion verbal social support?

It is important to not only understand what verbal social support processes are taking place in these decision making appointments from medical providers and patients, but also then to understand the effects of the social support given within these appointments on cancer patients. One theory that explains why breast cancer patients should be given social support is the stress and coping perspective.

The Stress and Coping Perspective

Lazarus's stress and coping perspective, also known as the theory of psychological stress, has long been a staple in the field of cognitive psychology (Lazarus, 1966; Lazarus & Folkman, 1984). Stress, cognitive appraisal and coping function as the main variables in this perspective. The overall premise of this perspective is that an event cognitively appraised as stressful can lead to negative outcomes for an individual's well-being, but if one is able to find effective coping mechanisms to alleviate stress, these negative outcomes can be avoided, leading to beneficial outcomes in terms of social functioning, morale and health. This perspective defines stress as, "a

particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her wellbeing (Lazarus & Folkman, 1984. p. 19). Hence, stress is a psychological concept that can manifest itself physiologically in an individual based on that individual's cognitive appraisal of a situation.

Cognitive appraisal, an evaluative process by which individuals continuously determine the possible impact of an event on their wellbeing, subsequently determines the stressfulness of an event. Cognitive appraisal then acts as a mediator to experienced stress. Faced with the same stimuli, different individuals will likely experience different levels of stress. The stress and coping perspective then identifies two types of cognitive appraisal that an individual goes through; primary and secondary. Primary appraisal determines whether an event is irrelevant (does not effect the individual), positive-benign (has a beneficial effect on the individual), or stressful (has a negative effect on the individual). Anticipated injury or benefit to one's well-being is determined both by the personal factors of an individual's commitments and beliefs, as well as situational factors such as novelty, predictability and uncertainty. Events appraised as stressful can be viewed as harmful (immediately injures the individual's well-being), threatening (could potentially injure the individual's well-being in the future), or challenging (could potentially injure or benefit the individual's well-being). These stressful events are not mutually exclusive and therefore may co-occur. Regardless of type, these stressful events lead individuals to seek out methods for coping. Determining methods for coping is the aim of a secondary appraisal. Secondary appraisals evaluate each possible coping method based on availability, self-efficacy and response efficacy. In the event that coping methods can be employed, stress will be reduced and an individual's well-being will remain intact. Conversely, in the absence of coping

methods an individual is considered to have high vulnerability, which will lead to excessive stress and the increased likelihood that an individual's well-being will be injured.

The coping process in this perspective is the means by which an individual seeks to manage stress, and this variable is the main focus of the current research. Coping can come in numerous forms including thinking positively, employing problem solving skills and use of monetary resources (Lazarus & Folkman, 1984). One of the most well researched mechanisms for coping during times of stress, is social support, be it perceived or actualized by the person under stress. Many reviews and meta-analyses of social support have documented that in times of stress across a wide variety of settings, social support acts as a healing agent, allowing individuals to better cope with stress (Albrecht & Adelman, 1984; Cobb, 1976; Thoits, 1995; Wang, Wu, & Liu, 2003). Due to the wealth of support for this pathway, Lazarus's original theory of stress and coping gave rise to social support specific stress and coping theories. These theories specifically predict that social support acts as a buffer between stress and negative outcomes (Cohen & McKay, 1984; Thoits, 1986; Kaniasty & Norris, 1993), also known as the 'buffering hypothesis,' (Cohen & Wills, 1985), which in turn has been termed the most influential theoretical perspective in social support (Lakey & Cohen, 2000). This supportive trend of social support as an effective coping mechanism during times of stress remains strong in the specific case of breast cancer.

The Stress and Coping Perspective Applied to Breast Cancer

Research demonstrates that many breast cancer patients do appraise their illness experience as a stressful one (Andrykowski, Cordova, Studts, & Miller, 1998; Butler, Koopman, Classen, & Spiegel, 1999; Campos, Besser, Ferreira, & Blatt, 2012; Green, Rowland, Krupnick, Epstein, Stockton, Stern, Spertus et al., 1998; Standton & Snider, 1993). One study of 100 breast

cancer patients found that most perceived being diagnosed with breast cancer as one of the top four most stressful events of their life (Koopman, Angell, Turner-Cobb, Kreshka, Donnelly, McCoy, Turkseven et al., 2001). Aiming to create a biobehavioral model of cancer stress, Andersen, Kiecolt-Glaser, and Glaser (1994) overview many of the stressors associated with cancer including emotional distress, lower quality of life and biological complications.

Research also demonstrates that social support is beneficial for women with breast cancer. Solitary women with breast cancer as compared to women with close others they can turn to (known as a social network or social ties) have been found to have a 66% increased risk of mortality (Kroenke et al., 2008). Receiving social support is also tied to reduced levels of anxiety and depression during treatment for cancer patients (Neuling & Winefield, 1988; Roberts et al., 1994; Slevin et al., 1996). Psychologically, receiving social support is linked to breast cancer patients improved outlook on life (Bloom & Spiegel, 1984). Due to this past research regarding breast cancer and the overarching stress and coping perspective, patients with social support should experience better mental adjustment to cancer as measured by help-hopelessness (the extent to which a patient feels helpless and hopeless due to diagnosis), angst (the extent to which a patient feels angry and anxious due to diagnosis), positive orientation (the extent to which a patient feels that holding a positive outlook will help her preserve against the disease) and minimizing illness (the extent to which a patient feels she is able to reduce the influence of the disease on her life; Watson, Greer, Young, Inayat, Burgess, & Robertson, 1988). This led to the following hypotheses:

H3: Verbal social support from providers will be negatively related to patient help-hopelessness from pre to post-test, whereas negative behaviors inhibiting social support will be positively related to patient help-hopelessness from pre to post-test.

H4: Verbal social support from companions will be negatively related to patient help-hopelessness from pre to post-test , whereas negative behaviors inhibiting social support will be positively related to patient help-hopelessness from pre to post-test.

H5: Verbal social support from providers will be negatively related to patient angst from pre to post-test, whereas negative behaviors inhibiting social support will be positively related to angst.

H6: Verbal social support from companions will be negatively related to patient angst from pre to post-test, whereas negative behaviors inhibiting social support will be positively related to angst.

H7: Verbal social support from providers will be positively related to patient positive orientation from pre to post-test, whereas negative behaviors inhibiting social support will be negatively related to positive orientation

H8: Verbal social support from companions will be positively related to patient positive orientation from pre to post-test, whereas negative behaviors inhibiting social support will be negatively related to patient positive orientation.

H9: Verbal social support from providers will be positively related to patient minimizing of the illness from pre to post-test, whereas negative behaviors inhibiting social support will be negatively related to patient minimizing of the illness.

H10: Verbal social support from companions will be positively related to patient minimizing of the illness from pre to post-test, whereas negative behaviors inhibiting social support will be negatively related to patient minimizing of the illness.

Nonverbal Social Support: An Exploratory Examination

As previously noted, the definition of social support is inclusive of nonverbal communication (Albrecht & Goldsmith, 2003, p.265). However, nonverbal forms of social support are not well studied in health related disciplines. In past research regarding social support, nonverbal forms of social support are largely absent. The SSBC only references nonverbal communication that can be perceived as social support once (Suhr et al., 2004). Nonverbal forms of social support are especially crucial to examine in the provider-patient setting as illness is often an emotional experience driving patients to seek information, including any nonverbal cues from his or her provider (Crane & Crane, 2010; Friedman, 1979). Nonverbal social support has most commonly been identified as a form of emotional social support, or as Burleson termed these behaviors, the act of comforting (Burleson, 1982; 1984). One of the first studies to examine nonverbal social support, Dolin and Booth-Butterfield (1993) examined self-report nonverbal comforting responses of undergraduate students when faced with reading hypothetical scenarios. Twelve behaviors were found to be common in response to the scenarios including hugs, closeness, facial expressions, attentiveness and increased touch. Another study examined nonverbal support processes through manipulating the use of touch in a controlled experimental setting, finding that individuals receiving touch felt more social support than those who did not receive touch (Lewis, Derlega, Shankar & Cochard, 1997).

In 2000, Trees developed the first nonverbal social support coding scheme based on the concept of interactional sensitivity from attachment theory. Interactional sensitivity, developed by Bowlby (1969; 1973), encompasses attentiveness and responsiveness during an interaction and is operationalized using 35 nonverbal behaviors. Trees tested her measures of nonverbal social support with mother-adult child pairs, examining their interactions in a laboratory setting during discussion of a problem. Trees found that adult children who received more vocal warmth

from their mothers during the lab session perceived more nurturant support; proxemics involvement (measured by facial animation, forward lean, and direct eye gaze), gestural animation, proxemic attentiveness (measured by direct eye gaze, still posture, and low adaptor behaviors), and proxemic interest (measured by engaged looks, fewer yawns, direct eye gaze, and forward lean) predicted feelings of informational support; and proxemic attentiveness and gaze predicted feelings of tangible support.

Miczo and Burgoon (2008) also conceptualized nonverbal social support, discussing it in terms of involvement (closer proximity, forward lean, gaze, open body orientation, facial animation, vocal variety, back-channeling, short response latencies, and absence of nervous vocalizations and adaptors), and pleasantness (smiles, nods, facial agreeableness, and warmer voices). These behaviors were examined in romantic couples discussing recent stressful events. Contrary to the authors' predictions, higher stressful events were found to correlate with reduced nonverbal involvement by support seekers. The authors proposed this may be due to patients becoming more self-focused in this circumstance, yet still demanding more social support from the provider which will aid with emotional coping. Use of socially supportive nonverbal behavior also led to greater interaction satisfaction, and perception of the provider as more helpful and empathetic.

Nonverbal immediacy has been identified as another indicator of nonverbal social support. Jones and Guerrero (2002) stated that enacting nonverbal immediacy was providing emotional social support, arguing that because nonverbal behaviors, "increase both physical and psychological closeness, these cues might help a distressed person feel connected to another person," (p. 571). Mehrabian (1967) was the first to identify the construct of immediacy, discussing it as a method for demonstrating not only involvement in a setting, but liking.

Common measurements of nonverbal immediacy include close proximity, direct body orientation, leaning forward, open posture, smiling, touch, vocal and facial animation, nodding, relaxation, lack of random movement, vocal pleasantness, and increased gaze (Burgoon & Hale, 1984; Coker & Burgoon, 1987; Guerrero, 2005). All of these nonverbal behaviors completely overlap with those identified by Trees (2000), and Miczo and Burgoon (2008), as social support behaviors. Taken together, these studies demonstrate that nonverbal social support consists of nonverbal immediacy, interactional sensitivity and involvement factors which are heavily redundant.

These behaviors also closely match with physician nonverbal behaviors that have been linked with positive patient outcomes including satisfaction, compliance to recommendations, understanding, better health outcomes, and greater rapport (Ambady, Koo, Rosenthal, & Winograd, 2002; Beck, Daughtridge, & Sloane, 2002; Crane & Crane, 2010; Dimatteo, Taranta, Friedman, & Prince, 1980; Duggan & Parrott, 2001; Haskard, DiMatteo & Herritage, 2009; Ishikawa, Hashimoto, Kinoshita, Fujimori, Shimizu, & Yano, 2006; Larsen & Smith, 1981; Street & Buller, 1987). Specifically, physician self-reported nonverbal immediacy has also been positively correlated with patient satisfaction (Conlee, Olvera, & Vagim, 1993; Richmond, Smith, Heisel, & McCrosky, 2001). This positive association between nonverbal social support behaviors and beneficial outcomes has held in a variety of provider-patient settings (Griffith, Wilson, Langer, & Haist, 2003), and although a nonverbal coding scheme for provider-patient cancer communication has been developed (D'Agostino & Bylund, 2011), nonverbal communication in a cancer patient visit has yet to be examined despite cancer communication being a time of high emotion and need for social support (Kreps, 2003; Hack et al., 2005). Additionally, as is true of verbal behaviors, there are also nonverbal behaviors that may lead to a

decrease in patient's perceptions of social support. Nonverbal behaviors that are viewed as impeding the social support process include interruptions, response latencies, and random movement (Suhr et al., 2004; Street & Buller, 1987). Despite this past research in the realm of nonverbal behaviors, demonstrating both positive and negative outcomes associated with these behaviors, a comprehensive measure of nonverbal social support provision in the medical setting is still absent from the literature. A partial goal of this project was to bring together previous literature and schemes to provide a preliminary examination of nonverbal social support behaviors in the medical context to begin to fill this scholarly need. To do this, an exploratory instrument was developed as a starting point to measure nonverbal social support in this setting. This leads to the study's final research questions.

