TAIWANESE MOTHER-DAUGHTER BREAST CANCER COMMUNICATION AND ITS INFLUENCE ON DAUGHTERS’ PREVENTION BEHAVIORS

by

Wan-Lin Chang
A Dissertation
Submitted to the
Graduate Faculty
of
George Mason University
in Partial Fulfillment of
The Requirements for the Degree
of
Doctor of Philosophy
Communication

Committee:
__________________________  Director
__________________________
__________________________
__________________________
__________________________  Department Chairperson
__________________________  Program Director
__________________________  Dean, College of Humanities and Social Sciences

Date: ______________________  Spring Semester 2015
George Mason University
Fairfax, VA
Taiwanese Mother-Daughter Breast Cancer Communication and Its Influence on Daughters’ Prevention Behaviors

A Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at George Mason University

by

Wan-Lin Chang
Master of Science
Brandeis University, 2008

Director: Xiaoquan Zhao, Associate Professor
Department of Communication

Spring Semester 2015
George Mason University
Fairfax, VA
This work is licensed under a creative commons attribution-noderivs 3.0 unported license.
ACKNOWLEDGEMENTS

Completing this dissertation has been a long, arduous, challenging, but worthwhile process. Without the generous assistance and guidance from many people, this dissertation would not exist. I am blessed to have so many awesome professors, colleagues, and friends around me during this time; in fact, they have been with me during my entire graduate study at George Mason University.

I would like to express my greatest gratitude to the people who have contributed from the beginning to the completion of this dissertation. First, I would like to thank all the women who participated in this study. Their invaluable contribution provided this project with an abundance of vivid information. I am so fortunate to have such a supportive committee where each committee member, Drs. Xiaoquan Zhao, Gary Kreps, and Kevin Wright, not only helped to locate my weaknesses and advised how to correct them, but also guided me in the overall direction of my research.

I want to express how thankful I am to have Dr. Xiaoquan Zhao as my advisor. His high expectations and standards constantly challenge me to produce a better quality work. He serves as a mentor from whom I have learned how to become a more conscientious, organized scholar. During every meeting I had with him, he never failed to come up with excellent, challenging, and insightful questions and suggestions. Because of his constant encouragement and urging, I am able to finish my dissertation and achieve my doctoral degree on time.

Aside from my committee members, a number of people have been of great support to my dissertation. Dr. Carla Fisher has provided me with valuable comments on survey design. I have broadened my knowledge about family communication as well as mother-daughter communication through her class and discussion with her. Felicia Garland-Jackson was my editor, and she did a solid job proofreading my dissertation. Through her help, my dissertation was fine-tuned taking on a richer, more nuanced level of content. I want to thank Meng-Hao Li, who patiently guided me through a maze of statistical problems and questions. I also want to thank Kuan-Yi Chao, who has been my study partner throughout my entire graduate study. We prepared and entered our PhD programs at the same time. Even though our programs were in different schools, we have supported
and comforted each other when we faced difficulties and challenges in our lives. My dissertation would have been much harder to finish without their generous assistance.

I am also privileged to have a loving, supportive family and a group of fantastic friends who are always there for me. My parents, Ming-Sung Chang and Hui-Chu Tsui, have always had faith in me and encouraged me to pursue my dreams. I know I would not have had the opportunity to study abroad and explore the world without their love and support. Thank you to my dearest little sister, Ya-Chi, who has always been there for me even though we are in different parts of the world. Her on-going support has helped me through many ups and downs during my graduate study life. Thanks to my little brother, Chu-Yen, who always believes and looks up to me. Being a good role model for him is what I told myself and it kept me hanging in there when I felt too tired to go on. I want to especially thank my mom and my aunt, Shu-Lan Chang, who helped me recruit women to participate in this study. I do not know where I would be without their help. I would also like to express my profound appreciation to everyone in the Chang family as well as my many friends, whose love provided me with the strength and motivation that was necessary for the completion of my graduate study.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Tables</td>
<td>viii</td>
</tr>
<tr>
<td>List of Figures</td>
<td>ix</td>
</tr>
<tr>
<td>List of Abbreviations</td>
<td>xi</td>
</tr>
<tr>
<td>Abstract</td>
<td>xii</td>
</tr>
<tr>
<td>Chapter One: Study Background</td>
<td>1</td>
</tr>
<tr>
<td>Chapter Two: Review of Literature</td>
<td>4</td>
</tr>
<tr>
<td>Current Breast Cancer Situation in Taiwan</td>
<td>4</td>
</tr>
<tr>
<td>Family Communication and Breast Cancer Research</td>
<td>7</td>
</tr>
<tr>
<td>Mother-daughter Communication and Breast Cancer Research</td>
<td>9</td>
</tr>
<tr>
<td>Social Penetration Theory</td>
<td>12</td>
</tr>
<tr>
<td>Factors That Influence Self-disclosure</td>
<td>12</td>
</tr>
<tr>
<td>Individual Factors</td>
<td>13</td>
</tr>
<tr>
<td>Relational Factors</td>
<td>16</td>
</tr>
<tr>
<td>Cultural Factors</td>
<td>18</td>
</tr>
<tr>
<td>Research Questions</td>
<td>21</td>
</tr>
<tr>
<td>Chapter Three: Overview of Research Methodology</td>
<td>23</td>
</tr>
<tr>
<td>Chapter Four: Qualitative Method and Results</td>
<td>25</td>
</tr>
<tr>
<td>Grounded Theory Approach</td>
<td>25</td>
</tr>
<tr>
<td>Sampling and Recruitment Procedure</td>
<td>27</td>
</tr>
<tr>
<td>The Interview Process</td>
<td>29</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>30</td>
</tr>
<tr>
<td>Findings</td>
<td>32</td>
</tr>
<tr>
<td>Mother Participants</td>
<td>32</td>
</tr>
<tr>
<td>Daughter Participants</td>
<td>50</td>
</tr>
<tr>
<td>Discussion</td>
<td>54</td>
</tr>
<tr>
<td>Chapter Five: Quantitative Method Report</td>
<td>59</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table 1 Demographic Characteristic of Mother Participants ........................................ 28
Table 2 Demographic Characteristics of Daughter Participants ................................ 29
Table 3 The Framework of Coding Process of Mother Interviewees ............................... 31
Table 4 Relationship Between Seven Themes and Three Levels of Factors That Influence
Individual’s Disclosure ........................................................................................................ 34
Table 5 Demographic Characteristics of Mother Participants .................................. 59
Table 6 Demographic Characteristics of Daughter Participants ............................... 60
Table 7 Descriptive Statistics on Individual Characteristics, Mother-daughter
Relationship, and Mother-daughter Communication Variables from the Mother Survey 72
Table 8 Descriptive Statistics on Mother-daughter Communication Variables from the
Mother Survey ..................................................................................................................... 74
Table 9 Paired-sample t-test of Breast Cancer Mothers’ Self-disclosure level on Different
Topics Between The Time During Their treatment and The Time of Completing the
Survey ................................................................................................................................. 75
Table 10 Correlations of All Independent Variables (IV) From The Mother Survey ...... 76
Table 11 Correlations of Mother-daughter Communication Variables (DV) From The
Mother Survey ..................................................................................................................... 76
Table 12 Correlations of Mother-daughter Communication Variables with Other
Indicators From The Mother Survey .................................................................................. 77
Table 13 Multivariable Regression on the Level of Self-disclosure From The Mother
Survey ................................................................................................................................. 78
Table 14 Multivariable Regression on the Degree of Withhold Information From The
Mother Survey ..................................................................................................................... 79
Table 15 Multivariable Regression on Openness on Breast Cancer Issues From The
Mother Survey ..................................................................................................................... 80
Table 16 Descriptive Statistics on Age, Cancer Risk Perception, and Mother-daughter
Relationship Variables from the Daughter Survey .......................................................... 82
Table 17 Paired-sample t-test of Breast Cancer Mothers’ Self-disclosure level on
Different Topics Between from Daughters’ Perspective ................................................. 83
Table 18 Correlations of Independent Risk Perception and Prevention Behaviors
Variables (DV) From The Daughter Survey ................................................................. 84
Table 19 Correlations of All Independent Variables (IV) From The Daughter Survey ... 85
Table 20 Correlations of Mother-daughter Communication with Other Indicators From
The Daughter Survey ........................................................................................................ 85
Table 21 Multivariable Regression on Risk Perception and Level of Worry From The Daughter Survey ........................................................................................................................................................................... 86
Table 22 Logistic Regression on Cancer Prevention Behaviors From The Daughter Survey ........................................................................................................................................................................... 87
LIST OF FIGURES

Figure 1 Breast Cancer Incident Rate From 1981-2011 in Taiwan ........................................ 5
Figure 2 The Relationship among All the Variables of Mother Survey Data .................. 70
Figure 3 The Relationship among All the Variables of Daughter Survey Data ................. 71
LIST OF ABBREVIATIONS

Breast Cancer Communication ................................................................. BCC
First-Degree Female Relative ................................................................. FDFR
Mother-daughter Relationship ............................................................... MDR
Self-disclosure .......................................................................................... SD
Witholding Information ........................................................................... WI
ABSTRACT

TAIWANESE MOTHER-DAUGHTER BREAST CANCER COMMUNICATION AND ITS INFLUENCE ON DAUGHTERS’ PREVENTION BEHAVIORS

Wan-Lin Chang, Ph.D.

George Mason University, 2015

Dissertation Director: Dr. Xiaoquan Zhao

Since 1982, cancer has been the leading cause of death in Taiwan, claiming over 30,000 lives annually. For certain families facing a cancer diagnosis, communication within the family helps them cope together and support each other, emotionally and physically, from diagnosis through treatment. The topic of breast cancer may also alter the usual boundaries of communication between family members.

This dissertation investigates communication between Taiwanese mothers with breast cancer and their daughters, as well as the potential influence of such communication on daughters’ cancer prevention attitudes and behaviors. The study’s research design employs a concurrent quantitative-dominant mixed method design in which both quantitative and qualitative data are collected and analyzed at the same time (Powell, et al., 2008). Additionally, this dissertation focuses on two intricately related groups: mothers who are breast cancer patients/survivors and their daughters.
The qualitative research consisted of twenty-two in-depth interviews that were conducted between May and July 2014, including fifteen breast cancer mothers and seven daughters of breast cancer patients/survivors. Seven themes emerged from breast cancer mothers’ interview data and two themes from daughters’ interview data that demonstrated factors that influence mothers’ self-disclosure intention/behaviors. The quantitative research consisted of a survey in which 244 participants filled out their information. The survey was conducted between June and October 2014, and it included 164 breast cancer mothers and 80 daughters. Results reveal that breast cancer mothers’ self-disclosure was influenced by individual, relational, and cultural factors. Their role as mothers heavily affected their disclosure, limiting it because of their intense worry of the disclosure’s possible negative impact on their daughters. Yet, mothers’ suggestions/advice did have significant influence on their daughters’ prevention behaviors. The study’s findings also suggest that the Taiwanese government, health professionals, and support groups, can all play an integral part in influencing the breast cancer mothers to establish open family communication about cancer.
CHAPTER ONE: STUDY BACKGROUND

Communication, including verbal and non-verbal, is the foundation of relationship building. Without communication, relationships cannot fully develop, and this also holds true in the family setting. Family communication and relations within the family are interrelated. It is through communication that family members cultivate and build their relationships (Vangelisti, 2004, p.x). Family communication also helps encourage social and physical support, especially for those who face traumatic, life-changing events, such as receiving a cancer diagnosis. Since 1982, cancer has been the leading cause of death in Taiwan, claiming over 30,000 lives annually. In 2013, cancer accounted for 29% of all Taiwanese deaths (Ministry of Health and Welfare, 2014). For certain families facing a cancer diagnosis, communication within the family helps them cope together and support each other, emotionally and physically, from diagnosis through treatment. This intense process requires family members to constantly adjust their attitudes toward each other and the affected family member (Mallinger, Griggs, & shields, 2006). In short, effective family cancer communication is important to not only the patients/survivors but also to their relatives.

When cancer patients/survivors share their own cancer experiences, it can have significant influences on their family members (Mallinger et al, 2006; Harris et al., 2009). For example, if the cancer diagnosis reveals a hereditary link, it usually means family
members are at an increased risk of developing the same cancers due to a genetic predisposition. This is particularly true with breast, ovarian, colorectal, and prostate cancers (Eberl, Sunga, Farrell, & Mahoney, 2005). Therefore, open discussions between cancer patients/survivors and their families are key in many areas, especially in cases of genetically-linked cancers where the outcome could be altered by preventative behavior. In this area, the sharing of family members’ personal experiences and stories is fundamental and can greatly affect individuals’ desire to seek preventive measures (Hinyard & Kreuter, 2007).

The topic of breast cancer may also alter the usual boundaries of communication between family members. For example, people often feel uncomfortable when disclosing their own illnesses, especially certain cancers that have social stigmas. In Taiwan, society has expectations about a woman’s ideal body image and some breast cancer patients/survivors, especially those who have experienced body-disfiguring medical intervention such as mastectomies, often feel ashamed of their diseased bodies because they are “flawed” and no longer consistent with the ideal image (Fang, Chiu, & Shu, 2011). Aside from issues with body image, breast cancer patients/survivors may also experience feelings of inadequacy in their role as wife and, in particular, in their role as mother. Traditionally, Taiwanese society expects a mother to nurture her children and to push them toward success (Peng, 2008). A diagnosis of breast cancer can signify to society that mother’s failure to properly perform her pivotal child-rearing role. This type of social norm can cause many breast cancer patients/survivors to be reluctant in disclosing their personal cancer experiences with their family members, given that these
disclosures may negatively influence their children’s current and future positions in school, the workplace, or the community at large.

This study investigates communication between Taiwanese mothers with breast cancer and their daughters. There is a higher level of interdependence and emotional connection between the mother and daughter dyad when comparing with other intergenerational relationships (Fisher, 1991). The study seeks to understand what factors influence breast cancer patients’/survivors’ desire to engage in cancer communication with their daughters and whether such communication impacts the cancer prevention behaviors of daughters in Taiwan.
CHAPTER TWO: REVIEW OF LITERATURE

This literature review begins with an introduction or primer to the current breast cancer situation in Taiwan followed by a detailed examination of the impact of breast cancer diagnosis and treatment on family communication. The review then explores the role that self-disclosure plays among breast cancer patients/survivors and their family members, with particular attention to factors influencing an individual’s willingness to disclose information about her cancer condition and the influence of such disclosure on daughters’ prevention behaviors.

Current Breast Cancer Situation in Taiwan

Among all cancers, breast cancer has the highest incidence rate in Taiwan, increasing from 13.98/100,000 in 1981 to 64.28/100,000 in 2011 (Figure 1). Almost one quarter (24.7 %) of cancer diagnoses among females are attributed to breast cancer, and its corresponding mortality rate has, for years, hovered at around 10–11%. But early detection tests, also called “cancer screening,” can greatly improve the opportunities for “breast cancer being diagnosed at an early stage and treated successfully” (American Cancer Society, 2013a). In Taiwan, the most common breast cancer screenings are self-examination, clinical examination, mammogram, and ultrasound (Fang, Lee, Chang, Wang, & Chang, 2010).
Taiwan’s history of cancer prevention efforts can be divided roughly into three periods. During the first period (1992 to 1997), the government began popularizing the importance of breast self-examinations by working with local health centers and clinics in educating the public about how to self-check their breasts for signs of cancer. The government later found out, however, that breast self-examinations alone did not effectively reduce the breast-cancer death rate, so the government tweaked their prevention strategy by adding clinical breast exams. During the second period (1998 to 2001), the administration began encouraging this new method, primarily through advertisements and coordinating care with local community-health centers. During the third period (2002 to the present), as the incidence of breast cancer continued to rise, the government began promoting mammograms, examinations using X-ray technology that can more effectively discover cancerous cells and/or masses. For example, since 2004, the Taiwanese government has offered mammograms for all women between the ages of...
50-69 (Health Promotion Administration, 2004). Additionally, in 2009, the administration extended its program to include all women over 45, and in 2010, to include women between the ages 40-44 who have a history of breast cancer in the family (Health Promotion Administration, 2009).

It is important for women, especially those who are at high risk of breast cancer such as first-degree female relatives (FDFRs) of breast cancer patients/survivors, to obtain cancer screenings and education regarding related prevention behaviors. FDFRs are genetically vulnerable female relatives (sister, mother, daughter) of people who have been diagnosed with cancer. Compared with the general population, FDFRs of breast cancer patients have two to three times higher risk to get breast cancer due to shared genetic composition (Tulinius, Sigvaldason, Olafsdottir, & Tryggvadottir, 1992). What is clear and consistent throughout the literature is that earlier the diagnosis, the better the chances of defeating cancer. To illustrate this point consider that:

- In stages zero and one of the diagnosis—when cancer cells are found in a very limited area—the five-year observed survival rate of breast cancer, which is the percentage of patients who live at least five years after being diagnosed with cancer, is 100%.
- In stage two, when the cancer has just begun to spread, that rate drops slightly to 93%.
- In stage three, when the cancer has invaded surrounding tissues in and around the breast, the rate drops sharply to 72%.
In stage four, when the cancer has spread beyond the breast and into other areas of
the body, the rate drops dramatically to 22%.


It is clear that prevention and early detection tests are crucial for females in
protecting themselves from breast cancer and their odds of survival are directly linked to
early intervention when diagnosed. However, even in cases where it seems that cancer
has been successfully eradicated, there is always a risk of recurrence.

As noted, early detection, diagnosis, and treatment can lead to positive outcomes
with some likelihood of recurrence, but what of the possibility of FDFRs using
preventative behaviors to avoid breast cancer before onset? Could family cancer
communication between patients/survivors and their family members lead to increased
engagement in prevention behaviors? If so, communication within breast cancer affected
families regarding preventative behavior would constitute an additional method of attack
in the breast cancer fight, joining self-exams, clinical exams, and mammograms.

**Family Communication and Breast Cancer Research**

Family communication, verbal and non-verbal interaction and information
exchanged between family members, has received scant attention in Taiwan. In fact, the
subject of communication is a relatively new domain of social scientific research. In the
Taiwanese studies currently available, the focus has traditionally been on media and mass
communication (Wang, Shen, & Lo, 2002). Family communication, let alone family
cancer communication, has never caught the attention of researchers in Taiwan.
Previous findings have demonstrated that family communication has not been previously considered partly due to cultural and social biases. In Chinese culture, which shares similar cultural values, norms, and traditions with Taiwan, “clear boundaries of self-disclosure exist in family” (Gao, 1996, p.96). In other words, Chinese are usually highly reluctant to disclose their personal or family information to people who are outsiders; furthermore, Chinese usually avoid topics that are controversial or face-threatening (Chen & Yo, 2001, p.160), whether outside or within the family. Issues related to cancer or other traumatic diseases are often considered “bad luck” and controversial topics that would make the average Chinese person and their family members feel too uncomfortable to discuss with each other thus constraining any substantive discussions regarding the health of the patient.