RQ5: What types of nonverbal social support behaviors are identified for providers and companions using a newly developed nonverbal assessment tool/coding scheme?

RQ6: What types of nonverbal negative behaviors are identified for providers and companions using a newly developed nonverbal assessment tool/coding scheme?

METHOD

This research performed secondary data analysis on forty-six videotapes of breast cancer patients visiting their breast cancer surgeon. This sample was selected from a larger data set of videotapes (N=147) of breast cancer providers and breast cancer patients discussing treatment options, in order to create two groups for comparison based on several criteria. First, only patients who attended a visit with a female provider were included in the sample because physician sex has been found to impact verbal communication (Roter, Hall, & Aoki, 2002), and nonverbal communication (Mast, 2007; Mast, Hall, Kockner, & Choi, 2008) with patients; additionally, differences in empathy by physician sex (Hojat, Gonnella, Manigione, Nasca, & Magee, 2003), may impact their provision of social support to patients as well. Female surgeons were chosen over male surgeons because the majority of the surgeons in this sample were female. Twenty-three of the patients were selected from the larger sample of videotapes for attending the medical appointment without a companion. These 23 patients were then matched as closely as possible with another 23 patients based on cancer stage and appointment length because these variables may influence the provision of social support within the appointment. Individuals at higher stages of breast cancer could actually be less likely to receive social support due to added stress (Tesarova et al., 2007), as has been found to be true by past research of stressed individuals (Miczo & Burgoon, 1998). Additionally, length of appointment logically influences the chance and therefore, the likelihood of social support occurring.

Participants

Forty-six newly diagnosed breast cancer patients, 23 companions, 6 surgeons and two nurses participated in this research through giving consent to be videotaped. Data were collected in surgeon offices located in the Pacific Northwest. Demographic variables of patients are

available in Table 1. Note that patients with companions did not significantly differ from patients without companions on any demographic variable recorded. In addition to the patients, there were six breast cancer surgeons (again, all female). One of the breast cancer surgeons provided care in 16 of the videos, one was in 11, two were in seven, one was in 4, and the remaining breast cancer surgeon was only in 1 video. Two nurses (both female) were also in these videotapes, the first nurse was in 11 videos and the second nurse was in 1 video. Finally, there were 23 unique companions in the videos (17 male, 6 female). Presence of companion and companion sex were coded for by research assistants with a Cohen's Kappa regarding reliability of 1 for both.

Procedure

Human research protection approval was sought and achieved for this project. Patients of the participating surgeons were notified of the study by letter when possible and recruited at clinics before their appointments. Seventy-three percent of patients recruited gave consent to participate in this study and were paid 20 dollars. All participants filled out a pre and post-test survey, in addition to having their consultation recorded with a digital camera. These recordings were later transcribed for dialogue and audible sounds. These transcriptions and videotapes were used together in order to code social support.

Survey

This research used one measure from the pre and post-test survey (patient mental adjustment to cancer), and two measures from the post-test survey taken by breast cancer patients (patient intended adherence and patient satisfaction with her surgeon). These measures were chosen based on the theoretical and practical relevance they held to social support as

discussed in the literature review. See Appendix B for all survey questions and Table 2 for final questions and alpha reliabilities.

PASW and AMOS version 17 (IBM, 2007) were used for all data analysis. As the data set contained less than 5% missing data, all missing data were replaced with means for the respective variable. All continuous measures underwent tests of reliability and validity. First, skewness and kurtosis statistics were performed on all measures. It should be noted that all items for both the measures of perceived patient satisfaction and patient intended adherence had very high skewness and kurtosis. Additionally, these measures were very highly correlated (above .7), demonstrating multicollinearity, thus indicating these two scales are likely measuring very similar constructs. However, despite this multicollinearity, conceptual definitions (given previously in the literature review on page 19) are distinct and, hence, the constructs were kept separate. Still, these limitations should be considered when examining results. Next, Cronbach alpha reliability assessments were performed. Finally, Confirmatory Factor Analyses (CFA) were performed in AMOS in order to examine goodness of fit indices for measures. All three of these techniques were used to reduce measures to only include the best indicators for final data analysis. Cronbach alpha and goodness of fit indices are reported for these final models throughout this methods section for each measure. It should be noted that CFA procedures for these scales should be judged with caution due to the low sample size of this study. For measures on the pre and post-test survey, analyses were run on both sets of items to ensure the best item selection. However, only validity and reliability results for the post-test are reported because results were highly consistent between the pre and post-test items. See Table 3 for variable descriptive statistics. See Table 4 for a correlation matrix between variables.

Patient Mental Adjustment to Cancer Scale (MAC). A version of the MAC (Watson et al., 1988) has been created and validated specifically for breast cancer patients (Osbourne, Elsworth, Kissane, Burke, & Hopper, 1999), and was used for this study. The MAC measures four constructs; patient perceived help-hopelessness, angst, positive orientation, and minimizing of the illness. All items for the MAC were measured on four point scales (1 = definitely does not apply to me, 4 = definitely applies to me). Change scores, rather than pre and post-test scores were used from these variables in final analyses. Change scores were calculated through subtracting pre-test scores from post-test scores.

Patient perceived help-hopelessness was measured using five items, ($\alpha = .89$), χ^2 (2, $n = 46$) = 6.84, $p = .125$, CFI = .99, TLI = .97, RMSEA = .09. Example items included, “I feel like I can’t do anything to cheer myself up,” and “I feel completely at a loss of what to do.” Angst was measured using five items, ($\alpha = .72$), χ^2 (5, $n = 46$) = 7.29, $p = .200$, CFI = .94, TLI = .883, RMSEA = .10. Example items included, “I’m angry about what has happened to me,” and “I worry the cancer will get worse or return.” Positive orientation was measured using six items, ($\alpha = .87$), χ^2 (14, $n = 46$) = 5.81, $p = .325$, CFI = .99, TLI = .99, RMSEA = .06. Example items included, “I try to have a positive attitude,” and “I believe I will get better.” Minimizing of the illness was measured using four items, ($\alpha = .69$), χ^2 (2, $n = 46$) = .949, $p = .622$, CFI = 1.00, TLI = 1.09, RMSEA < .00. Example items included, “I try to carry on life as usual,” and “I keep quite busy so I don’t have time to think about it.”

Patient satisfaction. Patient satisfaction with her surgeon was measured using six items from the Art of Medicine Scale (Brown et al., 1999; ($\alpha = .90$), χ^2 (9, $n = 46$) = 7.47, $p = .588$, CFI = 1.00, TLI = 1.01, RMSEA < .00. Items were measured on seven point Likert scales (1 = strong

disagreement, 7 = strong agreement). Example items included, “I feel the surgeon understands me,” and “I am able to share my feelings with the surgeon.”

Intended adherence. Intended adherence was measured using two items ($r = .55$) used by previous research (Venetis, 2010). Items were measured on five point Likert scales (1 = strong disagreement, 5 = strong agreement). These two items were, “I intend to follow the treatment plan,” and “I am committed to following the treatment plan.”

Unitization and Coding

Four research assistants, blind to the purpose of this study, were trained to unitize and code the data. Prior to interacting with the data, all research assistants underwent standard university Human Research Protection training. Additionally, all data viewing and coding took place in a private computer lab created for this project on password protected computers.

Unitization. The four research assistants trained for a month and a half (approximately 30 hours) to unitize the data into utterances, defined as “an independent clause, a non-restrictive dependent clause, an element of a compound predicate, or a term of acknowledgment, evaluation or address (Stiles, 1992, p. 20).” Research assistants’ goal for coding was to break segments of talk down into the smallest units without altering their meaning. See Appendix C for unitizing directions given to research assistants. These guidelines were created during the iterative process of training. Additionally, research assistants checked each transcript three times, meaning research assistants were asked to unitize a transcript, spend 24 hours away from the transcript, check over the transcript for errors, spend another twenty-four hours away from the transcript before again checking it for errors (and then the transcript could be viewed as final). Reliability for unitization was done with five transcripts from the sample using all four research assistants. These five transcripts contained 3,147 units. However, the reliability statistics of Cohen’s Kappa

and Scott's Pi were not used in testing reliability due to the low variance across codes in the data set, which renders the reliability statistics as unusable because of their dichotomous formula. Potter and Levine-Donnerstein note that reliability measures that correct for chance agreement, can be "... regarded as a very conservative test, because it overcorrects for chance agreement; especially in coding situations in which there are few options on a variable and when coders choose one of those options very frequently." Hence, percent-agreement was used in replacement to calculate reliability. The two research assistants with the highest percent-agreement (86%) were selected to complete the unitization process for all transcripts. These two research assistants first met to discuss disagreements on the five transcripts used for reliability and asked to come to agreements. The research assistants then split the remaining files, completing them independently, still using the triple check method before viewing a transcript as final. The 46 transcripts yielded a total of 34,978 units. Thirty-three percent of these units were from patients and were not coded. An additional 2.2% came from medical providers/staff, such as schedulers or nurse navigators making brief appearances into the appointments. These units were also not coded. The remaining units were from surgeons (49.4%), companions (3.0%) and nurses (12.4%) were coded for verbal social support.

Verbal social support coding. After unitization was complete, these same two research assistants coded the transcripts for verbal social support. For each transcript coded, the research assistants watched five minutes of the video, then coded, and then repeated this process until the video and matching transcript were complete. This process involved six hours of training. Coding of verbal social support was done using the SSBC (Suhr, Cutrona, Krebs, & Jensen, 2004) developed based on Cutrona and Russell's (1990) five types of social support, in addition to negative behaviors. Each unit of speech was coded into an umbrella code of social support,

and a specific code of social support under that umbrella code, if applicable (See Table 5 for coding scheme). Two transcripts (1,320 units) were used to assess reliability before coding began. Cohen's Kappa for umbrella codes was .88 and Cohen's Kappa for specific codes was .85. Halfway through coding two transcripts (916 units) were used to reassess reliability. Cohen's Kappa for umbrella codes were .91 and Cohen's Kappa for specific codes were .88. An overall verbal social support score for each video was then constructed for nurses, breast cancer surgeons, and companions. This was done through adding together the total number of utterances coded as social support that belonged to each party during a given appointment (represented by utterances with an umbrella code of one through five as indicated in Table 5) and dividing this number by the total number of utterances by a given party to form a percentage. Similarly, negative behaviors, which may reduce social support, were calculated by adding together the total number of utterances coded as negative behaviors that belonged to each party during a given appointment (represented by utterances with an umbrella code of six as indicated in Table 5) and dividing this number by the total number of utterances by a given party to form a percentage. A breakdown of verbal social support given by nurses, breast cancer surgeons, and companions is available in Table 6.