Compared to Taiwan, the United States has conducted many studies of family communication and health. Most of those studies focus on dyadic relationships such as marital relationships (Boehmer & Clark, 2001; Badr & Taylor, 2006; Manne, Badr, Zaider, Nelson, & Kissane, 2010) or parent-child relationships (Roberts, Gerrard, Reimer, & Gibbons, 2010; Rodriguez et al., 2012). Specific to breast cancer, most research focuses on how marital couples cope after cancer diagnosis (Lichtman, Taylor, & Wood, 1998; Manne et al., 2006; Manne, Siege, Kashy & Heckman, 2013; Milbury & Badr, 2013), or on mother-daughter communication about the importance of health prevention and health education (Sinicrope et al., 2009; Gaber et al., 2013). In addition, coping and emotional support from family members is also an area that has been brought to researchers’ attention (Donovan-Kicken & Caugnlin, 2010; Den Heijer et al., 2011;
Kroenke et al., 2013). Recently, family communication research regarding genetic
counseling has become more and more popular as advances in genetic testing, including
those that can now predict the probability of breast cancer, have changed the landscape of
cancer research (Goodwin et al., 2001; West et al, 2001; Frank et al., 2008). US
researchers have also paid special attention to family members of those with breast
cancer in order to better understand cancer’s psychological impact on and the decision
making process of these close relatives (Peshkin, DeMarco, & Tercyak, 2010; Sharff et
al., 2012; Bradbury et al., 2012).

A family member’s illness impacts the entire family; however, much of the breast
cancer literature is primarily dedicated to presenting breast cancer patients/survivors as
victims in need of emotional support from other people. The needs and coping of families
of those breast cancer patients is a less investigated area, but what research has been done
demonstrates that families also need emotional and social support to cope with the
situation (Bigatti, Wagner, Lydon-Lam, Steiner, & Miller, 2011). Breast cancer patients
can serve as positive role models such as fighters against cancer and educators to other
people, but very little literature views them from this angle. Yet using breast cancer
patients/survivors as a channel to provide health information and popularize the idea of
health preventive behaviors may have significant influence on their family members, who
have high risk of being diagnosed with breast cancer themselves (Tercyak et al., 2013).

Mother-daughter Communication and Breast Cancer Research

Mother-daughter relationship is a salient relationship in the lives of both women
(Horney, 1967). This salience is not just in the daughter’s childhood, but also in the life of
adult daughters (Wisdom 1990). When mothers experience their cancer journey, their children, especially daughters, also experience high levels of fear, depression, and worry about their mother’s future health as well as their own health (Raveis & Pretter, 2005; Kennedy & Lloyd-Williams, 2009) even if they do not verbalize their concerns openly. Yet research shows that when mothers and daughters maintain a close relationship and engage in open communication, daughters are more willing to accept the changes and adjust themselves to the situation when they are under cancer-related stress (Stiffler, Haase, Hosei, & Barada, 2008).

Mothers can also be a potential source in educating and bringing awareness of the importance of cancer prevention to their daughters (Fisher, 2010, 2011; Fisher, Miller-Day, & Nussbaum, 2013), thus directly influencing her daughter’s perceptions and attitudes toward prevention. A breast cancer mother can provide emotional, informational, and instrumental support to her daughter (Umberson, 1992). According to a study from Sinicrope et al. (2008), compared with women who have not received advice from their mothers, “women who received advice from their mothers would be more likely to engage in health-promoting behaviors, such as screening mammography and breast self-examination” (p.1018). Nonetheless, factors such as the daughter’s age when the mother was first diagnosed with cancer, the mother’s cancer prognosis, and the mother-daughter relationship before diagnosis, all affect the mother-daughter relationship and their communication strategy, pattern, and quality after the mother’s cancer diagnosis (Oktay & Garner, 2005).
When a daughter learns of her mother’s diagnosis, she also learns of her increased susceptibility to breast cancer. Though most mothers with cancer try their best to keep their lives as normal as possible to protect their daughters, research shows that daughters may still have negative symptoms such as fear and low self-esteem due to mothers’ lack of emotional support or distanced relationship (Panaccione & Wahler, 1986). How the mother communicates her illness to her daughter impacts the daughter’s reaction to breast cancer, including attitudes toward prevention behaviors. What to talk about and how much to disclose depend on the daughter’s age and level of maturity at the time of her mother’s diagnosis (Gould, Grassau, Manthirne, Gray & Fitch, 2006). It is also important that mothers provide cancer related information in age-appropriate ways to children of different ages. For example, using complex, difficult-to-understand medical terminology to a ten-years-old boy may result in the boy’s confusion, frustration, and/or fear. Too much information, regardless of age-appropriateness, may result in making children feel overwhelmed. However, in the case of adult children, the effort to engage in family cancer communication and provide appropriate cancer knowledge to breast cancer survivors’ adult daughters has been shown to be clearly beneficial in enhancing daughters’ self-efficacy and prevention awareness (Lyle, 1996).

Many factors influence an individual’s desire to disclose personal opinions or feelings. This study seeks to understand what factors affect a breast cancer patient’s willingness to disclose their concerns, experiences, and situations. It also seeks to understand the impact of such disclosure on family members’ health behaviors.
Social Penetration Theory

Self-disclosure, an intentional disclosure of personal information or ideas to other people, includes both verbal and nonverbal communication strategies. According to the social penetration theory (Altman & Taylor, 1973), one of the first self-disclosure theories, people disclose information about themselves gradually during the process of a relationship. Six dimensions can help conceptualize the idea of self-disclosure: depth, breadth, frequency, duration, valence, and veracity.

Depth refers to how personal or how private the communication is, while breadth indicates how many topics people feel comfortable discussing. In the process of relationship development, depth and breadth are the most central dimensions. Frequency refers to how often people disclose themselves to others, and duration is the amount of time people spend self-disclosing. “Frequent self-disclosure can lead to liking and relationship development” (Guerrero, Andersen, & Afifi, 2014, p.134). Valence represents the positive or negative effects of self-disclosure and how it influences people’s feelings toward the other person. Finally, veracity refers to how honest the self-disclosure is. People often exaggerate their feelings or conceal opinions in an effort to leave a good impression on others. According to a study by Wheeless & Grotz (1977), self-disclosure that appears honest but is actually deceptive would lower the other’s level of trust and liking, thus potentially postponing or destroying relationship development.

Factors That Influence Self-disclosure

In general, disclosing one’s personal cancer situation and experiences with loved family members not only generates social and emotional support for the cancer patient; it
also serves to educate family members. Many factors influence an individual’s willingness to disclose their private information. These include individual factors such as personality and personal identity; relational factors such as liking and closeness of disclosure recipient; and cultural factors like social norms all have different levels of influence on disclosure.

**Individual Factors**

Individual differences can influence individuals’ ability and willingness to disclose personal information to others (Jourard, 1971). Demographic variables, such as age and marital status affect a person’s disclosure tendencies. Also, various personality factors, such as extroversion or introversion, social desirability, and anxiety all have some level of influence on one’s desire to self-disclose (Meleshko & Alden, 1993). Besides demographic variables and personality, cancer patients’ self-identity also has an influence on personal desire to self-disclose. An individual’s identity is based on group memberships that he/she belongs to (Gudykunst & Shapiro, 1996). Once diagnosed with breast cancer, individuals usually consider their identity temporarily or permanently altered and seek support from people or groups with similar identities. This section explores how personality and self-identity influence individuals’ decisions to self-disclose.

**Personality.** Personality guides individuals’ self-disclosure decisions (Archer, 1979). Some people are more open and willing to express personal thoughts and emotions while other people are more closed, private, and feel uncomfortable disclosing such ideas and feelings.
One of the most popular models in personality research is the Five Factor Model of Personality (Digman, 1990). This model is used repeatedly in personality studies and appears applicable in different cultures (McCrae & Terraciano, 2005), and across different life spans (McCrae & Costa, 1990; John, 1990). The five factors are openness, extraversion, conscientiousness, agreeableness, and neuroticism.

Personality differences influence individuals’ disclosure behaviors in both face-to-face interaction and computer-mediated channels. According to the findings of various research studies (Costa & McCrae, 1992; McCrae & Costa, 1985; Costa, McCrae, & Dye, 1991), people with a high extraversion rating are classified as having the most sociability, self-confidence, and positive thinking. Agreeable individuals are rated as more polite, considerate, tender, and cooperative, while individuals who scored high in conscientiousness are classified as exceedingly well-organized and task-focused. Unsurprisingly, highly neurotic people are more easily influenced by negative emotions, such as anxiety and depression; and lastly, individuals who rated high in openness have more interests and creativity.

**Self-identity.** Identity is a person’s sense of self that is formed and maintained through interpersonal agreement about what attributes make up one’s self (Schlenker, 1985). Identity can be differentiated based on social-cultural categories, including sex, age, race and ethnicity, socio-economic status, and nation status (Bamberg, 2011). But what also informs this discussion is the fluidity of identity illustrated in how cancer patients often redefine their identities after receiving their diagnosis. They may self-identify as a “victim,” “warrior,” and/or “survivor” and these identities can coexist
simultaneously while also fluctuating depending on the individual patient’s cancer stage, treatment, and outlook. For example, a cancer patient may view herself as both a victim and a warrior, but as her condition deteriorates she may begin to most closely identify herself as simply a victim.

Many researchers have focused on identity issues when people deal with cancer diagnosis, the treatment process, and even the post-treatment process (Zebrack, 2011; Miller & Caughlin, 2013; Morris, Campbell, Dwyer, Dunn, & Chambers, 2011; Evan & Zeltzer, 2006; Pitts, 2004). In addition, some cancer patients face temporary or permanent changes in physical appearance which may also lead them to experience sexual identity and body image issues. For example, women with breast cancer report that they feel less attractive and have difficulties accepting their appearance of being medically altered (Andersen, Woods, & Copeland, 1997). Also, cancer patients may find the need to redefine their identities in the workplace during and after their treatment. A study by Miller & Caughlin (2013) found that a breast cancer survivor may recognize a threat to her work identity as well as face uncertainty about whether she will regain that identity even after completing treatment. The self-identity of breast cancer patients is also influenced by their social identity. Since most cancer patients reconstruct their identities after cancer diagnosis and treatment, it is important to examine the relationship between the self-identity of cancer patients and their self-disclosure behavior. Cancer patients may have different ways of or reasons for self-disclosure depending on their self-identities.

Schank and Abelson (1977) posit that people socially interact with others in order to achieve certain identity-driven goals, such as establishing a sense of belonging to a
group or successfully building interpersonal relationships. To achieve these goals, individuals employ an assortment of plans and strategies including communication efforts. In the context of cancer communication, breast cancer patients/survivors may seek to ensure a sense of belongingness, or in other words, a reinforcement of their identity within the group, through communicating with their family members, friends, or support groups. The thought is, if cancer patients/survivors openly express their feelings and emotions they may receive needed support from their family and community. On the other hand, the cancer patient’s goals may instead be related to their role of family caregiver. In this role, they focus on providing support to their families by bringing family members’ attention to cancer screening. For this, they might use different strategies reflected in word choice and the content and context of disclosure. However, prior research has not fully examined the relationship between individuals’ goals and the pattern and content of their self-disclosure.

**Relational Factors**

Individuals’ willingness to disclose information about their own condition is closely related to the quality of their interpersonal relationships. Both senders and receivers play critical roles in the process of self-disclosure. Likeability and closeness of the receivers strongly influence the message senders’ willingness to disclose because people usually disclose more if they like the receivers (Collins & Miller, 1994). In addition, receivers’ feedback and responses are also influential. Senders will most likely avoid self-disclosure if they have fears of a negative response or judgment (Petronio,
This section explains an individual’s willingness to self-disclose as a function of his or her relationship level.

**Liking and Closeness.** Many studies have examined the relationship between self-disclosure and interpersonal liking or closeness. People feel vulnerable when disclosing their own feelings, emotions, and experiences (Collins & Miller, 1994); therefore, the behavior of self-disclosure shows trust, closeness, and liking. In other words, if people do not develop enough trust or liking toward the message receiver, their level of self-disclosure will be minimal.

The relationship between self-disclosure and liking or trust, however, is not always direct and positive. Factors such as mood (Forgas, 2011), intimacy (Collins & Miller, 1994), timing of self-disclosure (Archer & Burleson, 1980), context (Frye & Dornisch, 2010), and channel (Valkenburg & Peter, 2009) all affect one’s personal willingness to self-disclose. Take timing of self-disclosure as an example. Usually, when an individual discloses more to a receiver, the receiver will like the sender more (Collins & Miller, 1994). Yet, if people disclose too much personal information too quickly, they may scare people away (Derlega, Metts, Petronio, & Margulis, 1993). The relationship between self-disclosure and personal liking and closeness is thus moderated by other factors. Researchers have to consider these influential factors when examining the relationship.

**Responsiveness of receivers.** To build and maintain a relationship, self-disclosure is the primary vehicle, but receivers’ level of responsiveness also contributes to the development of the relationship (Berg, 1987). Responsiveness refers to the degree to
which a message communicates understanding, caring, and validation of the other person (Maisel & Gable, 2009). Individuals are more likely to interact if they perceive the receivers’ response as understanding, validating, and caring (Laurenceau, Barrett, & Pietromonace, 1998). Most of the time, people who like to disclose themselves are more likely to receive disclosure from others (Berg & Derlega, 1987); in other words, people are more likely to respond to others’ self-disclosure if they receive a similar level of disclosed information.

Disclosing personal information requires courage and when an individual discloses feelings, thoughts, or emotions to others, he/she is under the risk of judgment and criticism. This kind of vulnerability sometimes leads people to avoid self-disclosing certain topics. Most people do not want to deal with fear of exposure, abandonment, rejection, or losing individuality (Hatfield, 1984), or loss of control (Petronio, 2002). Therefore, how receivers respond will influence a discloser’s desire to self-disclose. In fact, according to Reis & Shaver’s (1988) study, a speaker’s perception of receiver responsiveness has even more significant impact than the receiver’s actual response in relationship building.

**Cultural Factors**

Individuals’ willingness to disclose personal information varies across contexts, in which the interaction takes place, and culture, in which individuals develop their ethical values. Each culture has its own rules and customs that govern the norms of self-disclosure and privacy (Guerrero, Andersen, & Afifi, 2014). This section explores how culture and social norms affect individuals’ self-disclosure behaviors.
Culture & social norms. Culture has multiple dimensions and can refer to elements such as values, beliefs, attitudes, social norms, shared meaning, and behavior styles as well as other traditions that pass down from generation to generation, all serving as a foundation of the society (Nobles, 1997; Turner, Wieling, & Allen, 2004). People perceive themselves, others, and the environment in which they interact differently in different cultures (Markus & Kitayama, 1991), and individuals from different cultures have different social standards and expectations regarding behavior (Honigman, 1954). Certain types of behavior may be appropriate in one culture but can be offensive in another, depending on the social norms and standards of the culture.

Culture influences an individual’s ability or desire to self-disclose, because culture itself is “manifested in persons’ communication patterns” (Chen, 1995, p.85). The individualism-collectivism dimension of culture is often used to explain the differences in communication style of different cultures. People from a collectivistic culture tend to be more dependent on each other in the group; they usually obey group rules, and see group goals as higher than individual goals. On the other hand, in an individualist culture, people are more independent of each other, and are more likely to take action according to their own values and decisions than according to group norms (Mills & Clark, 1982; Hofstede, 1980). For example, according to Hofstede (1980), the Chinese culture, which is similar to Taiwan, is collectively oriented while the American culture is more individually oriented. Hence, Chinese are typically “more formal and cautious in expressing themselves and communicate less openly and freely” (Barnlund, 1975) while
Americans tend to express their internal feelings and thoughts more freely and openly (Lu, 2003).

People from different cultures have different preferences regarding the topics of disclosure as well as the audience of disclosure. Compared with Americans, Chinese people are less likely to disclose topics such as opinions, interests, work, financial issues, and personality with their friends and significant others (Chen, 1995, p.88). Cahn (1984) found that Americans are open to talk about intimate topics such as marriage, love, dating, sex, and emotions, while Chinese people usually feel uncomfortable discussing personal habits, beliefs, desires, family life, and family problems (Shenkar & Ronen, 1987). Sue and Sue’s (1990) study also found that collectivistic culture is more resistant to sharing feelings because they highly value privacy. In many cultures cancer is considered a very private matter that is rarely discussed due to the stigma attached to the disease. The social norms of a collectivistic culture often prohibit cancer patients/survivors from disclosing their own feelings and experiences, as well as from discussing the risks and information with their loved ones.

Society’s expectation on women’s role. Since the 1950s, gender roles have changed in both family and society in many countries around the world. Liu (2006) analyzed the Family section of the China Times, a major newspaper in Taiwan, from 1956 to 2004, in an effort to explain how women’s gender roles had transformed from 1950s to the 21st century. Traditionally, marriage is the destiny for women, and a “virtuous wife and loving mother” is the ideal image for women to pursue. Women must take care of their husbands and children; even if it means sacrificing their own needs and
desires. Wives’ responsibilities are limited to the private sphere taking care of their husbands’ needs, assisting their husbands with career achievements, and building up and maintaining a good reputation for their husbands in society. Additionally, in the role of mother, women’s responsibilities are taking care of their children’s…everything. In fact, in certain cultures a child’s well-being and academic performance are the primary criteria by which to judge whether the mother meets the standard of a “good mother” or not. As time goes by, however, the image of a “good mother” and gender roles in general have changed. Today, more and more women work outside the home and the division of household labor between husbands and wives has, to some extent, improved.

**Research Questions**

The research review above was intended to provide an overview of the issues that will be dealt with in this study. Self-disclosure does not only disclose feelings, emotions, and doubts, but it also provides information to others. Various research studies have shown that family cancer history communication directly influences family members’ cancer preventive behaviors. This communication also increases individual’s awareness of family cancer history and experiences that in turn enhance an individual’s desire to take preventive measures. However, family cancer communication research has been paid little attention in Taiwan; therefore, this research seeks to answer the following question:

RQ1. What is the general pattern of family cancer communication between breast cancer patients/survivors and their daughters in Taiwan, on dimensions such as topic and depth of disclosure?
Many reasons affect an individual’s willingness to disclose his or her condition or to avoid topics, even within close family relationships. Building on the literature review in the previous section, this study seeks to address three components—individual factors, relational factors, and cultural factors—and their relation to patterns of self-disclosure as well as the withholding of information. An individual’s willingness to disclose is not decided solely by a single factor. Most of the time, factors from all three levels interact with one another and result in a complicated process of influence. Hence, this research seeks to answer the following question:

RQ2. What is the role of individual, relational, and cultural factors in the self-disclosure/withholding information of breast cancer patients/survivors in Taiwan?

Studies have shown that family communication has an impact on children’s cancer knowledge and behavior. Yet, there is little research on whether breast cancer patients’/survivors’ family cancer communication has an influence on their daughters’ cancer prevention or screening behaviors. Therefore, this research seeks to answer the following question:

RQ3. Does family communication about breast cancer influence daughters’ prevention attitudes and behaviors in Taiwan?
CHAPTER THREE: OVERVIEW OF RESEARCH METHODOLOGY

This study is designed to be a concurrent quantitative-dominant mixed method study in which both quantitative and qualitative data are collected and analyzed at the same time (Powell, Mihalas, Onwuegbuzie, Suldo, & Daley, 2008). The research purpose is to (1) explore what factors influence breast patients/survivors’ desire to self-disclose with their daughters, and (2) examine the influence of patient/survivor self-disclosure on the behaviors of daughters in terms of seeking and obtaining breast cancer screening. Hence, this study focuses on two intricately related groups: mothers who are breast cancer patients/survivors and their daughters.

Given the lack of research on family cancer communication in Taiwan, qualitative methods such as in-depth interviews are powerful tools to investigate this highly complicated and little understood phenomenon. Quantitative methods, such as surveys, can complement and extend qualitative data by capturing the broad patterns of mother-daughter communication in families of breast cancer patients/survivors. Considering the above, concurrent quantitative-dominant mixed method is the best fit for this study because this type of mixed research methods design allows the two kinds of data to generate integrated insights that are more complete and nuanced.