Nonverbal social support. The remaining two research assistants on this project coded the videotapes (with transcripts at their disposal as needed) for nonverbal social support of nurses, breast cancer surgeons, and companions. Nonverbal social support was measured using a tool crafted for this study as an exploratory strategy for identifying nonverbal social support behavior in the medical interaction context. The tool was developed to include 19 nonverbal behaviors based on past literature (Trees, 2000; Miczo & Burgoon, 2008; Jones & Guerrero, 2002) as well as health specific means of providing nonverbal social support (Albrecht &

Adelman, 1987; Albrecht & Goldsmith, 2003; Street & Buller, 1987; See Table 7). The 19 nonverbal behaviors under study were rated by coders on seven point semantic differential scales as has been used in past research (Trees, 2000; Miczo & Burgoon, 2008). Ratings were based both on the number of times a nonverbal behavior was used and the duration of those behaviors. See Appendix D for specific guidelines that were created over the iterative process of training to code. Training for coding of nonverbal social support took place over the course of a month (approximately 15 hours). Intraclass correlation coefficients were used to rate reliability of each nonverbal using five videotapes (specifically using a two-way mixed design with absolute agreement). Due to low intraclass correlation coefficients (several due to variance issues¹), both coders coded all 46 videos independently prior to coming together to agree on any areas of disagreement. Intraclass correlation coefficients were then calculated using the two coders independent ratings of all 46 videotapes for surgeons, 12 videotapes for nurses and 23 videotapes for companions. Because two coders were used, intraclass correlation coefficients for average items, rather than single items are reported. These intraclass correlation coefficients (for nurses, breast cancer surgeons, and companions) as well as descriptive statistics for nonverbal social support can be found in Table 8. Please note that many of these overall intraclass correlation coefficients based on the coding of the 46 videotapes were very low (as previously indicated, this was often due to variance issues). Again, this study should only be viewed as a preliminary, descriptive examination of nonverbal social support behaviors in the medical setting as this

¹ Intraclass correlation coefficients by definition are, “a measure of the proportion of a variance (variously defined) that is attributable to objects of measurement, often called targets (McGraw Wong, 1996 p. 30).” When raters lack variance in coding objects of measurement this formula become difficult to use, not unlike the issues with Cohen’s Kappa addressed previously for the purpose of unitization. For example, percent agreement by raters for coding the nonverbal behavior of drawing by companions was 100. However, there was zero variance for this source and variable, as no companion was found to draw. Due to this lack of variance, the intraclass correlation coefficient for this variable was 0.

measurement was not found to be reliable. Upon completion of coding, an overall nonverbal social support score was created for each nurse, breast cancer surgeon and companion in a given videotape by adding together all sixteen social support scores each party received on each nonverbal scale and dividing by the total number of nonverbal behaviors coded for. Separately, an overall score for negative nonverbal behaviors that may reduce feelings of social support was calculated for each party by adding together all three negative nonverbal behavior scores each party received and dividing by the total number of negative nonverbal behaviors coded for. Note that not all nonverbal behaviors could be coded for each nurse, breast cancer surgeon and companion. These missing nonverbal behaviors were not included in overall scores. Upon completion of all coding, data were entered into SPSS for analysis.

RESULTS

The following section reports the results of this study. Research questions one through three and five through six were answered using results from coding procedures, whereas the remaining research questions and hypotheses were answered using results from both the coding procedures and survey measures. It should be noted that throughout this results section, only verbal negative behaviors from surgeons were examined, as they were the only group found to speak negative verbal utterances. Also, examining the influence of companion social support on nurse social support was not possible as there were only three medical appointments where both a nurse and companion were present. Throughout the results section, post-hoc analyses were completed. However, post-hoc analyses concerning differences in social support based on the nurse or surgeon in the appointment, or by companion gender were not examined also due to insufficient sample size.

Research Question One

The first research question was interested in the types of verbal social support (emotional support, network support, esteem support, tangible aid, and informational support) providers and companions offered patients. Data were coded using the verbal social support coding scheme to answer this research question. Table 6 reports means, standard deviations, and percentages of utterances by nurses, surgeons and companions. Additionally, see Table 5 for examples of social support utterances.

Nurses. Overall, 71.67% of utterances spoken by nurses were coded as socially supportive. The majority of social support provided by nurses was informational (66.89%), providing patients with possible solutions to their breast cancer diagnosis. Specifically, 0.98% of utterances came in the form of suggestion or advice given to the patient in order to promote

problem solving. An example would be, "...we were kind of thinking the lumpectomy and then add the radiation...." Additionally, 1.23% of utterances came in the form of an evaluation of the problem which promoted problem solving, such as "...good news is in terms of survival and in terms of treatments this is a good thing to have as the hormone positive gives us a lot more...." Finally, regarding informational social support, 64.80% of utterances came in the form of teaching the patient about the problem in an effort to problem solve. For example, one nurse said, "...because the breast tissue's gone, your risk of recurrence is less than 1%, even without the radiation for most people."

The remaining utterances of social support by nurses were distributed relatively evenly between the remaining four categories of support. Slightly over one percent of utterances were coded as emotional support, reminding the patient that they are cared for. Utterances which served as a reminder of the benefits of the relationship between the physician and the patient made up 0.09% of utterances by nurses. For example, one nurse said, "Well, we'll figure it out...." Statements of empathy or perspective taking composed 0.07% of utterances, such as one nurse saying, "Oh no!" in response to a patient's problem. One percent of utterances were statements of understanding regarding the situation, including "...that makes sense." Statements of concern for the situation or the patient, confidentiality regarding the situation and spiritual reminders or offerings to the patient were categories of emotional support that were not found for nurses.

Utterances of esteem support, which benefit patients' competence and self-esteem, were represented in 1.14% of nurse utterances. Specifically, 0.40% of utterances declared something positive about the patients, such as "Good for you though – for getting the strength to get up to it." An additional 0.41% of nurse utterances validated the patient's decision during problem

solving. For example, one nurse said “That would be exactly right,” in response to a patient’s decision. Similarly, few (0.33%) utterances by nurses meant to uplift the patient or convince her she could persevere through the situation, such as “I think you’ll do fine.” Statements relieving a patient of any blame regarding the situation were not found for nurses.

Tangible support, given through verbal utterances concerning instrumental aid, formed 1.34% of nurse utterances. Financial aid for the patient was clear in only two nurse utterances (0.04%), “If it’s really high you can activate this little card and it can help with your co-pay.” Non-financial aid related directly to the problem at hand was represented in 1.26% of utterances. For example, one nurse said, “I’m going to give you all of this...” before handing over documents of information to the patient. Additionally, one nurse utterance (0.04%) expressed willingness to provide assistance to the patient, “But if you do or you think of something after you leave today...you can give either [name] or myself a call across the street.” The remaining types of tangible support, nonfinancial aid which is not directly related to the problem, a statement inviting the patient to participate in an activity with the nurse, and positive responses to a patient’s request for assistance, were not found for nurses.

Social network support, which seeks to include patients in a given group, was found in 1.18% of nurses’ utterances. All of these utterances were specifically in the form of suggesting the patient connect with a person the nurse knew, such as “We have an acupuncturist that works with a lot of our patients...” No nurse utterances reminded a patient that groups of people care for her.

Surgeons. Overall, 72.99% of surgeon utterances were coded as social support. The majority of social support given by breast cancer surgeons was informational (68.86%), providing patients with possible solutions to their breast cancer diagnosis. Specifically, 1.60%

came in the form of suggestion or advice given to the patient in order to promote problem solving. An example would be, “I need to recommend that you start your chemo....”

Additionally, 1.60% of utterances came in the form of an evaluation of the problem which promotes problem solving, such as “...this is the best possible news you could get today....”

Finally, 65.66% of utterances came in the form of teaching the patient about the problem in an effort to problem solve. For example, one breast cancer surgeon said, “...it is an ugly protein on the surface of the cancer cells...” in an effort to explain the type of breast cancer a patient had.

The remaining utterances of social support by breast cancer surgeons were distributed relatively evenly between the remaining four categories of support. Approximately 1.5% of utterances were coded as emotional support, reminding patients they are cared for. Utterances which served as a reminder of the benefits of the relationship between the surgeon and the patient made up 0.80% of utterances by breast cancer surgeons. For example, one breast cancer surgeon said, “We give hugs here!” Statements of empathy or perspective taking composed 0.02% of utterances, such as “I’m sorry to hear that.” Less than one percent (0.02%) of utterances were statements of understanding regarding the situation, including a surgeon saying “I mean you should be planning other things than this,” in response to a patient struggling with diagnosis. Statements of concern for the situation or the patient were represented in 0.33% of utterances. One breast cancer surgeon said, “You okay?” Spiritual offers by surgeons represented 0.23% of utterances, one surgeon said, “...I lift her up to you...” while in prayer with the patient. Three utterances by one surgeon (0.02%) were statements of confidentiality regarding the situation, including “I’ll tell Michelle in scheduling that I’ll get rid of the information, the name and everything if I have to.”

Utterances of esteem support, which benefit patients' competence and self-esteem, were represented in 1.01% of breast cancer surgeon utterances. Specifically, 0.21% of utterances declared something positive about the patient, such as "You look better than most of my patients in here." An additional 0.29% of breast cancer surgeon utterances validated a patient's decision during the appointment. For example, one breast cancer surgeon said "I think that's really reasonable..." in response to a patient's decision. Half a percent of esteem support utterances by breast cancer surgeons sought to uplift the patient or convince her she could persevere through the situation, such as "...you're going to get yourself through it." Additionally, there was one utterance by a surgeon (0.01%) that relieved a patient of blame by saying "Don't blame yourself."

Tangible support, given through verbal utterances concerning instrumental aid, formed 1.25% of breast cancer surgeon utterances. Non-financial aid related directly to the problem at hand was represented in 1.10% of utterances. For example, one breast cancer surgeon said, "I'll put that in the notes!" Nonfinancial aid which is not directly related to the problem made up 0.09% of surgeon support. For example, one physician responded, "...that's what it's here for," in response to a patient taking one of her chocolates. Willingness to provide assistance to the patient composed 0.04% of surgeon statements such as, "...you know, if you ask me something I don't know and then I'll find out." Similarly, few surgeon utterances (0.02%) were positive responses to patients' requests for assistance including "I will do that." The remaining types of tangible support, financial aid and a statement inviting the patient to participate in an activity with the breast cancer surgeon were not present in the data.

Social network support, which seeks to include patients in a given group, was found in 0.77% of breast cancer surgeons' utterances. All of these utterances were specifically in the form

of suggesting the patient connect with a person the breast cancer surgeon knew, such as “...before you decide, if you’re thinking of doing that, I would talk to Dr. (Name)....”

Companions. Overall, 26.96% of companion utterances were coded as social support. The majority of social support given by companions was informational (24.86%), providing patients with possible solutions to their breast cancer diagnosis. Specifically, 1.02% came in the form of suggestion or advice given to the patient in order to promote problem solving. An example would be, “Schedule your surgery and get it over with.” An additional 23.84% came in the form of teaching the patient about the problem in an effort to problem solve. The vast majority of these types of utterances were in the form of questions, such as, “Any restrictions with her work?” Companions in this sample were not found to speak any utterances that evaluated the problem to promote problem solving.

The remaining utterances of social support by companions were emotional or esteem support, as companions were not found to provide any tangible or social network support. Less than one percent (0.25%) of utterances were coded as emotional support, reminding patients they are cared for. Utterances which served as a reminder of the benefits of the relationship between the companion and the patient made up 0.18% of utterances by companions. For example, one companion said, “I’m just wanted to keep you straight,” in response to a patient apologizing for getting confused regarding where they lived and would receive treatment. Statements of empathy or perspective taking composed 0.07% of utterances, such as “That’s a bummer,” said in response to unfavorable news. Statements of concern for the situation or the patient, understanding regarding the situation, confidentiality regarding the situation and spiritual reminders or offerings to the patient were categories of emotional support that were not found for companions.

Utterances of esteem support, which benefit patients' competence and self-esteem, were represented in 1.85% of companion utterances. Specifically, 0.16% of utterances declared something positive about the patients, such as "She's sturdy." An additional 0.18% of companion utterances validated the patient's decision during problem solving. For example, one companion said, "Just might as well do it, yeah," in response to a patient making a plan. Slightly over one percent (1.26%) of esteem support utterances by companions meant to uplift the patient or convince them they could persevere through the situation, such as a companion saying "Wow, pretty good," in response to favorable news received at the appointment. Statements relieving a patient of any blame regarding the situation were not found in this data for companions.

In a post-hoc analysis using one-way ANOVAs with Tukey post-hoc tests, providers and companions were found to differ significantly in terms of the overall percentage of utterances which were coded as social support, as well as specifically those utterances coded as informational, emotional, network, and tangible support. Both surgeons ($M = .73$ a, $SD = 0.13$) and nurses ($M = .71$ a, $SD = 0.11$) spoke a greater percentage of utterances which were coded as social support, as compared to companions ($M = .27$ b, $SD = 0.22$), $F(2, 78) = 83.27$, $p < .001$, $\eta^2 = .68$. Regarding specific categories of social support, both surgeons ($M = .69$ a, $SD = 0.13$) and nurses ($M = .67$ a, $SD = 0.13$) spoke a greater percentage of utterances which were coded as informational social support, as compared to companions ($M = .25$ b, $SD = 0.22$), $F(2, 78) = 69.22$, $p < .001$, $\eta^2 = .64$. Both surgeons ($M = .01$ a, $SD = 0.02$) and nurses ($M = .01$ a, $SD = 0.01$) also spoke a greater percentage of utterances which were coded as emotional support, as compared to companions ($M = .00$ b, $SD = 0.01$), $F(2, 78) = 6.15$, $p < .05$, $\eta^2 = .15$. Additionally, both surgeons ($M = .01$ a, $SD = 0.01$) and nurses ($M = .01$ a, $SD = 0.02$) spoke a greater percentage of utterances which were coded as tangible support, as compared to companions ($M =$

.00b, $SD = 0.00$), $F(2, 78) = 10.97$, $p < .001$, $\eta^2 = .23$. Finally, both surgeons ($M = .01a$, $SD = 0.01$) and nurses ($M = .01a$, $SD = 0.01$) spoke a greater percentage of utterances which were coded as network support, as compared to companions ($M = .00b$, $SD = 0.00$), $F(2, 78) = 9.40$, $p < .001$, $\eta^2 = .17$.