The Office of Research Integrity and Assurance at George Mason University granted ethics approval for this study on April 28, 2014. In order to clearly present the
multiple methods design, the qualitative and quantitative components will be discussed separately.
CHAPTER FOUR: QUALITATIVE METHOD AND RESULTS

The purpose of this study was to investigate communication between cancer patients/survivors and their daughters (RQ1 & RQ2) as well as the potential influence of such communication on daughters’ cancer prevention attitudes and behaviors (RQ3). To answer these research questions, in-depth interviews were conducted to capture the lived experiences of breast cancer mothers and their daughters. The patterns, motivators, and impacts of their communication were explored in the interviews.

Grounded Theory Approach

Given the lack of in-depth knowledge of mother-daughter communication in families with breast cancer patients/survivors in Taiwan, grounded theory is an effective strategy to gain an initial understanding of the situation. First introduced by Strauss and Corbin in 1967, grounded theory derives insights inductively from empirical data then generates a theory (an explanation) of a behavior, action, and social interaction through a large group of participants’ point of views (Strauss & Corbin, 1998).

The constant comparative method, where comparison is the key step, is widely used to develop a grounded theory (Glaser, 1965). Through comparison, researchers can form categories based on the similarities in the raw data, group and code these categories, find the connections between them, and generate themes among the categories. Tesch (2013) provided a clear explanation on how this method works in grounded theory:
Data are “segmented” i.e., divided into relevant and meaningful “units,” yet the connection to the whole is maintained. The main intellectual tool is comparison. The method of comparing and contrasting is used for practically all intellectual tasks during analysis: forming categories, establishing the boundaries of the categories, assigning data segments to categories, summarizing the content of each category, finding negative evidence, etc (p.95).

Inductive coding is a central process in grounded theory because coding “represents the operations by which data are broken down, conceptualized, and put back together in new ways. It is the central process by which theories are built from data” (Strauss & Corbin, 1990, p.16). When developing a code, a more abstract theme is also categorized, and categories generate a theory. The process begins with open coding, which is coding the data into as many categories as it might fit, followed by axial coding, which brings data back together to make links between categories, and the final step is selective coding which establish a core category that “describes the interrelationship of categories in the model” (Creswell, 2012, p.65).

Through grounded theory researchers can explore complex phenomena and better understand individuals’ feelings or perceptions regarding some particular processes, interactions, or behaviors. Though there are various ways to conduct qualitative research, the majority of grounded theory studies use in-depth interviews to collect data. An in-depth qualitative interview can provide information about the respondents’ experiences and conclusions drawn from the respondents themselves (Soklaridis, 2009). This study utilized interviews to understand different factors that may influence breast cancer patients/survivors’ intention to self-disclose.
Sampling and Recruitment Procedure

Two types of purposeful sampling methods were used for this study: snowball sampling and convenience sampling (Lindlof & Taylor, 2011). Purposeful sampling is to select certain cases based on “specific purpose rather than randomly” (Tashakkori & Teddlie, 2003, p. 713). The rationale of using purposeful sampling in this study was to select participants who can provide rich, relevant information to examine the research questions.

This study requires recruiting two different groups of women: (1) breast cancer patients/survivors, and (2) daughters of breast cancer patients/survivors. Between May and July 2014, twenty-two in-depth interviews were conducted, including fifteen breast cancer mothers and seven daughters of breast cancer patients/survivors. Mothers and daughters were recruited from the same family units. However, due to geographical distance constraints, only seven daughters were available locally for in-person interviews. Participants were contacted either by telephone or in person through personal contact and participant referral. Once the women agreed to participate in the study, the researcher would set up a time suitable for the interviewees. Interviews took place at a location of the participants’ choice and convenience. The study interviewed cancer patients/survivors and daughters of cancer patients/survivors separately, and the length of the interviews averaged 70 minutes and ranged between 50 and 100 minutes.

The age at which women are diagnosed with breast cancer has a significant impact on their focuses, needs, and experiences which ultimately impact their disclosure intention and content. Therefore, this study recruited at least two breast cancer mother
participants in each decennial range from age 30 to 80. All daughter participants were over 18 years old and were at least high school graduates.

Prior to every interview, each participant was asked to read and sign a consent form (see Appendix A for the form for breast cancer mothers and Appendix B for the form for daughters of breast cancer patients/survivors). They were reminded about the study purpose, informed that the interviews would be recorded (digitally) and transcribed, and pseudonyms would be used in the transcript. The participants were notified that they had the right to withdraw anytime or refuse to answer any questions if they did not feel comfortable answering without any penalty. Participants’ basic demographic information is shown in Table 1 and Table 2.

<table>
<thead>
<tr>
<th>Table 1 Demographic Characteristic of Mother Participants</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-39</td>
<td>2</td>
<td>13.3%</td>
</tr>
<tr>
<td>40-49</td>
<td>4</td>
<td>26.6%</td>
</tr>
<tr>
<td>50-59</td>
<td>4</td>
<td>26.6%</td>
</tr>
<tr>
<td>60-69</td>
<td>3</td>
<td>20%</td>
</tr>
<tr>
<td>70 and above</td>
<td>2</td>
<td>13.3%</td>
</tr>
<tr>
<td>Cancer Stage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 0</td>
<td>2</td>
<td>13.3%</td>
</tr>
<tr>
<td>Stage 1</td>
<td>3</td>
<td>20%</td>
</tr>
<tr>
<td>Stage 2</td>
<td>5</td>
<td>33.3%</td>
</tr>
<tr>
<td>Stage 3</td>
<td>4</td>
<td>26.6%</td>
</tr>
<tr>
<td>Stage 4</td>
<td>1</td>
<td>6.7%</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under Middle School</td>
<td>5</td>
<td>33.3%</td>
</tr>
<tr>
<td>High School Graduate</td>
<td>4</td>
<td>26.6%</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>2</td>
<td>13.3%</td>
</tr>
<tr>
<td>College and above</td>
<td>4</td>
<td>26.6%</td>
</tr>
<tr>
<td>Religious Belief</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buddhism &amp; Taoism</td>
<td>7</td>
<td>46.7%</td>
</tr>
<tr>
<td>Christianity &amp; Catholicism</td>
<td>4</td>
<td>26.6%</td>
</tr>
<tr>
<td>No Religion</td>
<td>4</td>
<td>26.6%</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working</td>
<td>4</td>
<td>26.6%</td>
</tr>
<tr>
<td>Not Working</td>
<td>11</td>
<td>73.3%</td>
</tr>
</tbody>
</table>
Table 2 Demographic Characteristics of Daughter Participants

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>2</td>
<td>28.6%</td>
</tr>
<tr>
<td>30-39</td>
<td>2</td>
<td>28.6%</td>
</tr>
<tr>
<td>40 and above</td>
<td>3</td>
<td>42.8%</td>
</tr>
<tr>
<td><strong>Age when mom</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 20</td>
<td>2</td>
<td>28.6%</td>
</tr>
<tr>
<td>20-29</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td>30-39</td>
<td>3</td>
<td>42.8%</td>
</tr>
<tr>
<td>40 and above</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td><strong>Diagnosed w/ Breast Cancer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td>30-39</td>
<td>3</td>
<td>42.8%</td>
</tr>
<tr>
<td>40 and above</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td><strong>Education Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School Graduate</td>
<td>1</td>
<td>14.3%</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>2</td>
<td>28.6%</td>
</tr>
<tr>
<td>College and above</td>
<td>4</td>
<td>57.1%</td>
</tr>
</tbody>
</table>

The Interview Process

The in-depth interviews were semi-structured, and a list of questions was prepared in advance of the interviews (see Appendix C for protocol for breast cancer mothers and Appendix D for protocol for daughters of breast cancer patients/survivors). The breast cancer patients/survivors group in this study were first given questions that the interviewee could easily answer, such as demographic information, when and at what stage they were diagnosed with breast cancer as well as their current cancer status. Then the interview proceeded to more difficult questions including their interpersonal relationship with their daughters and their willingness and concerns about self-disclosing. Next, the interview focus shifted to the details of the participants’ experiences and opinions about the role of women in the society, and how society’s expectations influence their behavior as a mom.
The group of daughters of cancer patients/survivors interviewees also fielded the easily answered demographic information questions at the beginning. After establishing an understanding of the interviewee’s background, the researcher then asked about interviewees’ interpersonal relationship and their level of disclosure with their cancer-diagnosed mothers. Next, the researcher shifted the focus to investigate how this kind of disclosure influences daughter interviewees’ desire to obtain breast cancer screening or other prevention behaviors.

Most participants were willing to share their opinions with the researcher. Since the interviews were semi-structured, the protocol of questions was not always followed rigidly. For example, one of the interviewees quickly jumped into the topic of how social norms influenced her behaviors. When facing this kind of situation, the interview questions would be adjusted to fit what the interviewee wanted to discuss.

At the end of the interview, the researcher would ask each interviewee if there were anything they deemed important but had not been discussed and whether they would like to be sent a summary of findings.

**Data Analysis**

The purpose of qualitative research is to explore an issue or describe a pattern of interaction (Marshall & Rossman, 1995). This study utilized the constant comparative method of grounded theory to analyze the data. In addition to interview transcription, the researcher also took notes, which included observations and reflections captured during the interviews. Transcriptions were verbatim; however, in order to clarify quotes, some
extraneous phrases or pleonasm such as “I mean” or “well…” were removed during the coding process.

Data analysis followed grounded theory’s three coding phrases-open coding, axial coding, and selective coding (Strauss & Corbin, 1990). The researcher first examined the transcripts and notes to discover categories (open coding), next marked sections of text that indicated a pattern and used constant comparison method to further develop the 17 categories (axial coding). The researcher then integrated and refined the theory (selective coding), and finally collapsed these categories into seven themes.

These three coding phrases were not necessarily sequential, but rather iterative until a coherent understanding emerged (Strauss & Corbin, 1998). After finalizing seven themes, the researcher returned to the transcripts to review participants’ statements in order to choose the quotes that best represented the seven themes. Examining these quotes provided a more detailed understanding of participants’ experiences. Table 3 demonstrates the coding processes for the study.

<table>
<thead>
<tr>
<th>Table 3 The Framework of Coding Process of Mother Interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open Coding</strong></td>
</tr>
<tr>
<td>Initial read through text</td>
</tr>
<tr>
<td>118 pages of text</td>
</tr>
</tbody>
</table>

Framework adopted from Creswell, 2012
Findings

In this section, mother participants’ interview findings are presented first, followed by daughter participants’ interview findings. The three research questions will be discussed after these findings are presented.

Mother Participants

Among fifteen mother participants, nine were living with their daughters and all of them considered themselves close with their daughters. When the researcher asked all the mothers, “How do you view your mother-daughter relationship compared with other families?” all of them either answered closer than or about the same as other families. Going further, the research asked what topics the mothers typically discussed with their daughters. Though several topics were mentioned, the majority of the mother/daughter discussions centered on activities of their daily lives. Only a few, mainly mothers who are not cohabitating with daughters, mentioned discussing cancer related issues, and these discussions mainly consisted of nutrition or daily regimen components, not on deeper, more personal emotions. The researcher deducted that mothers may choose discussions devoid of emotional content in order to avoid too personal topics that may negatively influence their daughters’ moods or emotions.

There is a distinction between conversations between mothers and daughters who cohabitate and those that do not. For participants whose daughters live with them, conversations would take place more often (daily) and would be shorter in length and shallower in content, with topics sticking primarily to themes of daily activities or the daughter’s school or work. For mother participants whose daughters do not live with
them, they talk to their daughters occasionally over the phone or face-to-face, and the depth, breadth, and duration of their conversation are all different, depending on various external factors such as communication channel or their present environment. Regardless of whether mothers and daughters cohabitated or not, all mothers usually avoided breast cancer related topics, which they considered too heavy or too sensitive. When mothers do bring up their cancer experiences or emotions, comments are usually brief and shared in an attempt to alleviate daughters’ worrying about the situation.

During data analysis, seven themes emerged: cancer stage when the breast cancer mother was first diagnosed, financial pressure, breast cancer mothers’ dependency and their daughter’s maturity, the philosophy of “face it, accept it, deal with it, and let it be”, societal expectation on women’s role, religion, and support groups. These themes serve as factors that influence mother-daughter communication and mother’s disclosure intention as well as provide answers from different perspectives for Research Questions one and two.

Based on the literature, factors that influence individual’s disclosure intention can group into three different levels: individual, relational, and cultural. Additionally, the seven themes discovered in this study can be categorized into one of these three levels with some cutting across multiple levels. Table 4 presents the mapping of the seven themes onto the three different levels.

The data in this study revealed certain unique patterns which were not previously observed in similar studies conducted in the West. This chapter provides a detailed information and explanation along with quotations to support these themes.
Table 4 Relationship Between Seven Themes and Three Levels of Factors That Influence Individual’s Disclosure

<table>
<thead>
<tr>
<th></th>
<th>Individual Level</th>
<th>Relational Level</th>
<th>Cultural Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cancer stage when the mother was first diagnosed</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Financial pressure</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Mother’s dependency/Daughter’s maturity</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>4. Philosophy of “face it, accept it, deal with it, and let it be”</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>5. Societal expectation on women’s role</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>6. Religion</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>7. Support group</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

*Cancer stage when breast cancer mothers were first diagnosed.* The diagnosis stage (0-4) indicates the severity of the breast cancer and how threatening it is to an individual’s life. Cancer stage also influences individual’s disclosure topic choice, frequency, duration, and depth. Taiwan mirrors the West in that topics like cancer treatment, its side effects, daily life, and/or future plans are normative discussions amongst family members after the mother’s cancer diagnosis. However, this similarity ends when discussion topics include dying and other matters considered in the East as being bad luck or too negative and/or uncomfortable. As mentioned previously, Taiwan, as part of a collectivistic culture, has social norms that limit certain discussions from being openly communicated. On the contrary, in the US, an individualistic culture, it often seems that *all* topics are open to discussion. Diverging from the Eastern norm, one mother participant with a stage-three recurrence diagnosis, mentioned she discussed death more frequently than any other topics with her daughters. However, when mothers
and daughters did have death discussions they usually became one-way conversations with little to no participation by the daughters.

I am not sure how long I will live—so I told my daughters what I expect them to do and how I envision my funeral, so they will not feel overwhelmed when the time comes. I have to talk about the issue even though this topic makes all of us uncomfortable, but I just want to give all of us enough time to—to prepare.

Another participant with a stage zero diagnosis had a completely different conversational experience with her daughter. After the mother’s post-breast cancer surgical recovery, the communication duration, frequency, and depth between her and her daughter were similar to their pre-surgery discussions, but the breadth of the disclosure component expanded. Instead of each other’s daily lives and thoughts, their focus shifted to more discussion on their future plans, nutrition, and health regimen.

I was really strict and kind of like—“tiger mom” before the diagnosis. The conversation topics between my children and me were always school, school, school. However, maybe because they are getting older and do not live at home…or maybe because my life priority has changed; nowadays, I care about their lives more. Besides topics about their everyday life, I care more about how they live their lives. Do they have a balanced diet? What are their plans after graduation? How are they going to pursue their plans?

Contrary to the typical Eastern reluctance to discuss death, Taiwanese mothers at later cancer stages, do discuss this topic with their family. According to interviewees’ responses, one stage-three breast cancer mother attempted to discuss difficult topics such as funeral arrangements and her last words with her children during her mother-daughter communication. However, her efforts at this discussion failed due to non-receptivity of her daughter(s). Another stage-four breast cancer mother had a completely different experience with her daughters. In her case, her children were fully receptive to her
disclosure allowing her to share with them her last words and thoughts. It should be noted that the receptivity of the daughters may have been influenced by their ages, with age being an important factor in the mother-daughter breast cancer communication. This will be further discussed in later sections of this paper.

Mothers at earlier breast cancer stages focus on topics about their children’s development and future plan. Though the communication topics are slightly different among mothers at different cancer stages, these mothers all try to avoid expressing their negative emotions to their daughters because they want to minimize the negative influence on their daughters’ life.

Financial pressure. Literature suggests that poor socioeconomic status limits breast cancer survivors’ ability to spend time and maintain energy to communicate with their daughter(s) (Mosavel & Thomas, 2009; Gaber et al., 2013). All of the participants self-identified as well-off based on their interview responses; however, it should be noted that household incomes were not asked in the interviews nor included in the survey data, thus incomes could not be verified as meeting the Taiwanese government’s class income thresholds. Regardless of this limitation, it can still be helpful to give some idea of the typical Taiwanese household income and economic class specifications simply for comparison and reference purposes. According to data provided by the Taiwanese government, the average annual household income in 2013 was $31,400 USD, and households with an average annual income greater or larger than $76,667 USD, comprise the upper-middle to upper classes (National Statistics, R. O. C., 2015). An interesting income/socioeconomic tension was uncovered - of the participants who all
self-identified as well-off, four out of fifteen went back to work after their treatment due to financial need.

Financial difficulties not only impacts participants’ decision to keep working or quit the job after cancer diagnosis, it also has effects on access to nutritional food or exercise opportunity such as yoga. For some mothers, lack of rest and recuperation impacted their cancer recovery and, consequently, their relationship with their daughters as well as their disclosure intention.

*Back to work or not.* Breast cancer treatments have various side effects and most treatments weaken cancer patients’ immune system and sap their energy. After treatments, breast cancer patients/survivors require adequate rest and care to properly recover. However, for families in need of another income, many breast cancer patients/survivors have to go back to work after completing treatments. The intensity of a fulltime workload and its associated stress not only negatively affect patients’/survivors’ physical condition, but also greatly reduces their willingness and available time to communicate with family members. One participant who went back to work noted that:

I am tired—I am very tired. I don’t feel like to do anything or say anything after work; even if I just work for the family business. I really hope I can spend more time with my daughters—but all I want to do is to rest. At the same time, my daughters need to work on their school and test prep school most of time—hmmm~ we see each other every day, but we just don’t have deep and meaningful conversation for a long time.

Another participant faced similar situation sharing that due to her stressful workload both at work and home, she did not have enough time to rest, not to mention
spending time with her children. She is currently experiencing a recurrence of breast cancer and has been forced to take days off again.

On the contrary, a participant who quit her job right after she was diagnosed with breast cancer said:

I know all I have to do is to take care myself and be healthy again. I really thank my husband who takes all the responsibility for the family. Hmm—I still worry about my children—their school, their performance, so I know I need to try my best to recover. Right now I am a full time mom, so I can spend more time with children and talk to them. They are little (both of her children are in elementary school), but I still let them know what happen on me and share my experiences. I feel because of spending more time with them together, the relationship between my children and me are getting closer and closer. They are sweet and well behaved.

Access to nutritional food and exercise choice. According to healthcare data (Doyle et al, 2006), breast cancer patients/survivors can get more energy from nutritional supplements and exercise. Some participants changed their dietary habits and/or started to do exercises after their breast cancer diagnosis. While both efforts are positive and can greatly improve health outcomes, these activities may also increase already constrained household costs. According to data released from Harvard’s school of Public Health (2013), nutritional and healthy food all cost more than regular food. It also takes money and time to participate in classes like yoga and Pilates. Participants who have better socioeconomic status are more likely to have access to nutritional food and have opportunities to participate in certain exercise programs. In short, socioeconomic status impacts individual’s life quality and satisfaction where the better socioeconomic status provides breast cancer patients/survivors with more opportunities to adjust their lifestyle without being constrained by their financial situation. Breast cancer mothers who had
improved nutrition and exercise would have more time and energy to take care of and communicate with their children.

A four year breast cancer survivor expressed to the researcher her appreciation for her family’s love, care, and support:

Without my family’s support and care…I mean psychologically and financially, I don’t think I can rest, recover, and get back to regular life in a smooth process. My parents and siblings bought me a lot of organic, nutritional food. They even cook for my family and me sometimes, so I don’t need to worry about taking care of my family too much. Now, I pay more attention to what I cook and what I eat. I know—organic food is expensive, but it is healthier. I tell my daughters their health is much more important than the expense. It is totally a worthy investment.

Similarly to this four year breast cancer survivor, a ten year breast cancer survivor also reported benefiting greatly from family support that provided her with confidence/fight breast cancer:

My husband—he is—he took financial responsibility after I was diagnosed. Well—I work for the family business, so I just stop going to the office—I always remember what he said when I felt so hopeless and depressed, “Better a live coward than a dead hero. If we cannot escape from it, face it and deal with it then.” After treatment procedure, he encouraged me to go to yoga class and took our children and me out for exercise. Yoga class assists me to feel better and peaceful, and hang out with my dear husband and children helps my family stay close.

*Breast cancer mothers’ dependency and their daughters’ maturity.* The ages of mothers and daughters have far-reaching effects on many aspects of the mother/daughter dynamic. Their ages affect not only both mother’s and daughter’s ability to face, endure, and cope with breast cancer, they also directly influence the mother’s intention of self-disclosure. Further, their ages directly influence mother-daughter breast cancer communication and the types of maternal concerns that accompany a breast cancer
diagnosis. Normally in Taiwan, younger breast cancer mothers, those 55 years old or younger, are more independent than older breast cancer mothers. Younger mothers usually just inform their daughters about their cancer progress and treatment information. On the contrary, older mothers are more dependent on their daughters to take care of them, thus their daughters often know more about their mothers’ situation than the mothers themselves.

Mothers’ dependency. Mothers’ dependency is influenced by their levels of education and literacy; however, it is their age that ultimately influences these factors. At different stages in their lives, individuals have different concerns and, according to Pecchioni, Thompson, & Anderson (2006), individuals will communicate differently and have different needs across varying ages. However, based on this study’s interviews, there were certain similar experiences that appeared across all ages of participants. Women in all age groups were open to their daughter(s) about basic diagnosis information, including their breast cancer stage and what treatment(s) they were facing. In fact, many of the older breast cancer patients depended on their family members, especially their daughters, to take them to hospitals. Often daughters knew their mothers’ health situation and progress more than their mothers because their daughters had taken charge of communicating with the doctors and all decision making. An 82-year-old breast cancer patient/survivor who was first diagnosed at 77, told the researcher that her daughter told her that there is something bad in her breast and the doctor need to take it out. The interviewee continued:

I know the thing in my body probably is not good, but I trust the doctor and my daughter’s decision. Staying alive is much more important than loss one side of my
breast. Also, I am old enough to not worry my appearance…We went to see doctor together after the surgery, the doctor told us that everything looks ok, and we just need to go back to the hospital to do follow check ups every once in awhile…Though the doctor helped me out of the cancer, it was my daughter who provided me support, helped me go through it, and made me believe I will be ok…I cannot imagine what I would be if my daughter was not with me.

The case above represents one segment of aged Taiwanese women who often are financially and physically dependent on their children for support. It is also possible that these women may be illiterate considering the Taiwanese Ministry of the Interior states the illiteracy rate at 17.6% among women who are 65 year-old and older (Ministry of the Interior, 2015). On the contrary, breast cancer mothers who are younger usually take more control over their healthcare making decisions for themselves because, according to the interviewees, they have a greater ability to access resources and information (e.g., by using the Internet).

Age is an important factor that influences participants’ intention to disclose. As one breast cancer survivor recalled, when she first learned her diagnosis at 43, she felt depressed and overwhelmed. However, she later adjusted herself and told herself that she was young enough to fight the disease and decided to be a role model for her daughters, showing them the right attitude to face difficulties in life:

I feel lucky that I had this disease when I was still young and had energy to fight. At that time, I wanted to show my girls that I am a strong mom and I would be with them when they grew up. I volunteered in the hospital when I felt better. I shared what I saw in the hospital and how I felt and reacted to the situation—I feel through this sharing, my girls became more thoughtful, and as a result, we became closer.

On the other hand, a 63-years-old breast cancer survivor had totally different mother-daughter communication experiences. When she was first diagnosed with breast
cancer at 57, she did not vary her communication with her daughter because they did not live together and she did not want to worry her daughter. She only told her daughter some general information such as her treatment and medication, but nothing emotional about her concerns and feelings. She told the researcher that, “I can make decisions on my own. There is no need to bother my children and make them worry.”

More independent mothers are more likely to take care of themselves and absorb their own negative emotions. This does not mean they do not share or disclose information with their daughters, instead these mothers are selective in the depth of what they choose to share in their mother-daughter communication.

*Daughters’ maturity.* The mother-daughter relationship has its impact on breast cancer mothers’ disclosure intention. Based on the result of this study’s interviews, mothers, regardless of their age or cancer stage, all consider their relationships with daughters either close or very close. However, when facing topics related to cancer diagnosis and treatments, they have different levels of concerns and willingness of disclosure. One factor that influences their willingness to disclose is the age of their daughters. Those with younger daughters may choose to withhold negative information because it may worry their daughters and upset the girls’ behavior and performance.

Based on the finding from the interviews, unless the daughter(s) were really young, for instance under 10 years old, breast cancer patients/survivors usually told children their basic cancer information, such as the treatment they needed to receive. As to their own emotions, most mothers did not share their emotions with their daughters, especially when daughters were still in primary school. To illustrate a breast cancer
mother’s concern about causing worry to their daughters, one survivor, with one daughter in middle school and one daughter in high school during the time she was under treatment, said:

During my treatment period, I really hope my children could company me, talk to me—but they need to study for school, and they have many exams to prepare for before entering college. Therefore, I always tell myself, “hang in there, do not bother them”, even if they are just right next to my room.

Mothers with breast cancer are much more willing to share their treatment, progress, and even diet with their adult daughters. It should be noted that these open lines of communication are not the same for adult sons who are excluded for the most part from the cancer discussions. It is the daughters that received the bulk of information including their mothers’ requests that daughters’ begin to engage in preventative behaviors. One survivor stated that:

I usually share new information I learn from TV or educational lectures with my daughters. Usually, I tell them what to eat and what not to eat…well– what not to eat that much, like red meat or deep-fried food. They have a pretty good sense of vigilance already, but I still remind them when I have chance. Vigilance and good habits lower the risk of cancer.

**Societal expectation on women’s role—the ideal image of a good mother.** In Taiwan, as in most societies, there are standards for women in their roles as wives and mothers. Traditionally, the ideal image of a woman is one who assists her husband, raises her children, and takes care of the elderly at home. If the children do not behave or perform well at school, the mother will most likely be considered inadequate in the caring of her children. With these responsibilities and expectations pressuring and constraining women, the added tribulations of breast cancer may be overwhelming. Patients have to
fight against cancer while continuing to perform in their roles of the good wife, mother, and daughter in-law. All participants in this study mentioned that they felt stress from society, their families, and even themselves.

Each participant had her own ideal image of what a good mother looks like, but all participants shared that a good mother is judged by their children’s school and work performance as well as children’s interpersonal relationship. It is also the expectation of an ideal mother that she worries about her children regardless of how old they are. A breast cancer patient/survivor with two high school daughters described her relationship with her daughters as good. However, when the researcher asked her how frequently and how deeply they communicate with each other, the woman confessed to having a hard time adding substance, such as cancer-related information, and emotion to her communication with her daughter:

I think my daughters and I have pretty good relationships….but we barely had any intimate communication recently because they need to prepare for school and exams. I don’t want to bother them, and they don’t want to bother me either—I know if I want them to come and talk to me, they will, but—I—I just want them to focus on their own work in order to have good grades and to behave well.

Similarly, another mother with a daughter in elementary school disclosed, “I worried about my girl a lot. She did not have good grades in some classes… I usually yelled at her and asked her to be more focused, but—I don’t know—I wish I had more energy so that I could spend more time with her and educate her.”

A breast cancer mother of an adult daughter also mentioned her communication pattern with her daughter:

My daughter is very busy. She owns three clothing stores and she lives by herself. We barely see each other because of her busy schedule, but we talk on the phone
sometimes. Hmm…probably once every two week. I would say—besides general greetings or catch up for each other’s news, we don’t go anything further. Don’t get me wrong. We are close. I just don’t want to bother her... She is busy.

*The philosophy of “face it, accept it, deal with it, and let it be.”* The phrase of “face it, accept it, deal with it, and let it be” comes from the biography (2009) of Chan Master Sheng-Yen, a Buddhist monk. Though this exact phrase came out recently, this kind of philosophy can be seen in many Chinese classics, such as Analects (論語), Mencius (孟子), or Daodejing (道德經), using different phrases and descriptions.

The philosophy of “face it, accept it, deal with it, and let it be” is considered a unique coping strategy in this study. This statement from the Taiwan Breast Cancer Alliance encompasses the first two stages of the philosophy, “most cancer patients usually experience the process of denying, getting angry, negotiating, getting depressed, and finally accepting the situation” (TBCA, 2012). To fully embrace the philosophy, breast cancer patients must first face and accept that they have breast cancer, then deal with the disease, and finally leave their fate to God/ higher power.

In a cancer diagnosis scenario, families are seemingly powerless to control their own outcome, being forced to face the situation involuntarily. However, while the situation is out of their control, breast cancer families can control how they respond to the cancer diagnosis. By practicing this coping strategy philosophy they can accept their situation faster allowing them to calmly and rationally respond with a willingness to face and deal with the disease. Doctors and health prevention professionals generally believe that people who possess this type of attitude are more likely to avoid emotional ruts and
to develop the ability to quickly adjust to adverse situations (American Cancer Society, 2014).

The philosophy of “face it, accept it, deal with it, and let it be” is a common theme in the interviews. A breast cancer interviewee noted:

Well…it has already happened. I don’t know why I have breast cancer, but…I cannot change anything, right? All I can do now is to face it and deal with it. I have been breast cancer survivor for 14 years, and I am working toward my 15th year of new life. I am fighting for my family. I want to see my daughters to grow up and I want to see they get married and have their own families.

Another breast cancer mother also accepted her illness and tried to look for a positive side in the experience. She mentioned to the researcher how grateful and thankful she was now: “Without experiencing the disease, I probably would not have changed my life values and attitudes. I accept who I am now. I do what I can do to take good care of myself and I follow doctor’s instructions. The rest of it, I left to Buddha.” Examples like these demonstrate the strength and power of the philosophy of “face it, accept it, deal with, and let it be.” These people reframed their negative opinions about their experiences into a more positive way of thinking. For some people, this kind of attitude may appear passive, however, if thinking this way makes the breast cancer patients/ survivors and their families feel happier and more optimistic in life, it certainly serves a positive function. The philosophy of “face it, accept it, deal with, and let it be” has indirect effects on mother-daughter communication among breast cancer families. Breast cancer mothers, who accepted the illness, accepted their fate, and faced the disease in a positive or neutral attitude, were more open to discuss their diseases as well as sharing their emotions with their daughters. Some of these more open, positive breast
cancer mothers also went out to educational workshops or seminars to receive the latest information and then share this knowledge with their daughters. Some of them even asked their daughters to go with them. All of these interactions had a positive impact on their mother/daughter communication.

**Religion.** Confucianism, Buddhism, Taoism, and other folk religions heavily impact the Taiwanese culture. The Confucian thoughts, the values of various religions, and many other Chinese traditions provide guiding principles for people to follow, learn, and socialize. Perhaps most importantly in informing this study, religion assist people in finding their inner peace.

Among the fifteen mother participants, most of them were already religious believers before they were diagnosed with breast cancer, but they were lax in practicing their beliefs. Interestingly, they became active believers after their diagnosis and described many shared experiences with other mother participants. They all felt peaceful and brave when they sought support from religion. A breast cancer who currently experienced a recurrence shared her religious experiences with the researcher:

> I transcribed Buddhism and Confucian classics during the treatment and even now—I feel much more peaceful and stable through doing this. In my opinion—I become more optimistic and stronger because of my religion—when I talk to my daughter, I was not as pessimistic as before and sometimes I can even calm my daughter down.

Religious beliefs bring a positive impact on mother-daughter communication among these breast cancer families. Since the breast cancer mothers had faith, they were not afraid to face the possibility of death and this gave them encouragement to talk about death with family members. A stage III recurrence breast cancer mother noted:
I have planned everything already, from current life style and activities participation to my plan for the funeral. I am pretty calm now. I don’t want to do any treatments anymore. I tried once—a very painful and struggled one, but it failed. I don’t want to experience same process again. I have a strong faith and I believe Jesus will guide me. I told my family take it easy and pray for me. We are all Christians. They will understand me and support me.

**Support group engagement.** Getting involved in community services and having increased communication with a support group helped breast cancer patients/survivors know that they were still a valued part of their family and the society. In the group, they not only received support from others, but also offered their support to others. Through interacting and mutually supporting each other, breast cancer mothers can escape feelings of being trapped in their own world and feeling miserable all the time. In contrast, contact with support groups gives breast cancer patients/survivors opportunities to open their eyes to experiencing the true meaning of life. But perhaps most importantly, support groups could provide participants with a sense of belonging and identity-reinforcement that had been missing since receiving their life-altering cancer diagnosis.

Among these participants, nine of them joined support groups. These participants were the main caregivers of the family; however, after being diagnosed with breast cancer, they became the ones who needed care from others. This kind of change affected their communication with their daughters as most mothers struggled to redefine their values and their role in the family; hence, they looked for outside resources to reconstruct their values. Support groups gave breast cancer mothers the tools to rebuild their values and confidences. The patients/survivors were not only the beneficiaries of support; they also benefited from being able to provide support to others. The benefits resulted in
mothers being happier, more productive, and better adjusted, which in turn brought about
an attitudinal changes that positively influenced the way they communicated with their
daughters.

**Breast cancer support group participation.** Breast cancer support groups provided
different kinds of support to breast cancer patients/survivors. In addition to working with
the hospitals and healthcare providers to hold various educational workshops, support
groups also visited new patients and organized events to create bonds and encourage
group members’ support of each other. These activities helped breast cancer mothers feel
useful and needed gaining extra confidence by supporting others. Additionally, mothers
benefitted from the camaraderie and shared cancer experience of others within the group.

A survivor who participated in support group for eight years mentioned that:

> I feel I am useful and valuable again—I help and give advice to new patients.
> I cooperate with doctors, nurses, and hospitals to hold educational lectures and
> workshops. All these activities make me feel I am not useless, which make me
to love myself more, and the most important thing is, I share what I learn and
what I see in the support group with my daughters—I don’t know, I feel like I
am not as weak as before—I can provide new information to my family. I can
educate them—I am a mom again.

**Hospital and community volunteer group participation.** Besides joining breast
cancer support groups, volunteering in hospitals or in the community also provided
another opportunity to broaden breast cancer patients/survivors’ horizons. Similar to
participants in breast cancer support groups, breast cancer mothers found their values and
sense of self through helping others. A survivor who volunteers in the hospital for several
years said:

>
I learned a lot from other patients. I saw similar emotions such as depression, anger, and helplessness across all types of cancer patients. Doing volunteer work makes me realize that I am not in the worst situation—so many people are suffering now. I can still go out and help, but they can only lie on the beds and wait—wait for the day to come. I—I appreciate what I have now. Hmm…I told my children what I saw when doing volunteer work. I expressed my appreciation. I am not sure if this kind of conversation would influence their opinions or behaviors, but I hope they can be more content and grateful.

**Daughter Participants**

Among the seven daughter participants, only one was single and living with her mother, two were single living on their own, and the other four were married living in their own households. All the daughter participants considered themselves to have either a close or average mother-daughter relationships compared to other families. To confirm this was not a case of social desirability bias, the researcher asked the participants about the frequency and duration of communication with their mothers, as well as topics conversed. Answers received varied across individuals, except that they all rarely talked about the topic of breast cancer unless provoked by their mothers or necessitated by their mother’s routine breast exams. The common theme across the mother/daughter conversations surrounded nutrition, daily regimen, and ways to maintain good health.

Mother-daughter communication patterns are influenced by several factors from the daughter’s perspective including the mother’s dependency on the daughter and their accessibility to each other. In addition, the daughter participants also mentioned how their mother-daughter communication impacted their own prevention awareness and behavior. The results can answer research question two from another perspective and research
question three. This section provides detailed accounts and explanations along with quotations to demonstrate these factors.

**Mothers’ dependency on daughters.** As previously mentioned, mother’s dependency on daughter has a major impact on their relationship and communication. In both the US (American Psychological Association, 2015) and Taiwan (Chen & Wu, 2006), the majority of caregivers for an ill or disabled relative are females. In Taiwan, mothers of an elderly age tend to depend more on their children because of low literacy and limited capabilities. For example, most elderly mothers need to rely on their daughters to take them to the hospital and to handle most major decisions. The daughter of an 84-year-old woman stated:

> I took my mom to her every hospital visit, from the first day of her treatment to her follow-up after the treatment. I know all her breast cancer treatment procedures and conditions, and I am the one who discuss all the details with her doctor. I let my mom what to eat and what not to eat. I am literately the main caregiver for my mom…this definitely influences the communication between my mother and I. She is very open to express her emotions to me.

On the contrary, a 34-year-old, married woman whose mother is currently a 63 years old breast cancer patient/survivor provided a different perspective:

> It was four years ago when my mom was first diagnosed with breast cancer. She made all the decisions on her own…and she asked all of us (three daughters) to go home. Later she informed us of what happened to her, what treatment she wanted to take, and what was going to be her next step. I was kind of mad because she did not want to discuss it with us…but what else can we do? That’s her life and we need to respect her decision.
Examples above show that mothers with higher level of dependency have more frequent, longer, and deeper communications with their daughters. The mother’s age is a key factor on her level of dependency.

Accessibility. It has been established that the mother-daughter relationship has a direct impact on their communication. However, accessibility between them, i.e., the opportunity to reach out and communicate with each other, also strongly influences the mother-daughter relationship.

As previously mentioned, all daughter interviewees were adults with the majority not cohabitating with their mothers. Daughters communicated primarily with their mothers through phone or face-to-face visits. The frequency in which they talked or visited with their mothers had a direct impact on their mother/daughter closeness and communication pattern. Furthermore, four out of seven interviewees were married and have their own families, which further reduced their time and energy to communicate with their mothers.

The physical distance between the mother and daughter also had a direct impact on their communication pattern. Daughters who live in the same city had more opportunities to visit their mothers versus daughters who live elsewhere. In addition, once the daughters got married, part of their focus was diverted to establishing their new household. The diversion especially intensified once the daughters had children shifting their focus to caring for their new family. A married daughter with two little girls told the researcher:

I think I have a good relationship with my mom, even though we do not see each other often. I am busy all the time with my two little girls, and I sometimes call my
mom to check if everything is ok… We usually talk about things that happened in our daily lives and about the two girls. Hmm…my mom does not disclose her feelings related to breast cancer with me…but she shares information she reads online about what to eat and what exercise to do to maintain good health.

This example demonstrates that daughters’ accessibility to their mothers is challenged by not only daughters’ physical location but also their marital and parental statuses. This lack of accessibility between mother and daughter directly influences their relationship as well as their communications, including the topic of breast cancer.