Research Question Two

The second research question was interested in the negative verbal behaviors providers and companions performed that may reduce feelings of social support for patients. Coding results were used to answer this research question.

Negative behaviors, defined as behaviors which may reduce feelings of social support, were present in only 0.04% of surgeon utterances, but completely absent from nurse and companion dialogue. All of these negative statements by surgeons took the form of disagreement with the patient, including a surgeon saying, “Well, you do have to stop taking radiation because...” Statements which discussed the surgeon’s personal problems, criticized the patient or statements which refused to give support were not found in the data.

Research Question Three

The third research question was interested in how companion social support is associated with provider social support. Correlations and independent t-tests were used to examine this research question. It should be noted that only companion and surgeon social support were used to examine this research question, as only three of the videos containing nurses, also contained companions. No significant correlations were found between companion and surgeon verbal social support. Independent t-test were used to examine differences in patient’s received social support from providers based on whether or not they had a companion with them. Patients with a companion were found to receive a higher amount of network support from surgeons ($M = .01$,

$SD = 0.00$) as compared to those without a companion ($M = .00$, $SD = 0.00$), $t(44) = 2.41$, $p < .05$, $\eta^2 = .12$. No other significant differences were found regarding verbal social support, nor for verbal behaviors which may reduce social support from providers or companions.

Research Question Four

The fourth research question was interested in how patient cancer stage was associated with provider and companion social support. No significant correlations were found regarding verbal social support, nor for verbal behaviors which may reduce social support from providers or companions. See Table 4 for all correlations.

Hypothesis One

Hypothesis one proposed verbal social support from providers would be positively related to patient satisfaction with their surgeon, whereas negative behaviors inhibiting social support would be negatively related to patient satisfaction with their surgeon. This hypothesis was tested using correlation. This hypothesis was not supported.

Hypothesis Two

Hypothesis two proposed verbal social support from providers would be positively related to patient adherence, whereas negative behaviors inhibiting social support would be negatively related to adherence. This hypothesis was tested using correlations. This hypothesis was not supported.

Hypothesis Three

The third hypothesis proposed that verbal social support from providers would be negatively related to patient perceived help-hopelessness pre to post-test change, whereas negative behaviors inhibiting social support would be positively related to patient help-hopelessness. This hypothesis was not supported.

Hypothesis Four

The fourth hypothesis proposed that verbal social support from companions would be negatively related to patient perceived help-hopelessness pre to post-test change, whereas negative behaviors inhibiting social support would be positively related to patient help-hopelessness. This hypothesis was tested using correlation. This hypothesis was not supported.

Hypothesis Five

Hypothesis five proposed verbal social support from providers would be negatively related to patient angst pre to post-test change, whereas negative behaviors inhibiting social support would be positively related to angst. This hypothesis was tested using correlation. This hypothesis was not supported.

Hypothesis Six

Hypothesis six proposed verbal social support from companions would be negatively related to patient angst pre to post-test change, whereas negative behaviors inhibiting social support would be positively related to angst. This hypothesis was tested using correlation. This hypothesis was not supported.

Hypothesis Seven

Hypothesis seven proposed that verbal social support from providers would be positively related to patient positive orientation pre to post-test change, whereas negative behaviors inhibiting social support would be negatively related to positive orientation. This hypothesis was tested using correlation. This hypothesis was not supported.

Hypothesis Eight

Hypothesis eight proposed that verbal social support from companions would be positively related to patient positive orientation pre to post-test change, whereas negative

behaviors inhibiting social support would be negatively related to positive orientation. This hypothesis was tested using correlation. This hypothesis was not supported.

Hypothesis Nine

Hypothesis nine proposed that verbal social support from providers would be positively related to patient minimizing of the illness pre to post-test change, whereas negative behaviors inhibiting social support would be negatively related to patient minimizing of the illness. This hypothesis was tested using correlation. This hypothesis was not supported.

Hypothesis Ten

Hypothesis ten proposed that verbal support from companions would be positively related to patient minimizing of the illness pre to post-test change, whereas negative behaviors inhibiting social support would be negatively related to patient minimizing of the illness. This hypothesis was tested using correlation. This hypothesis was not supported.

Research Question Five

The fifth research question was interested in the types of nonverbal social support behaviors providers and companions offered patients. The two nonverbal coders experienced difficulty in achieving reliability with the coding scheme, but they did ultimately agree on how to code nonverbal units after some discussion. Thus, coding results reported here are an outcome of collective coding rather than individual coding and should be interpreted as strong descriptive data, but nothing else. In other words, the coding scheme is conceptually strong, but the ability to obtain agreement between coders as they operationalize units due to low variance leaves in question the effectiveness of the coding scheme to be used beyond an exploratory focus. Nevertheless, descriptive information about nonverbal units is provided here because they provide initial insight into nonverbal social support behavior in medical interactions. See Table 8 for

descriptive statistics regarding nurses', breast cancer surgeons', and companions' use of nonverbal behaviors.

Nurses. For nurses, smile ($M = 3.25$, $SD = 1.89$), facial animation ($M = 3.75$, $SD = 0.50$), gaze ($M = 3.75$, $SD = 1.26$), touch ($M = 1.92$, $SD = 0.29$), proximity ($M = 2.42$, $SD = 0.51$), modeling/demonstrating ($M = 2.17$, $SD = 0.39$), drawing ($M = 2.64$, $SD = 0.81$), and tangible assistance ($M = 1.92$, $SD = 0.29$) were all below the midpoint of the scale on average. Conversely, nodding ($M = 4.92$, $SD = 1.68$), gesturing ($M = 4.82$, $SD = 0.60$), body orientation ($M = 5.80$, $SD = 0.42$), postural openness ($M = 5.00$, $SD = 0.67$), body lean ($M = 4.60$, $SD = 0.52$), volume matches with the patient ($M = 5.50$, $SD = 0.52$), speech rate matches with the patient ($M = 5.83$, $SD = 0.39$), and vocal warmth ($M = 5.83$, $SD = 0.39$) were all above the scale midpoint on average. Additionally, nurses' average combined scores for nonverbal social support were right at the scale mid-point ($M = 4.00$, $SD = 0.31$).

Surgeons. For breast cancer surgeons, smile ($M = 3.60$, $SD = 1.64$), facial animation ($M = 2.85$, $SD = 0.58$), gaze ($M = 3.27$, $SD = 1.03$), touch ($M = 1.76$, $SD = 0.82$), body orientation ($M = 4.82$, $SD = 1.07$), proximity ($M = 2.78$, $SD = 1.02$), modeling/demonstrating ($M = 2.02$, $SD = 0.58$), drawing ($M = 2.80$, $SD = 1.06$), and tangible assistance ($M = 1.48$, $SD = 0.51$) were below the scale midpoint. Whereas, nodding ($M = 5.74$, $SD = 1.58$), gesturing ($M = 4.38$, $SD = 1.09$), postural openness ($M = 4.65$, $SD = 0.81$), body lean ($M = 4.98$, $SD = 0.50$), volume matches with the patient ($M = 5.63$, $SD = 0.49$), speech rate matches with the patient ($M = 5.70$, $SD = 0.47$), and vocal warmth ($M = 5.13$, $SD = 0.50$), were above the scale midpoint. Additionally, breast cancer surgeons' average combined scores for nonverbal social support were slightly below the scale mid-point ($M = 3.92$, $SD = 0.23$).

Companions. For companions, average scores for gaze ($M = 5.14$, $SD = 0.79$) , nodding ($M = 4.61$, $SD = 1.88$), postural openness ($M = 4.17$, $SD = 1.03$), body lean ($M = 4.26$, $SD = 0.86$), volume matches with the patient ($M = 5.30$, $SD = 0.56$), speech rate matches with the patient ($M = 5.87$, $SD = 0.34$), and vocal warmth ($M = 4.70$, $SD = 0.56$) were all above the midpoint of the scale. Conversely, average scores for smile ($M = 3.04$, $SD = 1.49$), facial animation ($M = 2.48$, $SD = 0.68$), gesturing ($M = 1.83$, $SD = 0.49$), touch ($M = 1.56$, $SD = 0.66$), body orientation ($M = 2.61$, $SD = 0.84$), proximity ($M = 2.56$, $SD = 0.66$), modeling/demonstrating ($M = 1.04$, $SD = 0.21$), drawing ($M = 1.00$, $SD = 0.00$), and tangible assistance ($M = 1.96$, $SD = 1.66$) were all below the midpoint of the scale. Additionally, companions' average combined scores for nonverbal social support were below the scale midpoint ($M = 3.26$, $SD = 0.31$).

Additionally, a post-hoc analysis consisting of a one way ANOVA using Tukey post-hoc tests demonstrated significant differences regarding nurses', breast cancer surgeons' and companions' use of nonverbal social support behaviors. Companions ($M = 3.26a$, $SD = 0.31$) were found to produce significantly less nonverbal social support, as compared to surgeons ($M = 3.92b$, $SD = 0.23$), and nurses ($M = 4.00b$, $SD = 0.31$), $F(2, 78) = 52.46$, $p < .001$, $\eta^2 = .53$.

Research Question Six

The sixth research question was interested in negative behaviors that may reduce feelings of social support that were provided by nurses, surgeons and companions. Concerning negative nonverbal behaviors, response latency, interruptions and random movement were assessed. For nurses, response latency ($M = 2.00$, $SD = 0.00$), and random movement ($M = 2.25$, $SD = 0.74$) were below the scale midpoint, whereas interruptions ($M = 4.42$, $SD = 1.83$) were above the scale midpoint. Additionally, nurses' average overall score for negative nonverbal behaviors was

below the scale midpoint ($M = 2.89$, $SD = 0.74$). For breast cancer surgeons, response latency ($M = 2.22$, $SD = 0.42$), interruptions ($M = 3.48$, $SD = 1.52$), and random movement ($M = 2.54$, $SD = 0.89$) were all below the scale midpoint, and hence, so was surgeons' average overall score for negative nonverbal behaviors ($M = 2.74$, $SD = 0.77$). Finally, for companions, response latency ($M = 2.21$, $SD = 0.60$), interruptions ($M = 2.78$, $SD = 1.31$), and random movement ($M = 3.43$, $SD = 1.34$) were also all below the scale midpoint, as was companions' average overall score ($M = 2.81$, $SD = 0.66$).

Additionally, a post-hoc analysis consisting of a one way ANOVA using Tukey post-hoc tests demonstrated there were no significant differences regarding nurses', breast cancer surgeons' and companions' use of nonverbal behaviors that may reduce feelings of social support by the patient.

DISCUSSION

Breast cancer is commonly a stressful life experience. Lazarus's stress and coping perspective (Lazarus, 1966; Lazarus & Folkman, 1984), which has been found especially relevant in the realm of health (Cohen & McKay, 1984; Thoits, 1986; Kaniasty & Norris, 1993), proposes that during such a stressful time, social support is essential. Numerous past studies have examined the social support desired by cancer patients (Dakof & Taylor, 1987; Dunkel-Schetter, 1984; Neuling, & Winefield, 1988 ; Pistrang & Barker, 1995; Reynolds & Perrin, 2004; Roberts et al., 1994) and the positive effects of this support (Bloom & Spiegel, 1984; Kroenke et al., 2008; Neuling & Winefield, 1988; Roberts et al., 1994; Slevin et al., 1996). The context of the medical appointment, most relevantly during times of decision making, has been neglected in this research. The medical appointment during times of decision making is crucial to investigate as this has been noted as a time where extra support is likely needed by patients (Roberts et al., 1994). Additionally, medical appointments are the most likely setting for patients to be receiving support from providers, a source from which cancer patients have noted a desire for support. Of course, companions frequently attend these appointments (Belle Brown, Brett, Stewart, & Marshall, 1998; Labrecque et al., 2011; Schilling et al., 2002), giving support (Beisecker et al., 1996; Cordella, 2011; Ellingson, 2002) and possibly changing the provider-patient social support dynamic.

The current research had four main purposes. Overall, this research was interested in examining the types of verbal social support given by nurses, surgeons, and companions during decision making medical appointments for breast cancer patients. In addition to verbal social support, this research also measured negative verbal behaviors of nurses, surgeons and companions that may reduce a patient's feelings of social support. This research had a theoretical

aim as well. This research hypothesized, via the guidance of the stress and coping perspective, that social support received by these sources would be related to improved mental adjustment to cancer for breast cancer patients. Additionally, this research based on past research, predicted that social support would also be positively associated with patient satisfaction and adherence. Thirdly, this research was interested in the influence of companions and patient cancer stage on verbal social support processes. Finally, this research performed an exploratory analysis of nonverbal social support in the medical setting using a newly constructed instrument.

Verbal Social Support

This research is only the second study to use the SSBC to code for verbal social support in a provider-patient setting. The first study had a much larger sample size (125); however, the material coded was taken from phone conversations between physicians and standardized patients, in the context of a newborn child being diagnosed with sickle cell anemia (Bradford et al., 2012). Furthermore, Bradford and colleague's (2012) unit of analysis was the entire telephone transcript (marking each type of social support as either present or absent). Hence, the current research marks the first detailed study in a provider-patient cancer setting, which includes actual patients to use the SSBC.

Not surprisingly, breast cancer surgeons dominated these appointments under study as indicated by the percent of utterances they spoke (nearly half of all utterances spoken in the average appointment). In comparison, companions only spoke 3% of all utterances in the average appointment, and nurses spoke 12.4%. Approximately three-fourths of utterances by nurses and surgeons, and one-fourth of utterances by companions were found to be socially supportive, the vast majority of this support being informational. Both nurses and surgeons were significantly more likely to provide social support, and specifically more likely to provide informational,

emotional, tangible, and network support than companions. Again, due to sample size, these differences may have been statistically different, but may not be lead to practical differences and should be interpreted with this limitation in mind.

Negative verbal behaviors were nonexistent for nurses and companions, while being almost nonexistent for surgeons. Even the few negative verbal behaviors found for surgeons are debatable. All of these units took the form of disagreeing with the patient. Although this fits the SSBC coding scheme as a negative behavior (Cutrona et al., 2004), this operationalization of a negative behavior that may reduce social support is questionable on the grounds of face validity. It is possible that patients may find these disagreements from physicians helpful and view them more as informational social support. Future validity checks of the SSBC in this realm should seek to understand what may truly be viewed as negative by patients.

The lower representation by companions in terms of verbal social support does not make the companions in this study passive, as past literature has defined passive companions as those that are simply present with absolutely no verbal participation (Adelman et al., 1987). However, these patients were not very high along the continuum of verbal participation. All social support offered by companions took either the form of informational support or esteem support. Informational support was generally provided by asking questions for clarification on the patient's behalf, acting as what past scholars have titled, surrogate patients (Greene Majerovitz, Adelman, & Rizzo, 1994; Hasselkus, 1994). This study then, did not find that companions provide emotional support (at least by any other means than their presence) as past studies have documented (Beisecker et al., 1996; Glasser et al., 2001; Schilling et al., 2002). Furthermore, past studies have shown more active patients to be perceived as more helpful by patients (Ishikawa et al., 2006), and that companions would specifically prefer this activity from

companions in the form of emotional, rather than informational support (Dakof & Taylor, 1987; Dunkel-Schetter, 1984; Neuling, & Winefield, 1988). However, it is crucial to note that this study cannot speak to the satisfaction of these particular patients with their companions, rather their satisfaction can only be estimated based on the findings of past literature. Because social support is such a common role discussed for companions at medical appointments (Beisecker et al., 1996; Cordella, 2011; Ellingson, 2002), it will be important for future research to ask patients specific questions regarding *how* companions support them during their medical appointments. It is very likely this support occurs from companions mostly before and after the appointment, rather than during.

As noted, breast cancer surgeons made up nearly half the dialogue that took place in appointments providing mostly informational support (namely via teaching). This is supportive of patients receiving the informational support they desire from physicians, but likely less emotional support than they'd like based on past surveys of patients (Dakof & Taylor, 1987; Dunkel-Schetter, 1984; Neuling, & Winefield, 1988; Pistrang & Barker, 1995; Reynolds & Perrin, 2004; Roberts et al., 1994). Breast cancer patients specifically, report craving this emotional support from physicians more than informational support in decision making contexts like the one in this study (Roberts et al., 1994). Emotion has been noted as a difficult area for physicians (Baile et al., 2000), which may be related to providing emotional support, as emotional support is defined as making an individual feel cared for (Cutrona & Russell, 1990). It may be possible to improve physician's use of emotional support as a part of empathy trainings. Empathy is a core of effective provider-patient communication regardless of circumstance (Gohar Babar, 2011; Hojat, Gonnella, Nasca, Veloski, Erdmann, Callahan, & Magee, 2002). Empathy by the physician has been found to lead to a wide host of positive outcomes such as

increased helping intentions for patients by physicians (Nazione & Silk, in press), reduced anger, negative behavioral intentions, and favorable patient attitudes toward the physician (Pace & Nazione, 2013), increased patient satisfaction, compliance, and physician's ability to properly diagnose patients (Neuwierth, 1997), and reduced intentions to sue for malpractice (Moore, Adler, & Robertson, 2000)

Knowing the value of empathy for providers and patients, medical education and continuing medical education efforts that focus on the use of empathy should be revisited and evaluated for effectiveness. Although such trainings can be effective (Satterfield & Hughes, 2007), their impact decreases with time (Poole & Sanson-Fisher, 1980). This calls for continued efforts in this area as well as new, innovative interventions that aim to have long lasting effects, possibly through longitudinal reminders or through use of role models within hospitals as key intervention personnel. Trainings for companions, or possibly involving companions in trainings for medical providers may also prove helpful for patient mental and physical health outcomes. Physicians use of empathy, however, may lead to emotional contagion, the process of feeling as a patient feels, which does have consequences such as exhaustion for medical providers (Bakker, Schaufeli, Sixma, & Bosveld, 2001; Omdahl & O'Donnell, 2001). Hence, these trainings should be careful to focus on the cognitive aspects of empathy which allow a physician to recognize and respond to patient emotion, rather than feeling that particular emotion themselves (Stepien & Baernstein, 2006).

Because the SSBC is new to use in the provider-patient setting it will be important to understand from both a physician and patient perspective what making an individual feel cared for looks like in this setting. Additionally, although patients have been surveyed on their desires concerning social support from medical providers (Dakof & Taylor, 1987; Dunkel-Schetter,

1984), it is important to also know what physician's feel is their duty in this situation. This information could help in future trainings for both physicians and patients that can lead to optimal care. Different contexts and patient/companion/physician sex combinations should also be used in the future to refine the use of the SSBC in this area. Unlike this study, Bradford and her fellow authors (2012) found that social network support was the most prevalent of the five types used by primary care providers with standardized patients. This past study may simply have found different outcomes than the current study due to the fact that standardized patients were used, making the interaction feel like a test of each physician's bedside manner skills more than a true provider-patient interaction as used in this study. Additionally, it is known that communication styles differ by sex of the individual (Mast, 2007; Mast, Hall, Kockner, & Choi, 2008; Roter, Hall, & Aoki, 2002), demonstrating the importance of broadening the application of this coding tool.

The Stress and Coping Perspective

The stress and coping perspective (Lazarus, 1966; Lazarus & Folkman, 1984) would predict that verbal social support would be positively associated with a patient's mental adjustment to cancer. Mental adjustment to cancer was operationalized in this research through measurement of patient help-hopelessness, angst, positive orientation, and minimization of illness (Osborne et al., 1999). Additionally, previous research (Crane & Crane, 2010; DiMatteo et al, 1986; Conlee et al., 1993; Haskard et al, 2009; Richmond et al., 2001) would indicate that verbal social support would be positively associated to patient satisfaction with her surgeon, and intended adherence to her treatment plan.

The stress and coping perspective was not supported by this research, but may be supported by similar, larger studies. It should be made clear that this research does not serve as a

test of the stress and coping perspective as patients were not questioned regarding their stress levels. Future studies may seek to fill this void. Patient goals would be another important variable to consider for future research. Numerous scholars have proposed that the worth of social support is tied to the goal of the individual in need of help, as well as the type of stress felt (Cohen & McKay, 1984; Cutrona, 1990; House, 1981). An additional component of the stress and coping perspective that may be interesting to examine in relation to social support is the secondary appraisal process (Lazarus & Folkman, 1984). In the secondary appraisal process, individuals evaluate coping methods for their availability, self-efficacy, and response-efficacy. Experimental studies could manipulate messages to apply the different types of social support to understand the relation of social support to the secondary appraisal process and, ultimately, chosen coping outcomes. For instance, informational support has been related to self-efficacy and improved health related quality of life for breast cancer patients (Arora et al., 2007).

The Influence of a Companion and Patient Cancer Stage

Past work on the impact a companion might have when accompanying a patient to a medical appointment has provided numerous descriptive aspects of these companions and the patients that bring them (Beisecker et al., 1996; Glasser et al., 2001; Schilling et al., 2002). In an effort to focus solely on the effect of the companion on social support in the provider-patient encounter, some of the factors that past research has found to fluctuate based on companion presence were controlled for in the current research, namely patient severity of disease (measured by the proxy of patient cancer stage) and appointment length (Glasser et al., 2001; Rosland et al., 2011; Schilling, et al., 2002). Past work determined that companion presence may lead to reduced social support by physicians (Labrecque et al., 1991). Contrary to this past work, this study found that those who had a companion were actually more likely to receive network

support, as opposed to those without a companion. Hence, it is possible that the presence of a companion actually increases social support received by patients. This increase may be specific to network support because the presence of companions may heighten surgeons' eagerness to provide thorough care via connections. These connections, while helpful to the patient also demonstrate the power of the surgeon. As discussed previously, it is likely important for future work in this domain to collect larger, more diverse samples in order to understand how companion participation can influence provider-patient communication, and to better articulate the reasons behind this influence.

Cancer stage was used as a proxy to severity of disease in this study. Severity of disease has not only been positively associated with the likelihood a patient will bring a companion (Glasser et al., 2001; Rosland et al., 2011; Schilling, et al., 2002), but also the stress level of a patient (Tesarova et al., 2007). This in turn, may influence social support received by the patient. This relationship was not found in the present study. One possible reason for the lack of results may be that the majority of cancer patients were at stage two or below in this sample. A sample featuring more variation in patient cancer stage, and therefore a greater number of patients with higher cancer stages, could lend more information regarding the role of patient cancer stage in received social support.

Nonverbal Social Support

The final aim of this study was an exploratory investigation of nonverbal social support in the medical setting. The examination of nonverbal social support taking place in breast cancer patient decision making appointments with nurses, surgeons, and companions is likely the most innovative piece of this research. Although social support is a staple in research on breast cancer patients, past research is almost exclusively focused on verbal forms of social support.

Nonverbal behaviors are crucial to take into consideration, given that the understanding of any communication is incomplete without an evaluation of such behaviors given that verbal and nonverbal communication co-occurs. While, nonverbal behaviors of physicians resulting in positive outcomes such as patient satisfaction have been studied repeatedly in the literature, nonverbal social support by physicians has been substantially less studied. However, there is large overlap between positive nonverbal physician behaviors (Ambady et al., 2002; Beck et al., 2002; Crane & Crane, 2010; Dimatteo et al., 1980; Duggan & Parrott, 2001; Haskard et al., 2009; Ishikawa et al., 2006; Larsen & Smith, 1981; Street & Buller, 1987), and nonverbal behaviors that constitute social support in current literature (Jones & Guerrero, 2002; Miczo & Burgoon, 2008; Trees, 2000).

This research reported on the collective coding rather than individual coding due to low inter-rater reliability impeded by variance issues. Because of this limitation, the nonverbal results of this study can only be interpreted as strong descriptive data. While the coding scheme may be conceptually strong, this study did not demonstrate effectiveness of the coding scheme to be used beyond an exploratory focus. The descriptive nonverbal evidence within this study then only provides initial insight into nonverbal social support behavior in medical interactions.