**Prevention behaviors.** As adults, the daughter interviewees were all old enough to understand what happened to their mothers. All the daughters mentioned that their mothers’ illness changed their life on some level. All of them also expressed higher cancer awareness and increased empathy for cancer patients or disabled people. An unmarried, 24-year-old daughter of a breast cancer survivor explains that:

> Compared to my college classmates and coworkers, I am more knowledgeable on the breast cancer topics given my exposure since sixth grade. Furthermore, I feel I am more sensitive and have higher awareness of health issues. My friends usually consult me if they feel ill, or if something is happening to their families.

While these daughters may have a higher awareness, they do not necessarily take more preventative actions. One 30-year-old, unmarried daughter told the researcher:

> I have not had any breast cancer examinations. Maybe because I feel that I am too young to worry about it, or the examinations are expensive. My mom and I usually talk about how to keep ourselves healthy, such as eating three meals regularly and not staying up too late. But we actually barely talk about breast cancer exams except when she goes back to the hospital for her routine check-up.

Another 28-year-old daughter who had a breast ultrasound exam three years ago indicated:
My first breast ultrasound experience was three years ago when I felt something in my breast. Luckily it was nothing serious. Since then, I have ultrasound examination done once a year but not mammogram. I know a mammogram examination is very painful, plus I do not feel the urgency. The government provides women with a family history of breast cancer a free mammogram every two years after they reached the age of 40…hmm I will do it when I reach 40, but right now, ultrasound is enough.

Based on the interviews, there is no definitive correlation between mother-daughter communication and daughters’ prevention behaviors, but there is a detectable effect on awareness. Individuals’ breast cancer prevention intentions and behaviors seemed to be driven by factors beyond maternal influence.

**Discussion**

The present study was designed to explore the pattern of mother-daughter communication about breast cancer in Taiwan. Particular attention is paid to the factors that influence breast cancer patients/survivors’ intention to self-disclose to their daughters. The assumption is that mothers may influence their daughters’ attitudes and beliefs toward prevention behaviors based on the content, frequency, and depth of mother-daughter communication. Though several previous studies have addressed parent-child communication in Taiwan, most of them are about sexuality (Kang, 2010; Lai, 2008), education (Huang, 2014; Hsu, 2004) and personality development (Wu, 2011). There is still a dearth of information regarding health-related issues, including mother-daughter cancer communication.

RQ1 addresses the general pattern of Taiwanese family communication between breast cancer patients/survivors and their daughters. According to the mothers, most of
the time they did not hesitate to discuss general topics such as school, work, or things that happened in the family. However, concerns did arise when discussions centered on the subject of breast cancer. Mothers were afraid that their self-disclosures might have a negative impact on their daughters.

The frequency and duration of general or breast cancer-related communication between mother and daughter were dependent upon the time spent together and closeness in their relationship. Some mothers were geographically separated from their daughters, which greatly reduced their opportunities to communicate.

This study did not address valence and veracity in detail, but breast cancer mothers did indicate that they sometimes hid or withheld their emotions and thoughts due to fears of worrying their daughters. Interviews with their daughters revealed similar results in that daughters also believed they had good relationship with their mothers. However, unlike the mothers, whose level of self-disclosure depended on factors such as age/level of dependence, all daughters felt that their mothers seemed open to talk about everything breast-cancer related, including treatments and decisions. Daughters also shared that their mother-daughter conversations ranged across topics, but the daughters also admitted to withholding certain work and personal relationship information. Often, according to the daughters, they are retroactively informed of their mother’s choices, but other times their mothers would proactively ask for their daughters’ opinions.

As to the frequency and duration of communication, the daughter data corresponded with their mothers’ reports: it depends on how much time and how often they see each other. The daughter interviewees also mentioned that their mothers would
disclose more information if communications were done in person rather than by using other methods (e.g. mobile phones).

RQ2 pertains to the role of individual, relational, and cultural factors in breast cancer mothers’ intention of self-disclosure. Various factors have an impact on individuals’ intention to self-disclose. In this research, seven themes emerged from the interview data. (1) the cancer stage when the mother was first diagnosed with breast cancer, (2) financial pressure, (3) breast cancer mothers’ age and their daughter’s maturity when breast cancer was diagnosed, (4) the philosophy of “face it, accept it, deal with it, and let it be,” (5) societal expectation on women’s role, (6) religion, and (7) support groups. Some themes can only be placed into one category as illustrated by the mother-daughter relationship that can only be categorized as a relational factor. Similarly, breast cancer diagnosis stage, socioeconomic status, and religious beliefs themes can only be placed under the individual level category. Other themes are difficult to classify into only one single category, as they exert influence on multiple levels. Age can be utilized as example to demonstrate this point; “aged identity” as defined by Hockey and James (2003) is a self-identity that is shared and shaped by “culturally specific social roles and experiences” (p.82). An individual’s “aged identity,” therefore, is influenced by society’s expectations, which makes it both an individual factor and a cultural factor.

There are a few notable findings from the interview data. First, a mother’s age and her daughter’s age at diagnosis along with the mother’s cancer stage all impact the mother’s disclosure intention. These findings are consistent with previous studies (Spira & Kenemore, 2000; Raveis & Pretter, 2005), which demonstrate that the mothers’ illness
can have profound and multifaceted impact on their children, whether their children are school-aged or adults. This data highlight the influence of mothers’ cancer stage and their children’s maturity on their communication, particularly communication about cancer. In general, mothers in advanced cancer stages will grasp and cherish every opportunity for mother-daughter conversation. When such conversations do happen, they also tend to be deep and meaningful.

Second, socioeconomic status also plays an important role in mother-daughter breast cancer communication. Previous research has demonstrated similar results where socioeconomic status significantly affect survival rate, quality of life, prevention behaviors, and family communication (Mandelblatt, Andrews, Kerner, Zauber, & Burnet, 1991; Von Wagner et al., 2011; Fagundes, Lindgren, Shapiro, & Kiecolt-Glaser, 2012). Den Heijer et al., (2011) found that open family communication about hereditary cancer resulted in “less general and breast cancer specific distress” (p.1317). Den Heijer and colleagues (2012) also pointed out in a later study that the more plentiful one’s personal resources (wealth), the more positive the impact of one’s social resources on psychological distress. This study demonstrates that, without financial pressure, breast cancer mothers can concentrate more on their own health, and consequently, have more energy and better communication with their children.

Third, society’s expectation on women’s role influences breast cancer mothers’ willingness to disclose themselves in different ways. Mothers usually want to provide the best and the most abundant resources to their children. Whether their children are young or adults, in school or at work, the mothers usually try their best to support their children
even when it means sacrificing their own needs. Breast cancer mothers choose to bear the burden of stress and discomfort by themselves, withholding their emotions from their families because they do not want to bother and worry their children. The depth, breadth, frequency, duration, valence, and veracity of the breast cancer patients/survivors’ self-disclosure are all greatly influenced by these concerns.

RQ3 investigates how mother-daughter communication influences a daughter’s prevention awareness and behavior. Mothers interviewed in this study did report some level of conscientious effort to educate their daughters on the risk and prevention of breast cancer. Daughter interviewees also mentioned that their general health awareness as well as breast cancer-specific awareness were both increased because of their mother’s illness. According to interview data, daughters’ prevention behavior is influenced by their mother-daughter communication in some ways; however, other factors (e.g. media) also impact their behaviors. Additionally, daughters’ willingness to do breast check-up exams is strongly influenced by the fact that the government provides a free mammogram every two years for any woman 40 and over with a family history of breast cancer (Health Promotion Admiration, 2015).
CHAPTER FIVE: QUANTITATIVE METHOD REPORT

To further address the research questions of this study, a survey of breast cancer patients and their daughters was conducted following the interviews. This chapter presents method details and findings from the survey.

Participants

Between June and October 2014, 244 participants filled out the survey, including 164 breast cancer mothers and 80 daughters. Among the 164 mother participants, only 135 had daughters. Given the interest of this research, only mothers with daughters are included in the current analysis ($N = 135$). The average age of mother participants was 54.8 ($SD = 9.66$), with a range of 34-89, and around 80% of them were in stages zero, one and two when they were first diagnosed. The majority of them believed in Buddhism and did not work. Table 5 presents the demographic characteristics of the 135 mother participants. In addition, Table 6 presents the demographic characteristics of the daughter participants. The average age of the daughter participants was 33.05 ($SD = 14.16$) with a range from 9 to 68, and more than half of them had graduated college.

<table>
<thead>
<tr>
<th>Current Age</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 39</td>
<td>1</td>
<td>0.7%</td>
</tr>
<tr>
<td>40-44</td>
<td>13</td>
<td>9.6%</td>
</tr>
<tr>
<td>Age when diagnosed w/ Breast Cancer</td>
<td>Under 39</td>
<td>18</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------</td>
<td>----</td>
</tr>
<tr>
<td>40-49</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>50-59</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>60 and above</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cancer Stage</th>
<th>Stage 0</th>
<th>29</th>
<th>21.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>38</td>
<td></td>
<td>28.1%</td>
</tr>
<tr>
<td>Stage 2</td>
<td>41</td>
<td></td>
<td>30.4%</td>
</tr>
<tr>
<td>Stage 3</td>
<td>20</td>
<td></td>
<td>14.8%</td>
</tr>
<tr>
<td>Stage 4</td>
<td>2</td>
<td></td>
<td>1.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Married Status</th>
<th>Not Married or Widow</th>
<th>25</th>
<th>18.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>109</td>
<td></td>
<td>80.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Under Middle School</th>
<th>36</th>
<th>26.7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Graduate</td>
<td>52</td>
<td></td>
<td>38.5%</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>17</td>
<td></td>
<td>12.6%</td>
</tr>
<tr>
<td>College and above</td>
<td>30</td>
<td></td>
<td>22.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupation Status</th>
<th>Working</th>
<th>48</th>
<th>35.6%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Working</td>
<td>26</td>
<td></td>
<td>19.3%</td>
</tr>
<tr>
<td>Housewife</td>
<td>61</td>
<td></td>
<td>45.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Religion</th>
<th>Buddhism &amp; Taoism</th>
<th>93</th>
<th>68.9%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christian &amp; Catholic</td>
<td>14</td>
<td></td>
<td>10.4%</td>
</tr>
<tr>
<td>No Religion Belief</td>
<td>14</td>
<td></td>
<td>10.4%</td>
</tr>
</tbody>
</table>

\[N=135\]

<table>
<thead>
<tr>
<th>Table 6 Demographic Characteristics of Daughter Participants</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 15</td>
<td>4</td>
<td>5%</td>
</tr>
<tr>
<td>16-25</td>
<td>17</td>
<td>21.3%</td>
</tr>
<tr>
<td>26-35</td>
<td>28</td>
<td>35%</td>
</tr>
<tr>
<td>36-45</td>
<td>11</td>
<td>13.8%</td>
</tr>
<tr>
<td>46-55</td>
<td>9</td>
<td>11.3%</td>
</tr>
<tr>
<td>55 and above</td>
<td>11</td>
<td>13.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age when Mom was Diagnosed w/ Breast Cancer</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 10</td>
<td>6</td>
<td>7.5%</td>
</tr>
<tr>
<td>11-19</td>
<td>25</td>
<td>31.3%</td>
</tr>
<tr>
<td>20-29</td>
<td>23</td>
<td>28.7%</td>
</tr>
<tr>
<td>30-39</td>
<td>9</td>
<td>11.3%</td>
</tr>
<tr>
<td>40-49</td>
<td>7</td>
<td>8.8%</td>
</tr>
<tr>
<td>50 and above</td>
<td>7</td>
<td>8.8%</td>
</tr>
<tr>
<td>Education</td>
<td>Under high school</td>
<td>10</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------</td>
<td>------</td>
</tr>
<tr>
<td>High school graduate</td>
<td>14</td>
<td>17.5%</td>
</tr>
<tr>
<td>Associate degree</td>
<td>12</td>
<td>15%</td>
</tr>
<tr>
<td>College and above</td>
<td>44</td>
<td>55%</td>
</tr>
</tbody>
</table>

N=80

**Sampling and Recruitment Procedure**

Convenient sampling was used in this study. This study requires recruiting two different groups of women: (1) breast cancer patients/survivors, and (2) daughters of breast cancer patients/survivors. Following IRB approval, participants were contacted through personal contact and snowball sampling, with most participants being recruited in person. Once the women agreed to participate in the study, the researcher would ask each participant to read and sign a consent form (see Appendix E for the form for breast cancer mothers, Appendix F for the form for daughters who are over 18, Appendix G for daughters who are under 18, and Appendix H for mother’s informed consent document of daughters who are under 18). Next, the researcher asked if they had questions before filling out the survey which was given to them after the consent form was collected. In addition to personal recruitment, some participants were recruited through snowball sampling where they learned of the study through another participant or network, and contacted the researcher directly to request the survey. The researcher then sent them a package, which included a survey, the appropriate consent forms that were mentioned above, and a self-addressed stamped envelope. After completing the survey, participants
returned their survey and consent form in the self-addressed stamped envelope which was then mailed back to the researcher.

**Instruments**

In order to examine mother-daughter communication in families with breast cancer patients/survivors and the influence of such communication on daughters’ cancer prevention attitudes and behaviors, two questionnaires were designed, one for breast cancer mothers and the other for their daughters. Below, the instruments that were used in mothers’ and daughters’ surveys are described separately.

**Mothers’ Survey Instruments**

The survey that was distributed to breast cancer mothers had 104 questions, assessing demographic information, breast cancer history, cultural beliefs, mother-daughter relationship, and self-disclosure behaviors (for questionnaire see Appendix I).

**Demographic Characteristics.** Demographic questions were adopted from the “Taiwan Social Change Survey (TSCS) (2014),” which is a national long-term trends survey conducted by the National Science Council in Taiwan. The first TSCS nation-wide survey was completed in 1985 and since it has followed 5-year cycles that rotate different projects, focusing on wide-ranging topics such as economic, political, social, and culture changes. The adopted demographic questions served to provide background information on breast cancer patients/survivors. These questions included: age, number of daughters in the family, marital status, employment status, level of education, religion, income, and family cancer history.
Medical history. Participants reported their own breast cancer history, such as when they found out they had breast cancer and at what stage, as well as their treatment history. Examples of respondents’ questions were “What was your diagnosis date?”, “What were the ages of your daughter(s) when you received your breast cancer diagnosis?”, and “what stage (zero to IV) of breast cancer were you diagnosed with?”

Perceived risk for daughter(s). Perceived cancer risk for daughter(s) was measured using single-item questions adapted from items originally constructed by Lerman & Schwartz (1993). Respondents were asked “How would you rate your daughter(s)’ risk of breast cancer?” with scored on a 5-point scale from 1= “no risk” to 5= “extremely high risk,” and “How often do you worry that your daughter(s) might get breast cancer?” with a 5-point Likert scale from 1= “not at all” to 5= “all the time.”

Communication about cancer prevention. Questions regarding giving advice to daughter(s) to prevent breast cancer were adopted from Sinicrope et al. (2008). Respondents were asked, “Have you provided advice to your daughter(s) about things they should do to lower their breast cancer risk?” Response categories were yes, no, and not applicable.

Cultural values/beliefs. This study adopted the “gender roles” and “family values” scales from the “Taiwan Social Change Survey (TSCS) (2014) to measure the participants’ traditional values. Nine gender roles questions were asked, such as “Women are more suitable than men to take care of the family,” with a 5-point scale from 1= “strongly disagree” to 5= “strongly agree.” The family values scale also had 9 items, such as “Attending the parent’s funeral no matter how far away you live.” These items were
scored on a 5-point scale from 1= “not important at all” to 5= “absolutely important.” The higher the overall score, the more traditional the participant. The internal consistency of the family values scale was adequate (α = .769, N = 124). The internal consistency of the gender roles scale was somewhat low, but close to the conventional standard of being acceptable (α = .668, N = 120).

Mother’s educational goal for children. This study adopted 10 items from Lin’s (1999) mothers’ educational goal scale to examine what kinds of educational goals mothers have for their children that might influence mother-daughter communication. In the original scale, there are 23 items, which can be categorized into three dimensions: character development, accomplishment, and interest development. This study adopted several items from each dimensions with factor loadings above .55 in the original study. Participants were asked to rate the importance of each item from 1 to 5, where 1= “not important at all” and 5 = “absolutely important.” Examples of the items are “be responsible” or “have good performance in school or workplace.” The reliability of the scale was adequate for all three dimensions: character development (α = .845, N = 125); accomplishment (α = .745, N = 126); interest development (α = .842, N = 126).

Mother-daughter relationship. In order to measure breast cancer survivors and their daughters’ relationship, this study adopted 19 out of the 25 items from Rastogi’s (2002) mother-adult daughter questionnaire (MAD). This study excluded five items that are not related to mother-daughter relationship. An example of these deleted items is “To visit my mother, I have to travel;” and answers were from 1= “a few miles or less” to 6= “more than 3,000 miles.” In addition, this study deleted one item that appears to be
redundant with another item. The two duplicative questions are “My daughter(s) usually consult(s) me when making a hard decision,” and “My daughter(s) like to make hard decision on her own without consulting me.” The study excluded the latter item.

Sixteen items used a 5 point scale from 1= “very false” to 5= “very true,” and example questions are “My daughter(s) can share her (their) intimate secrets with me,” and “ My daughter(s) always trust my judgment.” The 16 items measured mother-daughter relationship and showed excellent scale reliability (α = .924, N = 122).

Three additional questions were asked to evaluate mother-daughter closeness and satisfaction. For example, participants were asked that “I consider my daughter(s) and I are …?” and answer were from 1= “not at all close” to 5= “very close.” In addition, participants had to answer question, “ Compared to other ordinary families of my culture that I have known, my relationship with my daughter(s) is (are):” and answer were from 1= “less close than others” to 3= “more close than others.” Another question was “ My overall relationship with my daughter(s) is (are)” and answer were from 1= “very dissatisfying” to 5= “very satisfying.” These three items were used in later analysis individually.

**Mother’s concern.** Muriel et al. (2012) developed a 15-item instrument to measure cancer parents’ concern about the impact of breast cancer on their children. This study used ten items from the original instrument, excluding five items relating to co-parenting issues. Examples are “my own mood, worries or emotions are affecting my children,” and “ I am not able to spend as much time with my children as I’d like.” These items were scored on a 5-point scale from 1= “no concern at all” to 5= “very concern.”
Cronbach’s alpha for the 10-item scale was .938, \( N = 121 \).

**Level of self-disclosure.** Self-disclosure questions were adopted from a measure developed by Pistrang and Barker (1992, 1995). The original measurement uses ten items to assess how patients talk about their cancer-related feelings and concerns with their spouses. This study adopted the scale but focused on the communication between patients and their daughters. For each item, respondents rate the level of disclosure on a 5-point scale ranging from 1 = “talked about none of what I felt” to 5 = “talked about all of what I felt.” In this study, participants were asked to answer the same series of questions based on how they felt during the treatment and how they felt at present. The scale showed excellent reliability for both time points (\( \alpha = .949, N = 105 \) for current level of self-disclosure; \( \alpha = .964, N = 106 \) for level of self-disclosure during the treatment period).

**Degree of withholding information.** Similar to the level of self-disclosure questions, these questions were adopted from Pistrang and Barker (1992, 1995). This study modified the original questions to target the communication between breast cancer mothers and their daughters. As an example, one question asked “To what extent have you held back from talking to your daughter about your concerns and feelings?” Respondents answered the questions on a 5-point scale ranging from 1 = “not at all” to 5 = “a lot.” Also, similar to the level of self-disclosure questions, participants answered the same series of questions based on how they felt when they were during the treatment vs. the present day. Cronbach’s alpha for the 10-item scale measuring current level of holding back was .961, \( N = 107 \), and Cronbach’s alpha for the level of holding back during the treatment period was .973, \( N = 116 \).
Openness to discuss breast cancer with daughter(s). Openness of communication was measured using items adopted from Mesters et al.’s (1997) Openness to Discuss Cancer in the Family (ODCF) scale. Since this study focuses on mother-daughter communication rather than family communication, the study reworded four items, replacing “partner” or “children” with “daughter(s),” and deleted two items that were less relevant. Seven items on a 5-point Likert scale ranging from 1= “strongly disagree” to 5= “strongly agree” were the final modified measure, and the higher the score; the more open the communication between mother and daughter. Again, respondents answered the same questions for when they were during the treatment with breast cancer vs. the present. α = .849, N = 110 for the scale of the present, and α = .868, N = 118, for the time when they were during the treatment.

Daughters’ Survey Instruments

The survey for daughters of breast cancer patients/survivors had only 22 questions. It included shorter versions of the demographic questions and mother-daughter communication and relationship questions. In addition, the daughter survey had questions about breast cancer risk perceptions and breast cancer prevention behaviors.

Demographic Characteristics. Only three questions were asked to gather demographic information from daughters, including their current age, their age when their mothers’ were diagnosed with breast cancer, and their education level (for questionnaire see Appendix J).

Breast cancer risk perception and prevention. Risk perception and prevention related questions were all adopted from previous literature (Kreuter & Strecher, 1995;
Easterling & Leventhal, 1989). To measure cancer risk perception, daughters were asked “Compared to others your age and sex, how would you rate your risk of getting breast cancer within the next 10 years?” Respondents answered the questions on a 5-point Likert scale ranging from 1= “a lot lower than average” to 5= “a lot higher than average.” Another question measured participants’ level of worry, which is “ How often do you worry that you might get breast cancer?” Respondents answered the questions on a 5-point scale ranging from 1= “not at all” to 5= “all the time.”

In addition, two yes or no questions were asked in the daughter survey to assess their prevention behaviors. The two questions were “Have you taken any preventive behaviors to lower your breast cancer risk?” and “Have you done any breast cancer examinations?”

Mother-daughter prevention communication. One yes or no question adopted from a previous study (Kreuter & Strecher, 1995) measured mother-daughter breast cancer prevention communication: “Has your mom provided advice to you about things you should do to lower breast cancer risk?”

Mother-daughter relationship. Three questions were asked to evaluate mother-daughter closeness and satisfaction. Question examples included “I consider my mom and me to be…” and answer were from 1= “not at all close” to 5= “very close,” and “Overall, my relationship with my mother is?” and answer were from 1= “very dissatisfying” to 5= “very satisfying.”

Mothers’ level of self-disclosure. Three 5-point scale questions, ranging from 1= “talked about none of what she felt” to 5= “talked about all of what she felt,” were asked.
Respondents rate their mother’s level of disclosure to them on three issues, cancer treatment, negative emotion, and fears of cancer progression/death. Similar to the mothers’ survey, daughter respondents answered the questions comparing the time during their mothers’ treatment to the later time when they filled out the survey. The scale showed excellent reliability for the both time points ($\alpha = .925, N = 74$ for the present; $\alpha = .941, N = 76$ for the time when their mothers were during treatment).

**Level of discomfort when discussing breast cancer issues with mother.** Daughter respondents were asked questions regarding their level of discomfort when their mothers discussed with them cancer treatment, physical symptoms, and emotions. Respondents answered these three questions on a 5-point Likert scale ranging from 1= “totally disagree” to 5= “totally agree” comparing the time when their mothers were in treatment to the time when they filled out the survey. Again, similar to the scale of mother’s level of self-disclosure, this scale illustrated good reliability at the two time points ($\alpha = 858, N = 75$ for discomfort during treatment; $\alpha = .920, N = 75$ for current discomfort).

**Data Analysis**

Data analyses were conducted in several stages for both mother and daughter data. Descriptive statistics (minimum, maximum, mean, standard deviation, skewness, kurtosis) were first examined for all study variables. The correlation coefficients among all variables were also examined. After descriptive analysis, factor analysis and reliability analysis were utilized to create summative scales. Finally, multiple regression and logistic regression were performed to answer the research questions of the study.
Mother Survey Data

Missing data is a common problem in cancer research and this study is no exception. Among variables that would be used in regression models in this study, some of them have more than 15 missing values, especially some mother-daughter communication variables (e.g. current degree of withholding information, current openness of breast cancer communication), which may be problematic considering the total number of cases in this study is only 135. Therefore, in preliminary analysis, multiple imputations were employed to address the missing value problems in the current data. When both original and imputed data were compared they were found to be very similar. In order to simplify presentation all final analysis was performed using the original data without imputation.

The mother data include four demographic, three cultural, two mother-daughter relationship and six communication variables. Figure 2 presents the relationships among these variables.

Figure 2 The Relationship among All the Variables of Mother Survey Data
**Daughter Survey Data**

The daughter data include two demographic, three mother-daughter communication/relationship, one mother’s advice, and four prevention behavior and attitude related variables. Figure 3 presents the relationships among the variables.

![Diagram showing the relationship among all the variables of daughter survey data](image)

Figure 3 The Relationship among All the Variables of Daughter Survey Data

**Results**

**Mother Survey**

*Descriptive statistics of each key indicator.* Descriptive statistics for demographics, cultural values, mother-daughter relationship, and mother-daughter communication variables are presented in Table 7. On average, participants were 48 years old at the time of their diagnosis, and their average cancer history was 6.42 years. The
majority of the sample (65.2%) had less than college education and 22.2% had a college
degree or higher. Only 35.6% of the participants were working, and almost 77% of the
sample were followers of either Buddhism or Taoism.

Table 7 Descriptive Statistics on Individual Characteristics, Mother-daughter Relationship, and Mother-
daughter Communication Variables from the Mother Survey

<table>
<thead>
<tr>
<th>Individual Characteristics</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Age</td>
<td>54.83</td>
<td>9.66</td>
<td>135</td>
<td>34-89</td>
</tr>
<tr>
<td>Education</td>
<td>2.3</td>
<td>1.09</td>
<td>135</td>
<td>1-4</td>
</tr>
<tr>
<td>Income</td>
<td>2.44</td>
<td>1.08</td>
<td>126</td>
<td>1-4</td>
</tr>
<tr>
<td>Number of Daughters</td>
<td>1.52</td>
<td>.8</td>
<td>135</td>
<td>1-5</td>
</tr>
<tr>
<td>Age When Diagnosed w/ Breast Cancer</td>
<td>48.41</td>
<td>9.3</td>
<td>135</td>
<td>34-80</td>
</tr>
<tr>
<td>Breast Cancer History</td>
<td>6.42</td>
<td>5.6</td>
<td>135</td>
<td>1-24</td>
</tr>
<tr>
<td>Cancer Stage</td>
<td>1.45</td>
<td>1.05</td>
<td>130</td>
<td>0-4</td>
</tr>
<tr>
<td>Cultural Related Questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender Roles</td>
<td>3.05</td>
<td>.82</td>
<td>130</td>
<td>1-5</td>
</tr>
<tr>
<td>Family Values</td>
<td>3.94</td>
<td>.65</td>
<td>130</td>
<td>1-5</td>
</tr>
<tr>
<td>Educational Goal_ Character Development</td>
<td>4.63</td>
<td>.42</td>
<td>131</td>
<td>1-5</td>
</tr>
<tr>
<td>Educational Goal_ Accomplishment</td>
<td>3.97</td>
<td>.67</td>
<td>131</td>
<td>1-5</td>
</tr>
<tr>
<td>Educational Goal_ Interest Development</td>
<td>4.36</td>
<td>.70</td>
<td>131</td>
<td>1-5</td>
</tr>
<tr>
<td>Questions Related to Daughters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daughter’s Cancer Risk</td>
<td>3.17</td>
<td>.96</td>
<td>132</td>
<td>1-5</td>
</tr>
<tr>
<td>Level of Worry</td>
<td>3.14</td>
<td>1138</td>
<td>133</td>
<td>1-5</td>
</tr>
<tr>
<td>Mother-daughter Relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M-D Closeness</td>
<td>3.95</td>
<td>.79</td>
<td>125</td>
<td>1-5</td>
</tr>
<tr>
<td>MDR Compared with Other Families</td>
<td>2.58</td>
<td>.64</td>
<td>125</td>
<td>1-3</td>
</tr>
<tr>
<td>Level of Satisfaction</td>
<td>4.07</td>
<td>.76</td>
<td>126</td>
<td>1-5</td>
</tr>
<tr>
<td>Overall M-D Relationship</td>
<td>3.67</td>
<td>.58</td>
<td>131</td>
<td>1-5</td>
</tr>
<tr>
<td>Mother-daughter Communication- Disclosure/ Withholding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disclosure During the Treatment</td>
<td>3.84</td>
<td>1.21</td>
<td>125</td>
<td>1-5</td>
</tr>
<tr>
<td>Current Disclosure</td>
<td>4.20</td>
<td>.99</td>
<td>124</td>
<td>1-5</td>
</tr>
<tr>
<td>Overall Disclosure</td>
<td>4.03</td>
<td>1.06</td>
<td>131</td>
<td>1-5</td>
</tr>
<tr>
<td>Withholding Information During the Treatment</td>
<td>2.35</td>
<td>1.34</td>
<td>121</td>
<td>1-5</td>
</tr>
<tr>
<td>Current Degree of Withholding Information</td>
<td>2.10</td>
<td>1.24</td>
<td>112</td>
<td>1-5</td>
</tr>
<tr>
<td>Overall Degree of Withholding Information</td>
<td>2.22</td>
<td>1.25</td>
<td>124</td>
<td>1-5</td>
</tr>
<tr>
<td>Mother-daughter Communication- Openness of Breast Cancer Communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness During the Treatment</td>
<td>3.06</td>
<td>.94</td>
<td>126</td>
<td>1-5</td>
</tr>
<tr>
<td>Current Openness</td>
<td>3.15</td>
<td>.90</td>
<td>116</td>
<td>1-5</td>
</tr>
</tbody>
</table>
Unless otherwise noted, all variables pertaining to culture and mother-daughter relationship and communication were measured on a 1-5 scale, where a high score means a greater degree of the measured variable. Descriptive statistics showed no strong leaning in gender roles \((M = 3.05, SD = .82)\) and fairly traditional family values \((M = 3.94, SD = .65)\). Mother’s educational goal variables, including character development \((M = 4.63, SD = .42)\), achievement \((M = 3.97, SD = .67)\), and interest development \((M = 4.36, SD = .70)\), were all close to or higher than 4 on the 5-point scale. Therefore, daughter(s)’ characteristic development, achievement, and interest development all matter to mother participants.

As to mother-daughter relationship, the mean scores of mother-daughter closeness \((M = 3.95, SD = .79)\), “Level of satisfaction” \((M = 4.07, SD = .76)\), and “Mother-daughter relationship” \((M = 3.67, SD = .58)\) all reached above the midpoint of the measurement scale. From participants’ point of view, therefore, they had pretty good relationship with their daughters.

The mean scores of mothers’ level of disclosure, both currently \((M = 4.2, SD = .99)\) and during the treatment period \((M = 3.84, SD = 1.21)\), were higher than the scale midpoint. Generally, it appears that participants had disclosed themselves a fair amount (3.84 out of 5) or a lot (4.2 out of 5) to their daughters. Similar to mothers’ level of disclosure, the mean scores of openness of breast cancer communication for both the present \((M = 3.15, SD = .90)\) and the treatment period \((M = 3.06, SD = .94)\) were higher.
than the scale midpoint, indicating a relatively high level of openness to discuss issues related to breast cancer with their daughters. Finally, the mean score of mothers’ concerns \((M = 3.04, \ SD = 1.07)\) illustrated moderate concern about the negative influence of breast cancer on their daughters.

**Descriptive statistics of self-disclosure variables (RQ1).** To understand basic patterns of breast cancer communication in families with breast cancer patients/survivors, Table 8 presents descriptive statistics for the mother-daughter communication variables. The range for all variables is from 1 to 5. As shown, mothers in general were willing to disclose themselves about various topics, from cancer treatment to physical symptoms, fear of death, and their breast cancer prevention experiences.

<table>
<thead>
<tr>
<th>Level of Self-Disclosure on Topic of…</th>
<th>During the Treatment</th>
<th>Present</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Cancer Treatment</td>
<td>3.98</td>
<td>1.44</td>
</tr>
<tr>
<td>Physical Symptoms</td>
<td>3.98</td>
<td>1.36</td>
</tr>
<tr>
<td>Financial Concerns</td>
<td>3.73</td>
<td>1.47</td>
</tr>
<tr>
<td>MD Relationship</td>
<td>3.98</td>
<td>1.35</td>
</tr>
<tr>
<td>Job-Related Concerns</td>
<td>3.87</td>
<td>1.38</td>
</tr>
<tr>
<td>Relationship w/ Others</td>
<td>3.80</td>
<td>1.37</td>
</tr>
<tr>
<td>Body Image</td>
<td>3.96</td>
<td>1.40</td>
</tr>
<tr>
<td>Negative Emotion</td>
<td>3.46</td>
<td>1.46</td>
</tr>
<tr>
<td>Fear of Cancer Progression/ Death</td>
<td>3.56</td>
<td>1.53</td>
</tr>
<tr>
<td>Breast Cancer Prevention Behaviors</td>
<td>4.06</td>
<td>1.44</td>
</tr>
</tbody>
</table>
Table 9 reports paired-sample \( t \)-tests of the breast cancer mothers’ self-disclosure level on different topics during treatment vs. the present. As shown, breast cancer mothers consistently disclosed more at present than during treatment.

<table>
<thead>
<tr>
<th>Level of Self-Disclosure on Topic of…</th>
<th>Mean</th>
<th>SE</th>
<th>t</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer Treatment _ In Treatment Current</td>
<td>4.00</td>
<td>.130</td>
<td>-4.71</td>
<td>120</td>
<td>.000</td>
</tr>
<tr>
<td>Physical Symptoms _ In Treatment Current</td>
<td>4.00</td>
<td>.124</td>
<td>-4.76</td>
<td>119</td>
<td>.000</td>
</tr>
<tr>
<td>Financial Concerns _ In Treatment Current</td>
<td>3.77</td>
<td>.134</td>
<td>-4.06</td>
<td>120</td>
<td>.000</td>
</tr>
<tr>
<td>MD Relationship _ In Treatment Current</td>
<td>4.01</td>
<td>.125</td>
<td>-3.95</td>
<td>115</td>
<td>.000</td>
</tr>
<tr>
<td>Job-Related Concerns _ In Treatment Current</td>
<td>3.89</td>
<td>.126</td>
<td>-3.65</td>
<td>118</td>
<td>.000</td>
</tr>
<tr>
<td>Relationship w/ Others _ In Treatment Current</td>
<td>3.81</td>
<td>.129</td>
<td>-4.11</td>
<td>113</td>
<td>.000</td>
</tr>
<tr>
<td>Body Image _ In Treatment Current</td>
<td>3.97</td>
<td>.130</td>
<td>-3.72</td>
<td>117</td>
<td>.000</td>
</tr>
<tr>
<td>Negative Emotion _ In Treatment Current</td>
<td>3.50</td>
<td>.135</td>
<td>-4.89</td>
<td>118</td>
<td>.000</td>
</tr>
<tr>
<td>Fear of Cancer Progression/ Death _ In Treatment Current</td>
<td>3.62</td>
<td>.141</td>
<td>-4.74</td>
<td>117</td>
<td>.000</td>
</tr>
<tr>
<td>Breast Cancer Prevention Behaviors _ In Treatment Current</td>
<td>4.11</td>
<td>.134</td>
<td>-3.41</td>
<td>111</td>
<td>.001</td>
</tr>
</tbody>
</table>

Multivariable regression testing mother-daughter communication (RQ2).

Mothers’ communication about breast cancer was captured by self-disclosure, information withholding, and openness. Table 10 to Table 12 present the correlations among all variables included in the regression equations. Table 10 presents correlations among all independent variables, including demographic variables (current age,
education level, and employment status), cultural variables (gender roles and traditional family values), and mother-daughter relationship variables (mother-daughter relationship, mothers’ concern about the negative influence of breast cancer communication).

Demographic variables and cultural variables were more or less correlated with each other, but mother-daughter relationship variables had weak correlations with other variables.

Table 10 Correlations of All Independent Variables (IV) From The Mother Survey

<table>
<thead>
<tr>
<th>Current Age</th>
<th>Education</th>
<th>Work</th>
<th>Gender Roles</th>
<th>Family Values</th>
<th>MD Relationship</th>
<th>Mom’s Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.000</td>
<td>-3.74***</td>
<td>-2.74***</td>
<td>.188**</td>
<td>.103</td>
<td>-.100</td>
<td>.040</td>
</tr>
<tr>
<td>Education</td>
<td>1.000</td>
<td>.276**</td>
<td>-.057</td>
<td>-.178**</td>
<td>.110</td>
<td>.016</td>
</tr>
<tr>
<td>Work</td>
<td>1.000</td>
<td>-.041</td>
<td>-.046</td>
<td>-.012</td>
<td>-.008</td>
<td></td>
</tr>
<tr>
<td>Gender Roles</td>
<td>1.000</td>
<td>.245***</td>
<td>.105#</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Values</td>
<td>1.000</td>
<td>.077</td>
<td></td>
<td>.192**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MD Relationship</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mom’s Concerns</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
</tbody>
</table>

# p < .10, * p < .05, ** p < .01, *** p < .001

Table 11 presents correlations among all dependent variables, which are level of self-disclosure, degree of information withholding, and openness to breast cancer communication, both during treatment and at present. All variables were significantly correlated with each other.

Table 11 Correlations of Mother-daughter Communication Variables (DV) From The Mother Survey

<table>
<thead>
<tr>
<th>SD (In treatment)</th>
<th>SD (Current)</th>
<th>WI (In treatment)</th>
<th>WI (Current)</th>
<th>Openness to BCC(In treatment)</th>
<th>Openness to BCC(Current)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.000</td>
<td>.770***</td>
<td>-.630***</td>
<td>-.540***</td>
<td>.346***</td>
<td>.297***</td>
</tr>
<tr>
<td>SD (Current)</td>
<td>1.000</td>
<td>-.598***</td>
<td>-.598***</td>
<td>.303***</td>
<td>.320***</td>
</tr>
<tr>
<td>WI (In treatment)</td>
<td>1.000</td>
<td>.743***</td>
<td>-.433***</td>
<td>-.318***</td>
<td></td>
</tr>
</tbody>
</table>

76
Table 12 presents the correlations between the independent and dependent variables. Demographic factors as well as mother-daughter relationship factors were significantly correlated with some mother-daughter communication variables, but cultural related factors (e.g. gender roles, family values) were not significantly correlated with any mother-daughter communication variables (independent variables).