This research examined 19 nonverbal behaviors; 16 measures of social support, and 3 negative behaviors that may lead to a decrease in felt social support. For nurses, surgeons, and companions, average measures of both social support and negative behaviors were at or below the scale midpoint. Overall, the behaviors examined were not incredibly common. Furthermore, negative nonverbal behaviors were nearly as common as nonverbal social support behaviors by nurses, surgeons and companions.

Although, nonverbal social support was low for all sources, companion nonverbal support was found to be significantly lower than provider (nurse and surgeon) nonverbal social support. A likely factor in this outcome is that the current tool may be best fit to measure physician nonverbal social support. For example, no companion was ever found to draw, although nurses and physicians did this much more frequently to help patient's understand information. It is not difficult to rationalize that drawing to aid understanding would be perceived as more helpful from medical providers than from family members (and also likely more accessible for medical providers who come prepared to draw). Conversely, touch from a family member or close friend may be felt as more socially supportive than a touch from a medical provider a patient is meeting for the first time. It is likely that measures of nonverbal support should be tailored to each unique audience.

However, due to this being an exploratory analysis taking place on a small sample with a new measurement that received poor reliability, results should be viewed as very preliminary. Once reliability and validity for this measure can be achieved, nonverbal social support may provide a beneficial new measure of social support under the stress and coping perspective. As very little research has been done on nonverbal social support, this research can serve as a guide for future studies in a diverse array of contexts concerning how nonverbal social support may fit into the stress and coping framework.

In order to maximize the use of nonverbal social support, the current measure should be validated in future studies partnering with patients. Although a wealth of studies have examined physician nonverbal communication, the leading outcome addressed in these situations are satisfaction (Ambady et al., 2002; Beck et al., 2002; Conlee et al., 1993; Richmond et al., 2001). In order to understand nonverbal social support in relation to the stress and coping perspective,

coping variables, as well as health variables should be understood in respect to physician nonverbal social support.

Limitations and Future Research

This research was limited by the fact that the project took the form of secondary data analysis. This restricted the information available from patients, specifically regarding perceptions of social support. Although this limited the researcher's ability to assess validity of the social support measurements used, it also allowed the use of past data to be maximized. Hence, this research was able to analyze social support in breast cancer patient appointments and begin to examine relationships without needing to make further requests from breast cancer patients at a sensitive time. Future research should seek to further assess social support in medical settings from the patient perspective. This would be most effectively done through sitting down with patients in front of a videotape of their appointment and asking them to report on their reactions, perceptions, and feelings throughout the appointment.

This project also included a small sample size. For example, differences in social support by surgeon, or by companion gender were not examined due to insufficient sample size. Additionally, although not directly addressed in this current research, this data does provide evidence which suggests the presence of a companion presence may be linked to perceived social support, yet this research size was not sensitive enough to detect effects. This sample is however, sizable in comparison to past studies examining provider-patient verbal and nonverbal communication (Ambady et al., 2002; Larsen & Smith, 1981; Steet & Buller, 1987). This small sample was largely due to this study's interest in matching breast cancer patient medical appointments with companions, to those appointments without companions. Only 23 of the 147 videos this sample came from did not include companions. This may be seen as another

limitation due to the secondary data analysis. However, it is also likely an artifact of the context; patients frequently bring companions, and this frequency increases with disease severity (Glasser et al., 2001; Rosland et al., 2011; Schilling, et al., 2002), making cancer patients even more likely to bring companions to their medical appointments. One study attempted to experimentally control for companions through randomly assigning patients to either bring or not bring a companion to an appointment via request (Shields, Epstein, Fiscella, Franks, McCann, McCormick, & Mallinger, 2005). However, this study experienced very high attrition due to the fact that patients did not abide by their assigned conditions, which is understandable given that the choice to bring or not bring a companion to a medical appointment is likely seen as a personal choice. It can be argued though, that through collecting a very large sample (likely 500 videos or more), researchers could obtain larger sample sizes of patients without companions to use for comparison purposes through matching on crucial variables similar to those in this study.

It should also be noted that research has found a Hawthorne effect to take place for medical providers under research (Magione-Smith, Elliot, McDonald, & McGlynn, 2002; Eckmanns, Bessert, Behnke, Gastmeier, & Ruden, 2006), meaning that medical providers alter their behaviors (likely in a socially desirable manner) when being videotaped, thereby reducing the ecological validity of the data. Hence, as this effect has been found to occur in past research, a Hawthorne effect could have occurred in this current research in which each surgeon knew her actions were being videotaped. This effect is hard to eliminate as it would be unethical to allow researchers to view medical providers interacting with patients without consent. The dyadic paradigm proposes one method for removing the bias from the Hawthorne effect through not notifying participants that they are being recorded, and only asking permission after the recording, promising to eliminate the data if permission is not given (Ickes, Bissonnette, Garcia

& Stinson, 1990). A design strategy such as this may be possible in the future, yet given that higher ethical standards should be practiced in a medical setting such as this one, such a solution may face great barriers.

Another limitation stemming from the use of videos is that the video recorders were set in a specific area for the entire time of an appointment. Hence, these videos only caught one angle of the room. This led to limitations in capturing nonverbal behavior. For example, some providers faced away from the camera through the entire appointment which made coding for nonverbal behaviors such as smiling and facial animation impossible. This is difficult to avoid without being in the room with the providers, or using multiple cameras to account for all the possible moves participants in a video could make. However, one possible solution could be a camera mounted on the ceiling (Street & Buller, 1987).

Lastly, many of the intraclass correlation coefficients for coding of nonverbal behaviors were low, which is not uncommon when coding nonverbal behaviors (Haskard et al., 2009). However, it is important to note that this research is the first to attempt to assess nonverbal social support using this exploratory tool in the medical setting. Although this issue was improved in the current study through having both coders code all videos and agree, other steps could be taken by future research. Specifically, two coders could be used for each nonverbal behavior coded (Street & Buller, 1987). Although, this would likely lead to a reduced number of nonverbal behaviors to be studied, as resource limitations are an unavoidable issue for researchers. “Thin-slice” judgments, coding 15 seconds of behavior, which have been found to be as sensitive a test for assessing nonverbal behavior as coding larger portions of time could also be used (Ambady et al., 2002; Ambady & Rosenthal, 1992). Similarly, reliability for the

measures of adherence and minimizing illness were low. With better measurements in the future, it is possible that relationships between social support and these variables could be found.

Conclusion

Under the guidance of the stress and coping perspective, this research sought to understand what types of verbal social support were provided to recently diagnosed breast cancer patients by surgeons, nurses and companions in a sample of 46 videotapes, along with the effects of provided social support on patients' mental adjustment to cancer, intended adherence to a treatment plan, and satisfaction with one's surgeon. Additionally, this research was interested in how companion social support would be related to nurse and surgeon social support, as well as how patient cancer stage would be related to social support from nurses, surgeons and companions. Finally, this research performed an exploratory analysis of nonverbal social support through creation and application of a new measure for the medical setting. Results demonstrated the majority of units spoken by surgeons and nurses were coded as verbal social support, mostly in the form of informational social support, while companion social support was significantly lower in nearly every category of social support assessed. Findings did not support a relationship between verbal social support and patient mental adjustment to cancer, satisfaction with one's surgeon, or intended adherence to one's treatment regimen. Additionally, companion presence was linked to the receipt of more network support from the patient's surgeon, whereas no links were found between patient cancer stage and received social support. Exploratory analysis of nonverbal social support found these behaviors to be low by all three sources, yet significantly lower for companions, as compared to nurses or surgeons.

In summary, these results collectively point to low verbal emotional support for patients during medical appointments, which calls for changes to be made in empathy trainings for

medical providers. Providers need to recognize patients' need for emotional support during medical appointments, and feel efficacious in providing this support. Future work should seek to validate the nonverbal social support measurement used by conducting studies with a diverse array of audiences, and most importantly through interacting with patients. Adding this measure of social support to work guided by the stress and coping perspective could lead to a greater understanding of the theory in both the provider-patient setting as well as overall. Finally, larger studies should be undertaken in the future regarding the influence of a companion on the provider-patient relationship, specifically concerning social support processes.

APPENDICIES

APPENDIX A

Tables

Table 1

Patient Demographics With or Without a Companion and Overall

Demographic	With a Companion	Without a Companion	Overall
Age	60.70	63.52	62.11
Days since Cancer Diagnosis	9.82	10.52	10.18
Cancer Stage	1.30	1.26	1.28
Length of visit	29.39	29.11	29.25
Percent White	91.30	91.30	91.30
Percent first time diagnosed	91.30	87.00	89.10
Percent married	52.20	47.80	51.10
Percent with at least some college	73.90	73.90	73.90
Percent making \$60,000 or less	52.60	60.80	57.10

Table 2

Final scale items and Cronbach alphas

Scale	Items	Alpha
Help-hopelessness	I feel I can't do anything to cheer myself up.	
	I feel that there is nothing I can do to help myself.	
	I am not very hopeful about the future.	
	I feel completely at a loss about what to do.	0.89
Angst	I feel that problems with my health prevent me from planning ahead.	
	I worry about the cancer returning or getting worse.	
	I have difficulty in believing that this happened to me.	
	I suffer great anxiety about it.	
Minimizing of Illness	I feel very angry about what has happened to me.	0.72
	I try to carry life on my life as I've always done.	
	I am determined to put it all behind me.	
	I keep quite busy, so I have no time to think about it.	
Positive Orientation	I count my blessings.	0.69
	I feel that my positive attitude will benefit my health	
	I firmly believe I will get better.	
	Since my cancer diagnosis, I realize how previous life is and I'm making the most of it.	
	I think my state of mind can make a lot of difference in my health.	
	I try to have a very positive attitude.	
	I try to fight the illness.	0.87

Table 2 (cont'd)

Patient Satisfaction	I feel understood by the surgeon.	
	I feel the surgeon accepts me.	
	I feel a lot of trust in the surgeon.	
	The surgeon answers my questions fully and carefully.	
	The surgeon listens to how I would like to do things.	
	I feel able to share my feelings with the surgeon.	0.90
Intended Adherence	I intend to follow the treatment plan.	
	I am committed to following the treatment plan.	$r = .55$

Table 3

Variable Descriptive Statistics

Variable	Minimum	Maximum	Mean	SD
<i>Help-hopelessness</i>				
Change	-1.20	0.60	-0.13	0.35
Pre-test	1.00	3.00	1.66	0.53
Post-test	1.00	2.40	1.53	0.51
<i>Angst</i>				
Change	-1.20	0.40	-0.26	0.35
Pre-test	1.20	3.40	2.37	0.59
Post-test	1.00	3.40	2.11	0.53
<i>Positive orientation</i>				
Change	-0.20	1.00	0.14	0.25
Pre-test	2.00	4.00	3.35	0.48
Post-test	2.60	4.00	3.49	0.47
<i>Minimizing of the illness</i>				
Change	-0.50	1.00	0.14	0.34
Pre-test	2.25	4.00	3.15	0.47
Post-test	2.50	4.00	3.29	0.43
Patient satisfaction	4.50	7.00	6.80	0.46
Intended adherence	3.50	5.00	4.83	0.35

* Please note that change variables were composed by subtracting pre-test scores from post-test scores.

Table 4

Correlations between Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Perceived help-hopelessness change	X									
2. Angst Change	.256	X								
3. Positive orientation change	-.271	-.271	X							
4. Minimizing of the illness change	-.095	.055	.376*	X						
5. Patient satisfaction	-.154	-.290	-.031	-.133	X					
6. Intended Adherence	-.113	-.270	.168	-.100	.738*	X				
7. Verbal social support from surgeons	-.006	-.191	-.106	-.016	.116	.184	X			
8. Verbal social support from nurses	.071	.049	.022	-.094	-.072	-.293	.487	X		
9. Verbal social support from companions	.278	-.046	-.055	-.148	-.225	-.201	.290	-.597	X	
10. Patient Cancer Stage	.083	.074	.182	.104	-.144	-.283	.025	.541	-.025	X

$p < .05$

Please note that the verbal social support correlation between nurses and companions is based off an n of 3.

Table 5

Social Support Behavior Coding System

For companions and medical providers

Umbrella Category	Conceptual Definition	Operational Definition/ Specific Category	Examples
Informational Support (1)	“advice or guidance concerning possible solutions to a problem (Cutrona & Russell, 1990, p. 322).” Remember these must be problem specific Does NOT include information the patient already knows.	Any suggestion or advice given to the patient in order to promote problem solving. (1)	“...we’re gonna recommend you have at least five years of one of our estrogen blocking drugs so...” (spoken by a surgeon)
			“It’s like our recommendation would of course by the mastectomy...” (spoken by a nurse)
		Any evaluation of the problem which promotes problem solving. (2) (disease rather than person focused – as the disease is the problem) - This is not inclusive of evaluation about “if” statements “if your tumor is negative, that would be great” – this is just information	“...it was very strongly positive, which is a good thing...” (spoken by a surgeon)

Table 5 (cont'd)

			“...good news is in terms of survival and in terms of treatments this is a very good thing to have is the hormone positive gives us a lot more options and....” (spoken by a nurse)
		Any form of teaching the patient about the problem in an effort to problem solve. (3) - This is inclusive of any information the patient does not already know (including agenda setting) - This is also inclusive of facts about reality - This is inclusive of all questions asked and answers to those questions - Inclusive of “I don’t know the answer, but I’ll figure that out for you.” – problem specific statements	“...the cancers that are negative tend to be less aggressive.” (spoken by a surgeon)
			“...ultimately we wanna get this better picture before we take you to surgery and make sure there’s nothing else...” (spoken by a nurse)

Table 5 (cont'd)

			"Now is the radiation facility at the 158 th , um ' cause I know as good as the one at St. Vincent's?" (spoken by a companion)
Emotional Support (2)	"the ability to turn to others for comfort and security during times of stress, leading the person to feel that he or she is cared for by others," Must be person focused (rather than diseased focused)	A reminder of the benefits of the relationship between the companion/physician and the patient.(4) This includes the offer of hugs Includes vague "we'll figure this out together statements"	"And it's stressful, and it's part of my job to help you get through all of this." (spoken by a surgeon)
			"We'll figure that out for you." (spoken by a nurse)
		A statement of confidentiality regarding the situation directed toward the patient. (5)	" I'll tell (name) in scheduling that I'll get rid of the information, the name and everything if I have to." (said by a surgeon)
			"All of your information is safe with me." (example)
		A statement of empathy or perspective taking regarding the situation directed toward the patient.(6)	"You've been through a lot." (said by a surgeon)
			"It's kind of a big burden." (said by a nurse)
			"That's a bummer." (said by a companion)

Table 5 (cont'd)

		A statement of understanding regarding the situation directed toward the patient.(7)	"I completely understand." (said by a surgeon)
			"It's normal to have your mind going a thousand miles an hour." (said by nurse in response to a patient explanation of a problem).
		Any spiritual reminders or offerings to the patient. (8)	"I pray that for you." (said by a surgeon)
			"And then if it's okay, I would love to pray with you." (said by a surgeon)
		A statement of concern for the situation or patient, directed toward the patient. (9)	"Are you okay there?" (said by a surgeon)
			"What is the most difficult thing for you to deal with right now?" (said by a surgeon)
Esteem Support (3)	"the bolstering of a person's sense of competence or self-esteem by other people," This is directed at the person, not the disease	A statement declaring something positive about the patient. (10)	"You're in fantastic shape for a 70 year old." (said by a surgeon)

Table 5 (cont'd)

			"She's sturdy." (said by a companion)
			"...that's a good attitude too... (said by a nurse).
		A statement validating the patient's decision during problem solving. (11)	"You made the right choice." (said by a surgeon)
			"Correct, yeah." (said by a nurse).
			"Just might as well do it, yeah." (said by a companion)
		A statement relieving the patient of any blame regarding the situation. (12)	"Don't blame yourself." (said by a surgeon)
			"You did nothing wrong." (example)
		A statement meant to uplift the patient or convince them they can persevere/tackle/deal with the situation. (13) Inclusive of reassurance that there is a solution to the problem statements or that they are in control.	"You're going to do great." (said by a surgeon)
			"Wow, pretty good." (said by a companion in response to good news)
			"Whatever is more comfortable for you." (said by a nurse)

Table 5 (cont'd)

Tangible Aid (4)	“concrete instrumental assistance”	An offer of financial assistance to the patient. (14)	“If it’s really high you can activate this little card and it can help with your co-pay” (said by a nurse)
			"If you need help with medical bills I can step in." (example)
		An offer of tangible (non-financial) assistance to the patient which is directly related to the problem. (15)	"I'll write you a prescription." (said by a nurse)
			"So lots of options, I'm going to write them down for you, okay?"
		An offer of tangible (non-financial) assistance to the patient which is not directly related to the problem. (16)	"Have one of those later." (said by a surgeon offering a patient chocolate)
			"Would you like some tea or coffee?" (said by a surgeon)
		A statement inviting the patient to participate in an activity with the physician or companion (an activity just between the physician/companion and the patient). (17)	"Let's cook together." (example)

Table 5 (cont'd)

			"You should join me in a workout." (example)
		A statement offering willingness to provide assistance to the patient. (18)	"If you guys come up with any questions at any point, just call my office anytime." (said by a surgeon)
			"But if you do or you think of something after you leave today...you can give either Amy or myself a call across the street." (said by a nurse)
		An answer of agreement when asked by the patient for assistance. (19)	"Absolutely and we can do that for you. Absolutely." (said by a surgeon)
			"Briefly, I can do that, absolutely." (said by a surgeon)
Social Network Support (5)	"a person feeling part of a group whose members have common interests and concerns,"	A statement reminding the patient that someone (other than the speaker) care for them. (20)	"You have an entire family that loves you." (example)
			"We have support groups available, would you like to join?" (example)

Table 5 (cont'd)

		A statement suggesting the patient should connect with someone (other than the speaker). (21)	"...what I'm going to do is introduce you to one of the radiation guys here...." (said by a surgeon)
Negative behaviors (6)	Behaviors which may reduce feelings of social support	A statement made by the companion or physician which discusses their personal problems. (22)	"I'm worried that I might have cancer." (example)
			"This visit is taking too long." (example)
		A statement criticizing and degrading the patient. (23)	"You need to toughen up." (example)
			"No." (in response to a request for help) (example)
		Refusal to give support or no statement at all in response to the patient's initiation of conversation or request for assistance. (24)	"I don't want to talk about it." (example)
			Doesn't respond to patient. (example)
		A statement of disagreement or disapproval in response to a statement made by the patient. (25)	"Now, I don't want you saying no way on me." (said by a surgeon)
			"Well, you do have to stop taking hormones because..." (said by a surgeon)

The number beside each umbrella and subcategory represents the code an utterance representing that category was given. Additionally, a code of zero was used to indicate no social support, and 99 was used to indicate a patient utterance.

Table 6

Means, Standard Deviations, and Percentages of Primary and Secondary Social Support Utterances by Nurses, Surgeons and Companions

Primary Type of Social Support	Secondary Type of Social Support	Nurse			Surgeon			Companion		
		M	SD	%	M	SD	%	M	SD	%
Informational support	Suggestion or advice	3.25	2.63	0.98	6.37	7.46	1.60	0.33	0.64	1.02
	Evaluation	4.83	4.30	1.23	6.37	5.82	1.60	0.00	0.00	0.00
	Teaching	242.08	98.98	64.68	251.35	138.78	65.66	9.38	16.69	23.84
	Total	250.17	101.61	66.89	264.11	146.49	68.86	9.71	16.98	24.86
Emotional support	Reminder of benefits	2.67	1.56	0.09	3.07	3.10	0.80	0.08	0.28	0.18
	Statement of confidentiality	0.00	0.00	0.00	0.07	0.44	0.02	0.00	0.00	0.00
	Statement of empathy	0.25	0.62	0.07	0.65	1.39	0.02	0.04	0.20	0.07
	Statement of understanding	3.83	4.84	0.96	0.74	1.24	0.02	0.00	0.00	0.00
	Spiritual reminder	0.00	0.00	0.00	0.72	4.72	0.23	0.00	0.00	0.00
	Statement of concern	0.00	0.00	0.00	0.07	0.33	0.01	0.00	0.00	0.00
	Total	6.75	4.99	1.12	5.33	6.39	1.10	0.13	0.34	0.25

Table 6 (cont'd)

Esteem support	Declaring something positive	1.67	2.39	0.40	0.96	1.63	0.21	0.08	0.41	0.16
	Validating the patient's decision	1.67	2.23	0.41	0.98	1.41	0.29	0.04	0.20	0.18
	Statement relieving the patient of blame	0.00	0.00	0.00	0.09	0.46	0.01	0.00	0.00	0.00
	Uplifting the patient	1.24	1.60	0.33	2.02	2.92	0.50	0.50	0.88	1.26
	Total	4.33	4.48	1.14	4.11	4.12	1.01	0.63	1.01	1.85
Tangible aid	Financial assistance	0.17	0.58	0.04	0.00	0.00	0.00	0.00	0.00	0.00
	Tangible problem assistance	3.08	2.87	1.26	4.26	3.54	1.10	0.00	0.00	0.00
	Tangible non-problem assistance	0.00	0.00	0.00	0.33	0.97	0.09	0.00	0.00	0.00
	Invitation to participate in an activity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Willingness to provide assistance	0.08	0.29	0.04	0.11	0.38	0.04	0.00	0.00	0.00
	Agreement to provide assistance	0.00	0.00	0.00	0.09	0.28	0.02	0.00	0.00	0.00
	Total	4.33	4.48	1.34	4.80	3.58	1.25	0.00	0.00	0.00

Table 6 (cont'd)

Social network support	Reminder of caring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Suggestion to connect	3.08	3.00	1.18	2.85	3.28	0.77	0.00	0.00	0.00
	Total	3.25	2.93	1.18	2.96	3.30	0.77	0.00	0.00	0.00
Total		292.3	95.38	71.67	281.35	154.03	72.99	10.46	17.42	26.96

Note all percentages are taken from a denominator of all utterances spoken by a speaker (rather than simply those social support utterances).

Table 7

Nonverbal Social Support Coding System

Type	Conceptual Definition	Operational Definition	Scale
Emotional Nonverbal Social Support	“the ability to turn to others for comfort and security during times of stress, leading the person to feel that he or she is cared for by others,”		
	Smile	Either closed (corners of the mouth turned up, lips together, teeth together) or (corners of the mouth turned up, lips parted to show teeth).	None/Frequent
	Facial animation	Any movement of the face to a non-neutral position (either positive or negative); frequency and variety of expressions.	Impassive/Animated
	Gaze	Proportion of the video in which the provider or companion is looking directly at the patient.	Looking at the patient/looking away
	Nodding	The amount of cyclical up and down (vertical) movements of the head made while listening.	None/Frequent
	Gesturing	Movements of hand or fingers in interaction by the provider or companion, excluding self-adaptors. Includes side to side, forward-back, and up and down movements.	None/Frequent
	Touch	The amount of times the provider or companion uses any part of their body to touch any part of the patient's body. (includes hand holding, hugs).	None/Frequent

Table 7 (cont'd)

	Body orientation	The degree to which a plane perpendicular to the plane of the provider or companion's shoulders is turned away from the median plane of the patient.	Indirect/Direct
	Postural openness	The degree to which the provider or companion's torso area is open to the person.	Very closed/very open
	Body lean	The number of degrees that a plane defined from a communicator's shoulders to his or her hips is away from the vertical plane.	Backward/Forward
	Proximity	The actual distance between the provider or companion and the patient.	Close/Far
	Volume matches the patient	The degree to which the loudness or softness of talk by the provider or the companion matches that of the patient.	Not at all matching/Exact match
	Speech rate matches the patient	The degree to which the speed of talk (being fast, or hurried) of the provider and companion, matches that of the patient.	Not at all matching/Exact match
	Vocal Warmth	Degree to which the provider or companion indicates positive affect with his or her voice, communicating affection, liking, and/or concern reflected in part by a mellow, soothing voice.	Cold/warm
Informational Social Support	“advice or guidance concerning possible solutions to a problem.”		