<table>
<thead>
<tr>
<th></th>
<th>SD (In treatment)</th>
<th>SD (Current)</th>
<th>WI (In treatment)</th>
<th>WI (Current)</th>
<th>Openness to BCC(In treatment)</th>
<th>Openness to BCC(Current)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Age</td>
<td>.157*</td>
<td>.166*</td>
<td>-.161*</td>
<td>-.217**</td>
<td>.204**</td>
<td>.257***</td>
</tr>
<tr>
<td>Education</td>
<td>-.098</td>
<td>-.122</td>
<td>.181*</td>
<td>.211**</td>
<td>-.180**</td>
<td>-.083</td>
</tr>
<tr>
<td>Work</td>
<td>-.160*</td>
<td>-.216**</td>
<td>.198**</td>
<td>.149</td>
<td>-.130</td>
<td>-.078</td>
</tr>
<tr>
<td>Gender Roles</td>
<td>.120</td>
<td>.063</td>
<td>-.086</td>
<td>-.105</td>
<td>.045</td>
<td>.025</td>
</tr>
<tr>
<td>Family Values</td>
<td>-.059</td>
<td>-.029</td>
<td>.018</td>
<td>.041</td>
<td>-.050</td>
<td>-.118</td>
</tr>
<tr>
<td>MD Relationship</td>
<td>.180**</td>
<td>.186**</td>
<td>-.120</td>
<td>-.088</td>
<td>.021</td>
<td>.118</td>
</tr>
<tr>
<td>Mom’s Concerns</td>
<td>-.157*</td>
<td>-.067</td>
<td>.223***</td>
<td>.203**</td>
<td>-.239***</td>
<td>-.194**</td>
</tr>
</tbody>
</table>

# p<.10, * p<.05, **p<.01, ***p<.001

SD=Self-Disclosure; WI=Withholding Information; BCC=Breast Cancer Communication

Table 13 presents the regression models on mother’s self-disclosure. Based on the Table 13, during the breast cancer treatment, mothers who would be more likely to disclose themselves to their daughters included mothers who were older (β = .18, p < .05,
95% CI [.03, .33]), more traditional in gender roles (β = .29, p < .05, 95% CI [.02, .57]), and less adherent to traditional family values attitude (β = -.46, p < .01, 95% CI [-.79, -.12]). Additional variables that can predict the likelihood of mothers’ disclosure include having a high level of closeness in their relationship with their daughter(s) (β = .48, p < .01, 95% CI [.12, .83]) and a lower level of mothers’ concern that disclosure would have a negative influence on their daughters, such as making daughter(s) fearful for their genetic predisposition in getting the disease (β = -.25, p < .05, 95% CI [-.44, -.06]).

| Table 13 Multivariable Regression on the Level of Self-disclosure From The Mother Survey |
|-------------------------------------------|-------------------------------------------|
| SD (Treatment)  | β     | 95%CI           | SD (Present)  | β     | 95%CI           |
| Mother-daughter relationship+ Cultural variables + Individual Characteristics |         |                 |         |                 |
| MD Relationship    | .476** (.120, .831) |               | .374* (.083, .665) |
| Mom’s Concerns     | -.250* (-.441, -.059) |               | -.113 (-.265, .038) |
| Gender Roles       | .293* (.021, .565)   |               | .119 (-.094, .332) |
| Family Values      | -.456** (-.794, -.118) |               | -.188 (.460, .085) |
| Current Age        | .177* (.030, .325)   |               | .148* (.027, .269) |
| Education          | -.021 (-.222, .179)  |               | -.049 (-.215, .117) |
| Work               | -.316 (-.754, .122)  |               | -.486** (-.851, -.122) |

# p<.10, * p<.05, ** p<.01, *** p<.001
SD=Self-Disclosure

However, for current disclosure, mothers’ behavior was only influenced by mother-daughter relationship (β = .37, p < .05, 95% CI [.08, .67]), current age (β = .15, p < .05, 95% CI [.03, .27]), and whether the mother was working or not (β = -.49, p < .01, 95% CI [-.85, -.12]). To summarized this finding, mothers who were older, currently unemployed, and had better relationships with their daughters would be more likely to disclose themselves.
Table 14 presents the regression models on the degree of withholding information. During treatment, withholding information was significantly associated with concerns about negative influence of breast cancer issues on daughter (β = .34, p < .01, 95% CI [.12, .55]), and marginally associated with current age (β = -.34, p < .10, 95% CI [.75, .06]), whether is the mother was working or not (β = .45, p < .10, 95% CI [-.05, .94]), and mother-daughter relationship (β = -.34, p < .10, 95% CI [-.75, .06]). Mothers who were older, working, and had concerns about negative influence on their daughters and had bad relationship with their daughters were more likely to withhold their breast cancer information during treatment.

<table>
<thead>
<tr>
<th></th>
<th>WI (Treatment)</th>
<th>WI (Current)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>95% CI</td>
</tr>
<tr>
<td>MD Relationship</td>
<td>-.344*</td>
<td>(-.747, .059)</td>
</tr>
<tr>
<td>Mom’s Concerns</td>
<td>.338**</td>
<td>(.124, .549)</td>
</tr>
<tr>
<td>Gender Roles</td>
<td>-.139</td>
<td>(-.431, .153)</td>
</tr>
<tr>
<td>Family Values</td>
<td>.181</td>
<td>(-.196, .557)</td>
</tr>
<tr>
<td>Current Age</td>
<td>-.147</td>
<td>(-.311, .018)</td>
</tr>
<tr>
<td>Education</td>
<td>.178</td>
<td>(-.050, .407)</td>
</tr>
<tr>
<td>Work</td>
<td>.449</td>
<td>(-.045, .943)</td>
</tr>
</tbody>
</table>

# p< .10, * p< .05, ** p< .01, *** p< .001

WI= Withholding Information

Similar results also emerged in the examination of present information withholding, with the only exception being that the mother-daughter relationship was now unrelated to withholding information. Breast cancer mothers’ information withholding was correlated to concerns about negative influence of breast cancer issues.
on daughter significantly ($\beta = .40, p < .001, 95\% \text{ CI} [.20, .60]$) and their current age ($\beta = - .18, p < .05, 95\% \text{ CI} [-.33, -.02]$), and marginally associated with whether the mother was working or not ($\beta = .43, p < .10, 95\% \text{ CI} [-.02, .88]$). According to the data from Table 14, breast cancer mothers who are older, working, and had concerns about negative influence on their daughters were more likely to withhold their breast cancer information, regardless of whether it was during their treatment or later when they filled out the survey.

Table 15 presents the regression models on breast cancer mothers’ openness on breast cancer issues with their daughters. During treatment, mothers’ current age ($\beta = .17, p < .01, 95\% \text{ CI} [.06, .29]$) and their concern about negative influence of breast cancer issues on the daughter ($\beta = -.34, p < .001, 95\% \text{ CI} [-.49, -.19]$) were significantly correlated with mother’s willingness to have open communication about breast cancer. Their education level ($\beta = -.15, p < .10, 95\% \text{ CI} [-.32, .02]$) was marginally associated with openness. Older mother were more open to talk about breast cancer related issues; however, mothers who had higher education as well as had more concerns about the negative influence of breast cancer on their daughters would be less open to discussing with their daughters.

| Table 15 Multivariable Regression on Openness on Breast Cancer Issues From The Mother Survey |
|----------------------------------------|--------|--------|
|                                       | Openness on BCC Issues (Treatment) | Openness on BCC Issues (Current) |
|                                       | $\beta$ | 95%CI  | $\beta$ | 95%CI  |
| Mother-daughter relationship + Cultural variables + Individual Characteristics |        |        |        |        |
| MD Relationship                        | .007   | (.273, .287) | .244# | (.021, .510) |
| Mom’s Concerns                         | -.336*** | (-.486, -.187) | -.250** | (-.395, -.106) |
Current age ($\beta = .24, p < .001, 95\% \text{ CI} [.13, .35]$), concerns ($\beta = -.25, p < .01, 95\% \text{ CI} [-.40, -11]$), and traditional family values ($\beta = -.29, p < .05, 95\% \text{ CI} [-.56, -.03]$) were significantly associated with mothers’ current openness. Besides these three factors, mother-daughter relationship ($\beta = .24, p < .10, 95\% \text{ CI} [-.02, .51]$) was marginally associated with openness. Breast cancer mothers with more traditional family values and concerns tended to be less open while those who were older and with closer relationship with their daughters tended to be more open about breast cancer communication.

**Daughter Survey**

As with the mother data, this section presents two types of analysis, first descriptive statistics and second regression analyses, to address the research questions.

**Descriptive statistics.** Sample characteristics and descriptive statistics for key variables are presented in Table 16. On average, participants were 26 years old, and 55% had a bachelor’s degree, which in Taiwan is considered well educated. The sample reported moderate levels of perceived personal risk for cancer ($M = 3.45, SD = .99$) and worry about cancer ($M = 2.94, SD = 1.07$).

The mean scores of mother-daughter closeness ($M = 4.14, SD = .75$) and level of satisfaction ($M = 4.22, SD = .67$) were both high, indicating a close mother-daughter relationship.
relationship. “Mother-daughter relationship compared with other families” ($M = 2.57$, $SD = .55$) was measured on a 3-point scale, where higher scores meant higher level of closeness and satisfaction. From participants’ perspective, therefore, they had fairly good relationship with their mothers.

The mean scores of mothers’ level of disclosure, both at present ($M = 4.19$, $SD = 1.16$) and during the treatment period ($M = 3.79$, $SD = 1.41$) showed that participants generally considered their mothers’ self-disclosure level to be relatively high. Additionally, the mean score of discomfort with mother-daughter breast cancer conversations, both at present ($M = 2.22$, $SD = 1.23$) and during the treatment period ($M = 2.53$, $SD = 1.23$), were below the scale midpoint. This suggests that participants overall were relatively uncomfortable having breast cancer communication with their mothers.

<table>
<thead>
<tr>
<th>Table 16 Descriptive Statistics on Age, Cancer Risk Perception, and Mother-daughter Relationship Variables from the Daughter Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
</tr>
<tr>
<td>Current Age</td>
</tr>
<tr>
<td>Age when Mom was Diagnosed w/ Breast Cancer</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td><strong>Cancer Related Questions</strong></td>
</tr>
<tr>
<td>Risk Perception</td>
</tr>
<tr>
<td>Worry</td>
</tr>
<tr>
<td><strong>Mother-daughter Relationship</strong></td>
</tr>
<tr>
<td>M-D Closeness</td>
</tr>
<tr>
<td>MDR Compared with Other Families</td>
</tr>
<tr>
<td>Level of Satisfaction</td>
</tr>
<tr>
<td><strong>Mother-daughter Communication- Mother’s Disclosure</strong></td>
</tr>
<tr>
<td>Disclosure During the Treatment</td>
</tr>
<tr>
<td>Current Disclosure</td>
</tr>
<tr>
<td><strong>Mother-daughter Communication- Discomfort with Breast Cancer Communication</strong></td>
</tr>
</tbody>
</table>
During the Treatment
Current Level of Discomfort
Prevention Advice from Mom

Table 17 reports paired-sample t-tests of the breast cancer mothers’ self-disclosure level on different topics during treatment vs. the present from the daughters’ perspective. The mean scores for all variables were higher than 3.5 with a range from 1 to 5, which means from daughters’ perspective, their mothers had moderately high levels of disclosure on various topics, from cancer treatment to fear of death. Moreover, their mothers appeared more willing to disclose at present than during their treatment.

<table>
<thead>
<tr>
<th>Level of Self-Disclosure on Topic of…</th>
<th>Mean</th>
<th>SE</th>
<th>t</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer Treatment_ In Treatment Current</td>
<td>3.92</td>
<td>.178</td>
<td>-3.45</td>
<td>74</td>
<td>.001</td>
</tr>
<tr>
<td>Negative Emotion_ In Treatment Current</td>
<td>3.76</td>
<td>.168</td>
<td>-3.79</td>
<td>73</td>
<td>.000</td>
</tr>
<tr>
<td>Fear of Cancer Progression/ Death_ In Treatment Current</td>
<td>3.65</td>
<td>.178</td>
<td>-3.79</td>
<td>73</td>
<td>.000</td>
</tr>
</tbody>
</table>

Logistic regression testing mother-daughter communication (RQ3). This study is interested in the extent to which daughter’s breast cancer prevention attitude and behavior were influenced by their mother-daughter communication as well as their mother-daughter relationship. The daughters’ data that provided answers to this research
question (RQ3). Table 18, 19 and 20 present the correlations among all the variables included in the regression analyses.

Table 18 presents correlations among all dependent variables in the study. All variables were either significantly or marginally significantly correlated with each other. The only correlation that did not approach significance was that between level of worry and breast cancer examination.

<table>
<thead>
<tr>
<th></th>
<th>Risk Perception</th>
<th>Level of Worry</th>
<th>Prevention Behavior</th>
<th>Breast Cancer Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Perception</td>
<td>1.000</td>
<td>.580***</td>
<td>.221#</td>
<td>.237*</td>
</tr>
<tr>
<td>Level of Worry</td>
<td>1.000</td>
<td></td>
<td>.278*</td>
<td>.184</td>
</tr>
<tr>
<td>Prevention Behavior</td>
<td></td>
<td>1.000</td>
<td></td>
<td>.499***</td>
</tr>
<tr>
<td>Breast Cancer Examination</td>
<td></td>
<td></td>
<td></td>
<td>1.000</td>
</tr>
</tbody>
</table>

# p < .10, * p < .05, ** p < .01, *** p < .001

Table 19 presents correlations among all independent variables, including demographic, mother-daughter relationship, mother-daughter communication, and mothers’ advice variables. As shown, current age and education level were significantly correlated with discomfort in breast cancer communication. Also, current age and discomfort in breast cancer communication were correlated with mother’s advice significantly. The mother-daughter relationship variables exhibited strong inter-correlations. Mother-daughter closeness was correlated with perceived mother disclosure. No other relationships reached significance.
Table 19 Correlations of All Independent Variables (IV) From The Daughter Survey

<table>
<thead>
<tr>
<th>Current Age</th>
<th>Edu Level</th>
<th>M-D Closeness</th>
<th>MDR Compared w/ Other Families</th>
<th>Level of Satisfaction</th>
<th>Mom’s Disclosure</th>
<th>Discomfort</th>
<th>Mom’s Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Age</td>
<td>1.000</td>
<td>-0.120</td>
<td>-0.110</td>
<td>-0.067</td>
<td>-0.411***</td>
<td>-0.469**</td>
<td></td>
</tr>
<tr>
<td>Education Level</td>
<td>1.000</td>
<td>1.000</td>
<td>-0.067</td>
<td>0.102</td>
<td>0.123</td>
<td>-0.312**</td>
<td>0.129</td>
</tr>
<tr>
<td>MD Closeness</td>
<td>1.000</td>
<td>0.477***</td>
<td>0.683***</td>
<td>0.116</td>
<td>-0.228#</td>
<td>0.103</td>
<td></td>
</tr>
<tr>
<td>MDR Compared w/ Others</td>
<td></td>
<td>1.000</td>
<td>0.332**</td>
<td>0.286*</td>
<td>-0.006</td>
<td>0.120</td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>1.000</td>
<td>0.053</td>
<td>-0.091</td>
<td>-0.220#</td>
<td>0.083</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mom’s Disclosure</td>
<td>1.000</td>
<td></td>
<td>1.000</td>
<td>-0.220#</td>
<td>0.083</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discomfort</td>
<td></td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

# p< .10, * p< .05, ** p< .01, *** p< .001

Table 20 presents correlations between the independent and dependent variables.

Individual’s risk perception was only marginally correlated with personal education level, but not other independent variables. Individual’s level of worry was significantly correlated with mothers’ self-disclosure, and marginally correlated with personal education level and mothers’ advice. As to individual’s prevention behavior, it was significant correlated with mothers’ advice while marginally correlated with discomfort in breast cancer communication. Finally, individual’s breast cancer examination was correlated with personal education level and mothers’ advice marginally.

Table 20 Correlations of Mother-daughter Communication with Other Indicators From The Daughter Survey

<table>
<thead>
<tr>
<th>Current Age</th>
<th>Risk Perception</th>
<th>Level of Worry</th>
<th>Prevention Behavior</th>
<th>Breast Cancer Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education Level</td>
<td>.192#</td>
<td>.216#</td>
<td>.183</td>
<td>.204#</td>
</tr>
<tr>
<td>M-D Closeness</td>
<td>.080</td>
<td>.098</td>
<td>.150</td>
<td>-.027</td>
</tr>
<tr>
<td>MDR Compared w/ Other Families</td>
<td>-.088</td>
<td>-.028</td>
<td>-.019</td>
<td>-.121</td>
</tr>
<tr>
<td>Level of Satisfaction</td>
<td>.041</td>
<td>.098</td>
<td>-.007</td>
<td>-.091</td>
</tr>
<tr>
<td>Mom’s Advice</td>
<td>.178</td>
<td>.225#</td>
<td>.423***</td>
<td>.213#</td>
</tr>
<tr>
<td>Mom’s Disclosure</td>
<td>.077</td>
<td>.286*</td>
<td>-.030</td>
<td>.065</td>
</tr>
</tbody>
</table>
The daughter survey had a relatively small sample size, which makes model parsimony an important consideration. Based on the bivariate correlations, the researcher decided to use only mothers’ advice, mother’s disclosure, and level of discomfort, in addition to age and education, as predictors in subsequent regression analyses.

Tables 21 demonstrates multiple regression models predicting daughter risk perception and level of worry. As shown, daughters’ breast cancer risk perception was not associated with any of these indicators. On the other hand, daughters’ worry about getting breast cancer was significantly associated with mother’s advice ($\beta = .64, p < .05, 95\% \text{ CI} [0.07, 1.21]$), mothers’ self-disclosure ($\beta = .25, p < .05, 95\% \text{ CI} [.05, .44]$), and marginally significantly associated with daughters’ discomfort with breast cancer communication with their mothers ($\beta = .23, p < .10, 95\% \text{ CI} [-.01, .46]$), and daughter’s current age ($\beta = .19, p < .10, 95\% \text{ CI} [-.01, .39]$). Individuals who were older, whose mothers provided prevention advice and disclosed more to them, and who felt a higher level of discomfort when having breast cancer communication with their mothers, expressed greater worry about getting breast cancer.

<table>
<thead>
<tr>
<th>Discomfort</th>
<th>-.011</th>
<th>.011</th>
<th>-.207#</th>
<th>-.189</th>
</tr>
</thead>
<tbody>
<tr>
<td># $p&lt;.10$, * $p&lt;.05$, ** $p&lt;.01$, *** $p&lt;.001$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 21 Multivariable Regression on Risk Perception and Level of Worry From The Daughter Survey

<table>
<thead>
<tr>
<th>Risk Perception</th>
<th>Level of Worry</th>
</tr>
</thead>
<tbody>
<tr>
<td>** $\beta$</td>
<td>95%CI</td>
</tr>
<tr>
<td>Mother’s Advice + Mother-daughter communication + Demographic (IV)</td>
<td></td>
</tr>
<tr>
<td>Mother’s Advice</td>
<td>.263 (-.311, .837)</td>
</tr>
<tr>
<td>Mom’s Disclosure</td>
<td>.028 (-.173, .229)</td>
</tr>
</tbody>
</table>
Table 22 presents logistic regression models predicting daughters’ prevention behaviors and breast cancer examination behaviors, which were measured as dichotomies. In addition to predictors in the previous model (Table 21), worry about cancer was also included as a predictor in the current analysis. Risk was not included because of its high correlation with worry to avoid potential perils of multicollinearity.