Table 7 (cont'd)

	Role Modeling	The provider or companion providing a physical demonstration of how a procedure will be in acted or was enacted. Examples include demonstrating how a biopsy or breast exam is done.	None/Frequent
	Drawing	Drawing in order to help explain a procedure.	
Tangible Social Support	“concrete instrumental assistance”		
	Tangible assistance	Any tangible aid given by the provider or companion to the patient. Examples include giving a tissue to the patient, hanging the patient their purse, etc.	
Negative Nonverbal Behaviors	Behaviors which may reduce feelings of social support		
	Response latency	The length of time the provider or companion pauses before responding when they have been given the conversational turn.	No pausing/Very long pauses
	Interrupts	When the provider or companion begins to talk while the patient is talking.	None/Frequent

Table 7 (cont'd)

		The amount of purposeless movement of legs, feet, torso, or arms and hands (i.e. swinging of feet, shaking legs, tapping hand against side of chair, excludes hand and arm movements that are a part of self-adaptors - self-touching or manipulation - or illustrator gestures).	
	Random movement		None/Frequent

Table 8

Inter-Rater Reliability and Descriptive Statistics for Nonverbal Social Support Behaviors by Nurses, Surgeons, and Companions

Variable	Scale	Nurse N = 12				Surgeon N = 46				Companion N = 23			
<i>Social support nonverbal behaviors</i>		Intraclass Correlation	n	M	SD	Intraclass Correlation	n	M	SD	Intraclass Correlation	n	M	SD
Smile	None/Frequent	0.94	4	3.25	1.89	0.80	20	3.60	1.64	0.86	23	3.04	1.49
Facial animation	Impassive/Animated	1.00	4	3.75	0.50	0.74	20	2.85	0.59	0.89	21	2.48	0.68
Gaze	Looking at the patient/looking away	0.99	4	3.75	1.25	0.79	22	3.27	1.03	0.96	21	5.14	0.79
Nodding	None/Frequent	0.97	12	4.92	1.68	0.75	46	5.74	1.59	0.95	23	4.61	1.88
Gesturing	None/Frequent	0.97	11	4.81	0.60	0.76	45	4.38	1.09	0.63	23	1.83	0.49
Touch	None/Frequent	0.99	12	1.92	0.29	0.60	46	1.76	0.82	0.84	23	1.56	0.66
Body orientation	None/Frequent	0.97	10	5.80	0.42	0.43	45	4.82	1.07	0.86	23	2.61	0.84
Postural openness	Indirect/Direct	0.91	10	5.00	0.67	0.68	43	4.65	0.81	0.92	23	4.17	1.03
Body lean	Very closed/very open	0.99	10	4.60	0.52	0.60	45	4.98	0.50	0.86	23	4.26	0.86
Proximity	Backward/Forward	0.97	12	2.41	0.51	0.86	45	2.78	1.02	0.95	23	2.56	0.66
Volume matches the patient	Close/Far	0.99	12	5.50	0.52	0.23	46	5.63	0.49	0.51	23	5.30	0.56

Table 8 (cont'd)

Speech rate matches the patient	Not at all matching/Exact match	0.99	12	5.83	0.39	0.04	46	5.70	0.47	0.61	23	5.87	0.34
Vocal Warmth	Not at all matching/Exact match	0.99	12	5.83	0.39	0.23	46	5.13	0.50	0.88	23	4.70	0.56
Modeling/ Demonstrating	Cold/warm	0.98	12	2.17	0.39	0.58	46	2.02	0.58	0.08	23	1.04	0.21
Drawing	None/Frequent	0.93	12	2.63	0.81	0.74	45	2.80	1.06	0.00	23	1.00	0.00
Tangible assistance	None/Frequent	0.81	12	1.91	0.29	0.65	46	1.47	0.51	0.99	23	1.96	1.66
Total averaged score			12	4.00	0.31		46	3.92	0.23		23	3.26	0.31
<i>Negative nonverbal behaviors</i>													
Response latency	No pausing/Very long pauses	0.93	12	2.00	0.00	0.13	46	2.22	0.42	0.54	23	2.21	0.60
Interrupts	None/Frequent	0.99	12	4.42	1.83	0.75	46	3.49	1.52	0.88	23	2.78	1.31
Random movement	None/Frequent	0.66	12	2.25	0.75	-0.05	46	2.54	0.89	0.57	23	3.43	1.34
Total averaged score			12	2.89	0.74		46	2.75	0.77		23	2.81	0.66

APPENDIX B

Survey Questions

Help-hopelessness

(measured on a 1 to 4 scale, where 1 indicates the item definitely does not apply to the patient, and 4 indicates the statement definitely does apply to the patient).

I feel I can't do anything to cheer myself up.

I feel that life is hopeless. (item deleted)

I feel that there is nothing I can do to help myself.

I am not very hopeful about the future.

I feel like giving up.

I feel completely at a loss about what to do.

Angst

(measured on a 1 to 4 scale, where 1 indicates the item definitely does not apply to the patient, and 4 indicates the statement definitely does apply to the patient).

I feel that problems with my health prevent me from planning ahead.

I worry about the cancer returning or getting worse.

I have difficulty in believing that this happened to me.

I suffer great anxiety about it.

I feel very angry about what has happened to me.

Minimizing of Illness

(measured on a 1 to 4 scale, where 1 indicates the item definitely does not apply to the patient, and 4 indicates the statement definitely does apply to the patient).

I try to carry life on my life as I've always done.

I am determined to put it all behind me.

I think of other people who are worse off. (item deleted)

I keep quite busy, so I have no time to think about it.

I count my blessings.

Positive Orientation

(measured on a 1 to 4 scale, where 1 indicates the item definitely does not apply to the patient, and 4 indicates the statement definitely does apply to the patient).

I feel that my positive attitude will benefit my health

I firmly believe I will get better.

Since my cancer diagnosis, I realize how previous life is and I'm making the most of it.

I have plans for the future (e.g. holidays, jobs, etc). (item deleted)

I think my state of mind can make a lot of difference in my health.

I try to keep a sense of humor about it. (item deleted)

I try to have a very positive attitude.

I see my illness as a challenge. (item deleted)

I try to fight the illness.

Patient Satisfaction

(measured on a 1 to 7 Likert scale, where 1 indicates the participant strongly disagreed with the item, and 7 indicates the participant strongly disagreed with the item).

I feel the surgeon has provided me choices and option. (item deleted)

I feel understood by the surgeon.

I am able to be open with the surgeon. (item deleted)

The surgeon conveys confidence in my ability to make changes. (item deleted)

I feel the surgeon accepts me.

The surgeon made sure I really understood my condition and what I need to do. (item deleted)

The surgeon encourages me to ask questions. (item deleted)

I feel a lot of trust in the surgeon.

The surgeon answers my questions fully and carefully.

The surgeon listens to how I would like to do things.

The surgeon handles people's emotions well. (item deleted)

The feel that the surgeon cares about me as a person. (item deleted)

I do feel very good about the way the surgeon talks to me. (reverse coded, item deleted)

The surgeon tries to understand how I see things before suggesting a new way to do things. (item deleted)

I feel able to share my feelings with the surgeon.

Intended Adherence

(measured on a 1 to 5 Likert scale, where 1 indicates the participant strongly disagreed with the item, and 5 indicates the participant strongly disagreed with the item).

I intend to follow the treatment plan.

I am committed to following the treatment plan.

APPENDIX C

Utterance unitization guidelines:

- o Utterance can be defined “an independent clause, a non-restrictive dependent clause, an element of a compound predicate, or a term of acknowledgment, evaluation or address (Stiles, 1992, p. 20).
 - Conveys one “psychological unit of experience”
- o Goal: To break down conversations into the *smallest* codeable units without altering the meaning
- o Independent clause – Simple sentence
 - Example: “I am here to see the doctor.”
- o Element of a compound predicate - tells what the subject does (add on)
 - Only do this when there is a *verb* after the connecting word (and, but, because, or, so etc). Note there may be silent subjects
 - Right here is the problem area and *to the left of that is the healthy tissue*.
 - This will impact your health and *drastically alter your family life*.
 - I want you to be careful with alcohol, but *one glass of wine a week won’t hurt*.
 - Did you want to try the radiation or *maybe try the chemotherapy*?
 - Note that If/Then should be kept together to keep meaning (same with “when” statements)
 - Example: “well if it comes back if the gamma scan says that side looks fine and it’s normal then then I would feel more comfortable just treating you on one side but” should be one utterance
 - if they think they see something that they can do an MRI guided needle biopsy that would be more definitive
 - so since we already have the MRI and they think that they see something funny we might as well just stick with that and try and figure it out.
 - when we do a lumpectomy I have to get that area
- o Term of acknowledgement – words like “Yes. Yeah. Uh-huh, Okay, alrighty, No, nuh-uh.” Etc ALWAYS get their own line as an utterance
 - Example: “Yes. Do you have any more concerns?” Should be broken into two utterances.
 - Note this does not include “um, or oh”
 - Multiple of these in a row get the same utterance
 - “Okay, yeah, yes, alrighty” – all one utterance.
- o Evaluation – Short evaluative statements are utterances (often emotional)
 - Example: “Wonderful. Well, why don’t we get started?” – should be two utterances.

- Additional Examples: “Good!” “I’m sorry.” “Correct.”
- Address – Greetings and farewells are utterances.
 - Example: “Hello. How are you today” Should be broken up into two utterances
- Treat words in brackets and out of brackets the same
- **Words you’re more than likely going to break after include “so” “because” “and” “but” “which”**
 - For the utterances without these types of link words it’s easiest to think in terms of when would you take a breath?
 - “that wasn’t easy I can tell”
 - That wasn’t easy
 - I can tell
- Leave partial utterances and link words (“so” “and” “because” etc) with the utterance it comes after.
- Exception – every turn at talk will get an utterance even if it is not a complete thought
- The beginning of a sentence is a definite beginning to a new utterance
 - However, you may have to include partial utterances that the speaker began with.
 - Example: NUR: “surrounding tissue. We don’t know about the rest of your body yet and,”
- Sometimes you may have to put in silent subjects
 - Example: “This is when that cancer was really early and still confined within the walls of the duct what we call ductal carcinoma in situ.” Has 3 utterances
 - 1) This is when that cancer was really early and-
 - 2 [the cancer was] confined with the walls of the duct
 - 3) [this is what] we call ductal carcinoma in situ”
 - Note you do not add these silent subject in – I just did here as an example
- Partial utterances do not become their own unit.
 - Example: “I – you look so familiar to me. Do you-” stays as one utterance.
- When confused, ask yourself “Does it make sense on its own?” If so – utterance, if not, probably partial. (note that you often have to remove the first word of the utterance for this to work – words like “so” “then” “and”

APPENDIX D

Nonverbal coding guidelines

General

- 1) All breast cancer patients are female in these videos.
- 2) Please indicate on your coding sheets how many companions were present and their sex(es)
- 3) If you run into a video with a nurse coming in before the surgeon code the nurse's nonverbal on one sheet and then code the surgeon's on another (there is space for you to insert both scores into the excel file – just leave the medical provider's nonverbal [highlighted in yellow] blank if there is only one provider).
- 4) Please code for as many nonverbal behaviors as you feasibly can. If a category truly is uncodeable (such as the provider's back facing the camera the entire time) then place a zero for the category in the excel file.
- 5) Don't code for more than two hours at time and do something in between each video to clear your head.
- 6) Remember to take detailed notes for when you discuss differences.

Coding:

- 1) Regarding facial animation
1 – completely neutral, 2 – some life in their face, 3 – conveying emotion with their face, 4 they've got some overt gestures (1-5 overt gestures), 5 (6-10 overt gestures), 6 (11-15 overt gestures), 7 (16-20 overt gestures and they look like they are in a bad play).
- 2) Nodding is any up and down movement of the head – even if it is small.
- 3) Regarding proximity – a 1 would indicate they are touching, whereas a 7 would indicate the two people are in the farthest seats a part possible and are not leaning toward each other.
- 4) Regarding vocal warmth – 4 would be a neutral emotionless tone, 5 would be friendly, 6 would be sweetly caring, and 7 would be almost like talking to a child. 3, 2, & 1 are reserved for being condescending.
- 5) We've changed role modeling – to modeling/demonstrating – hence, any time a provider uses purposeful gesturing to demonstrate how a procedure will be formed, code this as modeling/demonstrating. Examples include the Geiger counter and balloon bead therapy discussions had during videos we watched.

6) Regarding behaviors you can count - (smiles, nods, touch, modeling, tangible assistance, interruptions, and random movement) – longer events (such as extended laughing, get a two count)

1 – Doesn't happen

2 – 1-5

3 – 6-10

4 – 11-15

5 – 16-20

6 – 21-25

7 – 25-30

7) Regarding the remaining variables that can be viewed continuously, remember that 4 indicates that it happened literally half the time during the video's length.

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