<table>
<thead>
<tr>
<th>Prevention Behavior vs. No Prevention Behavior</th>
<th>B (SE)</th>
<th>Lower</th>
<th>Odds Ratio</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s Advice</td>
<td>2.721**(.818)</td>
<td>3.057</td>
<td>15.203</td>
<td>75.604</td>
</tr>
<tr>
<td>Mom’s Disclosure</td>
<td>-.554#(.305)</td>
<td>.316</td>
<td>.575</td>
<td>1.046</td>
</tr>
<tr>
<td>Discomfort</td>
<td>-1.129**(.365)</td>
<td>.158</td>
<td>.323</td>
<td>.662</td>
</tr>
<tr>
<td>Level of Worry</td>
<td>.781*(.373)</td>
<td>1.052</td>
<td>2.1184</td>
<td>4.532</td>
</tr>
<tr>
<td>Current Age</td>
<td>-.311(.292)</td>
<td>.414</td>
<td>.733</td>
<td>1.299</td>
</tr>
<tr>
<td>Education</td>
<td>.235(.291)</td>
<td>.714</td>
<td>1.264</td>
<td>2.238</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Breast Cancer Examination vs. No Breast Cancer Examination</th>
<th>B (SE)</th>
<th>Lower</th>
<th>Odds Ratio</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s Advice</td>
<td>1.534*(.678)</td>
<td>1.187</td>
<td>4.636</td>
<td>18.110</td>
</tr>
<tr>
<td>Mom’s Disclosure</td>
<td>.010(.227)</td>
<td>.635</td>
<td>1.010</td>
<td>1.606</td>
</tr>
<tr>
<td>Discomfort</td>
<td>-.405(.251)</td>
<td>.398</td>
<td>.667</td>
<td>1.119</td>
</tr>
<tr>
<td>Level of Worry</td>
<td>.273(.276)</td>
<td>.765</td>
<td>1.314</td>
<td>2.260</td>
</tr>
<tr>
<td>Current Age</td>
<td>.225(.236)</td>
<td>.779</td>
<td>1.253</td>
<td>2.016</td>
</tr>
<tr>
<td>Education</td>
<td>.254(.248)</td>
<td>.787</td>
<td>1.290</td>
<td>2.114</td>
</tr>
</tbody>
</table>

Daughters’ prevention behavior was associated with mothers’ advice ($\beta = 2.72$, $\text{Exp}(\beta) = .07$, $p < .01$, 95% CI [3.06, 75.60]), discomfort when having breast cancer.
conversations with their mothers (β = -1.13, Exp (β)= .32, p < .01, 95% CI [.16, .66]), and level of worry about getting breast cancer (β = .78, Exp (β)= 2.12, p < .05, 95% CI [1.05, 4.53]). Daughters who received advice from their mothers and worried more about getting breast cancer were more likely to engage in prevention. On the other hand, daughters reporting greater discomfort talking about breast cancer with their mothers were less likely to perform prevention behavior.

Daughters’ breast cancer examination behaviors, such as mammogram, ultrasound, and genetic testing, were only associated with mothers’ advice (β = 1.53, Exp (β) = .46, p < .05, 95% CI = [1.19, 18.11]), but not other indicators. Daughters were more likely to get breast cancer examinations if they received advice from their mothers.

**Discussion**

Findings from the surveys are discussed below in light of the three research questions. Both RQ1 and RQ2 are related to mother-daughter communication. RQ1 asked about the general pattern of family communication between cancer patients/survivors and their family members in Taiwan, on dimensions such as topic and depth of disclosure. Both the mother and daughter participants in this study found their relationship to be satisfactory and close, and mothers in general were willing to self-disclose to their daughters.

Previous research (Zhang & Siminoff, 2003) indicates that when a family member suffers from cancer, the family communication patterns will be changed. Findings from this study support this statement. During their treatment, mothers were generally open to disclose on cancer related topics including cancer treatment, physical symptoms, body
image, and prevention behaviors. Mothers were slightly less open to disclose their negative emotions especially their fear of death. After treatment, mothers’ level of self-disclosure on various topics increased even more, though they were still less likely to disclose their negative emotions. Similar results were also found in daughters’ survey data where daughters reported that their mothers were more open to disclose information about themselves now compared to during treatment.

RQ2 investigated the role that individual, relational, and cultural factors perform in the self-disclosure/withholding information of breast cancer patients/survivors. Based on the results of the mothers’ and daughters’ regression models, individual factors (e.g., age and occupational status) and relational factors (e.g., mother-daughter relationship and mothers’ concern about the negative influence of their breast cancer on their daughters) all had significant influence on mothers’ communication behaviors, both during treatment and after. Conversely, cultural factors (family values and gender roles) only influenced the mothers’ self-reported disclosure during their treatment not after.

As noted, individual level factors, age and occupational status, have strong effects on mothers’ breast cancer disclosure/withholding information behaviors. The influence of age is primarily attributed to breast cancer mothers having different concerns, foci, and dependency levels that vary with their life stage. Mothers’ occupational status can also be viewed as a positive or negative indicator of the individual’s financial and personal socioeconomic status. This assertion, in its negative context, corresponds with the interview results that the breast cancer mothers who go back to work after treatment do so because they face intense financial pressure. Conversely, in a positive context, those
mothers who are not financially constrained, do not return to work after treatment, thus they are free to focus their energies on recovery. Additionally, mothers’ suffering from financial pressure are not only limited in their recovery efforts by having to work, but their cancer communication behaviors are also negatively impacted, lacking frequency and depth.

At the relational level, there are two significant impactors to breast cancer mothers’ disclosure/withholding behaviors: the mother-daughter relationship and the intensity of the mothers’ perceived negative influence of the breast cancer communication on her daughter. The influence of the mother-daughter relationship corresponds to the literature that discusses that an individual discloses more if he/she likes the receiver more (Collins & Miller, 1994). Moreover, the interview data further supports existing literature indicating that breast cancer mothers were less likely to disclose themselves when they perceive there will be negative influence of breast cancer communication on their daughters (Walston, 2009).

At the cultural level, both female gender roles and family values appear to influence breast cancer mothers’ self-disclosure during treatment in different directions though these two scales actually measure the same concept: individual’s traditional. Based on the results, mothers who are less traditional in family values but more traditional in gender roles tend to disclose themselves more during treatment. This can be explained from two different perspectives. As discussed in an earlier section, Taiwan has a collectivistic culture (Yang, 1981), which promotes harmony in the group and emphasizes “the importance of ‘we’ identity over the ‘I’ identity” (Ting-Toomey &
Chung, 2012, p.45). In order to keep the harmony of the family intact and mitigate any negative impact on their daughters, breast cancer mothers who have more traditional family values are less likely to disclose themselves. This corresponds with the interview result: breast cancer mothers did not disclose themselves because they did not want to negatively impact their daughters’ lives.

Female gender roles are deeply embedded in culture, and performing in these roles require adherence to socially proper behaviors and responsibilities. This is especially true in more traditional collectivistic cultures where mothers are tasked with imparting lessons to their daughters about life in general (Yi, 2008). The purpose of this teaching, sharing, and disclosing is, again, to achieve harmony in the family, but not only for their existing family, but to provide a foundation for the daughter’s future household. The reason that the influence of family values and female gender roles is not significant on predicting breast mothers’ “current” self-disclosure behavior may be because the breast cancer mothers were no longer patients but survivors at the time when they filled out the survey. Their concerns over the potential negative impact of their disclosure on their daughters might not be as acute as before because the threat of death was no longer there.

RQ3 asked whether the breast cancer mothers’ advice influences their daughters’ prevention attitudes and behaviors, and the answer is positive based on the daughter data. As shown in the analysis, breast cancer mothers’ advice has significant impact on both daughters’ prevention behavior and their breast cancer examination behavior. Interestingly, the mothers’ self-disclosure does not show the same effect. Thus, it seems
that mothers’ direct suggestion/advice has more impact on daughters’ prevention behaviors than the mothers’ disclosure behaviors.

A daughter’s level of worry about getting breast cancer also influences her prevention behaviors, but not her breast cancer examination behaviors. This may be because many types of prevention behavior considered in this study, such as diet and exercise, can be accomplished through individual effort. In comparison, breast cancer examinations, such as mammograms, rely on services from health professionals which present cost and accessibility challenges.

While worry may have greater motivating effect on self-administered prevention behaviors than on breast cancer examination decisions, this study also investigated factors that impact daughters’ level of worry. Results showed that mothers’ advice, mothers’ self-disclosure, and daughters’ own age influence daughters’ level of worry about getting breast cancer. In all, it appears that breast cancer mothers can have an important influence on their daughters’ cancer prevention behavior both directly (e.g., by offering advice) and indirectly (e.g., by increasing concern though self-disclosure behaviors).
CHAPTER SIX: GENERAL DISCUSSION

This study explores mother-daughter communication and its influence on daughters’ breast cancer prevention behavior utilizing both qualitative and quantitative research methods. This section presents a general discussion of the results, focusing on the similarities and differences between qualitative and quantitative data. Limitations of the current study will also be addressed. Finally, the implications and future research directions contributions of this research will be noted.

Qualitative and Quantitative Data Comparison

Research Question One

RQ1 asked about the pattern of communication between breast cancer patients/survivors and their daughters. Quantitative data show that the breast cancer mothers are open to disclose factual information, such as cancer treatment options and prevention behavior, but less open to disclose their emotions, especially negative emotions. The qualitative data present similar findings but go in further detail. For example, the qualitative data suggest that the younger more independent breast cancer mothers normally just inform their daughters about their cancer progress and treatment information, but typically do not disclose their feelings and emotions because they do not want to worry their daughters. In the case of older more dependent cancer mothers, their
daughters are often their caretakers and sometimes know more about their mother’s condition than the mother themselves.

Both qualitative and quantitative research findings support that age is a critical factor in the mother-daughter cancer communication. For example, in the quantitative data, age is directly related to many other variables, such as respondents’ socioeconomic status, occupation status, family values, and gender roles. Again, it should be noted that it is the ages of both the mothers and daughters that influence the frequency, openness, and depth of mothers’ disclosure and advice/discussion of preventative behaviors. Age is a central factor in the mother/daughter cancer communication dynamic that influences even the smallest communication behaviors, such as appropriate word choice for non-adult daughters.

Age also plays an interesting role beyond the technicalities of communication. In one of the interviews, an older, dependent mother mentioned that her daughter, who managed her care, had told her she needed to have the cancer removed from her breast. The daughter said that she was too old to worry about her appearance in missing a breast. This adds a curious layer to the importance of age especially in how it informs communication and the intersection of family values and gender roles.

Is it possible that older breast cancer patient/survivor can “age-out” of certain factors that affect breast cancer discussion? If she is old, poor, sick, and completely dependent on her daughter, one could look at age (advanced) as a liberating factor to enable more open cancer disclosure and discussion. Constraints to openness such as not wanting to worry her daughter or failure to perform as the ideal mother in both caretaking

94
and body image, may be considered luxuries for younger cancer mothers. This is just one of the many interesting layers highlighting the multiple ways that age influences mother/daughter cancer discussions and reflects the richness added by the qualitative data.

It is important to have a historical perspective on how age impacts women’s understanding of family values and gender roles. Before the industrial era (~1960) in Taiwan, the society emphasized the idea that women should stay at home and men should be the breadwinners. A woman who grew up or lived in this period of time learned about the different responsibilities between males and females and her mission in life was likely to be a good wife and good mother. A woman in this time period usually did not get as much education as men did, and actually, women in this period did not even go to school most of the time. That is why the literacy rate among women over 65 years old is under 20% (Ministry of the Interior, 2015). In this era, women heavily depended on men and they easily neglected the possibility of personal development (Abbott & Wallace, 1990).

Yet, times are changing, and individuals’ attitudes are also changing. The nine-year universal education started in 1967, even though males still had greater chances to go to high schools and colleges than females, both males and females had opportunities to receive general education. In addition, because of more and more information from and knowledge about the Western culture, the public’s attitude toward gender roles was also altered. In any case, women received more knowledge than before, and women started to enter the workplace. The idea that women are men’s property began to waver.
After 1980, the meanings of mother and wife continued to evolve due to the increasing number of working women in the public eye (Liu, 2006). A woman of this era would remain to a certain degree under the authority of her husband, but now she could at least voice her own opinions. Additionally, she could view herself as more of an independent entity, rather than as a husband’s property. Women in this period had more opportunities to receive higher education and experience personal achievements. Twenty years later in 2000, the concept of “gender equality” became even more popular in Taiwan, in part due to internal efforts to advance women’s causes, but also due to the flood of Western cultural and informational imports such as improved media access and communication.

This evolution in gender roles has not been universally adopted by Taiwanese women of all ages. Older generations of women continue to subscribe to a more traditional set of gender roles, responsibilities, and expectations. For example, women who are over 65 years old are products of their era where their limited position within the domestic sphere has resulted in their being greatly dependent on their children in their advanced age. Most of these women are illiterate and have no productive work experience outside the home. Their dependence has transferred from their husbands when they were young to their children now that they are old. It will be interesting to witness the next generation of Taiwanese women, including mothers who are often working outside-of-the-home to happily never-married single women operating independently of their families, as they advance toward old age.
Research Question Two

RQ2 explored factors that impact the breast cancer patients/survivors’ self-disclosure/withholding information behaviors on the individual, relational, and cultural level. There are some similarities between the quantitative and qualitative data; however, there are also some pronounced differences that will be noted in the following section.

**Individual factors.** Both qualitative and quantitative data support that an individuals’ socioeconomic status, occupation status, and individuals’ age including mothers’ dependency level and daughters’ maturity, all impact breast cancer mothers’ self-disclosure intentions and behaviors. As previously discussed, the quantitative data illustrate that a breast cancer mothers’ age heavily influences their self-disclosure/withholding information behavior. As noted in RQ1 discussion, the qualitative data provided more nuanced information about the role of age in self-disclosure behavior and how it affects mothers’ dependency and daughters’ maturity. Both of which are key factors that impact mother-daughter communication.

In addition to age, a breast cancer mothers’ occupation status is also an important factor that appears in both the qualitative and quantitative data. While the regression model in quantitative analyses shows the significance of occupation status, the interview data demonstrate how occupation status may impact individuals’ financial pressures. Furthermore, the interviews also shed light on how financial pressures can ultimately influence breast cancer mothers’ self-disclosure behavior. It should be noted that these findings align well with existing literature. For example, studies from Gaber et al., (2013) as well as Mosavel and Thomas (2009) both mentioned that breast cancer survivors’
ability to maintain energy to communicate with their daughters is impacted by their socioeconomic status. As this study demonstrated, those with lower socioeconomic status are constrained by financial pressures that often negatively affect the cancer survivor’s physical health and prevention behaviors, either by limiting rest and/or restricting access to better foods/exercise programs that have been shown to reduce the recurrence rate.

Relational factors. Two variables, mother-daughter relationship, and mothers’ concern about the negative influence of breast cancer communication, are important in the quantitative analysis. These two variables influence the breast cancer mothers’ self-disclosure/withholding information behavior and the level of openness to mother-daughter breast cancer communication. The qualitative data provide more details about the relational factors, including insights into how the mother-daughter relationship is influenced by many other factors such as the physical distance between them, or if the daughter has her own family or not. The literature informs us that people emphasize “personalized” when they rated the importance of communication need fulfillment (Williams & Rice, 1983). Both mothers and daughters seek contact and communication fulfillment either telephonically or face-to-face, recognizing the latter can “maximize the communicative needs given and received” (Westmyer, DiCioccio, & Rubin, 1998). While technology does help people communicate with each other more conveniently, it also affects the quality of individuals’ relationships. Another detractor from the communication frequency and duration between mothers and daughters is the influence of marital and maternal status of the daughters. Those with their own families had less
time for telephonic conversations and limited opportunities for face-to-face communication.

Besides the mother-daughter relationship, mothers’ concerns about the negative influence of breast cancer communication impacts their disclosure intention, as seen in the quantitative results. The interview data show similar findings with both methods noting the mother participants’ expressions of concern regarding the negative outcome of breast cancer communication on their daughters. This concern, based on the interview reports, is what often makes them reluctant to disclose themselves to their daughters.

**Cultural factors.** Two cultural factors (gender roles and family values) are present in the quantitative data; however, their influence is not found to be as significant as other variables. In quantitative data analysis, the gender roles and family values variables have limited influence on communication behaviors – they seem to only matter in breast cancer mothers’ self-disclosure during the treatment period. However, the qualitative data illustrate that societal expectations of women strongly impacts the breast cancer mothers’ identity and behavior. In order to fulfill societal expectations, mothers usually try their best to assist their children to perform well in school or at work. These expectations often cause mothers, both the healthy and the sick, to place extraordinary demands on themselves thus internalizing pressure in order to conform to social norms. This influences the topics, frequency, and depth of self-disclosure by breast cancer mothers in their mother-daughter communication. All mother interviewees, no matter what age, mentioned that one of their worries was that their emotions, especially their negative emotions, may adversely influence their daughters’ life and performance. Due to this
concern, these breast cancer mothers indicated that they carefully planned topics that they would talk about and how deeply they would disclose information with their daughters.

**Other factors.** Some factors only emerged in the qualitative analyses such as support groups and the philosophy of “face it, accept it, deal with it, and let it be.” Other factors were included in the survey at the beginning, but then excluded from the quantitative analysis due to lack of significance, such as religion and mothers’ educational goal. However, the qualitative data show that these factors actually do play an important role in mother-daughter communication among families with breast cancer patients/survivors. Below, additional factors and insights that further influence cancer communication are examined.

**Cancer stage.** Cancer stage is a critical finding that emerged from the interview data. The level of disclosure is tied to cancer stage in a similar way that was discussed in the “aging-out” of older mothers. For those dependent, old, poor, and sick mothers, the standard influences, age, gender roles, and family values may not exert the same level of influence as they do on younger breast cancer mothers. In a comparable situation, according to mother interviewees’ self-reporting, mothers who have essentially gotten worse with their breast cancer progressing to a later stage or a more terminal outlook, are more likely to communicate with their daughters because they are afraid of not having enough time or opportunities to be with and teach their daughters. Again, similar to “aging-out” these mothers are past being constrained by societal or self-placed limitations, thus an advanced cancer stage may serve as a freeing device that elicits disclosure.
However, cancer stage is not included in the quantitative analysis because the majority (80%) of participants discovered their cancer at an early stage (stage zero, stage I, or stage II), which makes the variable lack variability and predictive power.

**Religion and the philosophy of “face it, accept it, deal with it, and let it be.”** Both religion and the philosophy play important roles during the breast cancer patients/families coping process, which emerged from the qualitative data. These two factors demonstrate that they do assist cancer patients/survivors in finding their own inner peace and facing the illness calmly, rationally, and positively.

**Support groups.** Quantitative investigation into the role support groups play in the lives of breast cancer patients/survivors did not fit into the scope of this research project for two reasons. Firstly, the researcher wanted to focus on the mother-daughter relationship and their communication. Secondly, there are already various studies in the existing literature that examine the effects of support groups on the breast cancer patients/survivors (Samarel, Fawcett, & Tulman, 1997; Goodwin et al, 2001; Bender, Jimenez-Marroquin, & Jadad, 2011). What did emerge from the interview data confirms previous findings and demonstrates that support group participation impacts not only breast cancer mothers’ communication pattern with family and friends, but also their attitude toward breast cancer and self-esteem.

In brief, factors mentioned above emerged as impactful from the qualitative analysis were not always apparent or included in the quantitative data/analysis. After all, one tenet to qualitative research, especially grounded theory method, is that researchers can never be quite sure what direction the data will take them so what seemed important
during the design phase may become less important, or completely unimportant, by the end of the project. This leaves the opportunity for other pertinent data to emerge such as additional influential factors such as support group and the philosophy of “face it, accept it, deal with it, and let it be”, which both add depth and substance to the findings.

**Research Question Three**

RQ3 is about the effects of the mother-daughter communication on the daughters’ prevention behavior. Based on the result of the quantitative analysis, mothers’ advice significantly influences the daughters’ level of worry of getting breast cancer, her prevention behavior, and the likelihood of breast cancer examination. In addition, daughters’ level of worry of getting breast cancer was shown to impact their intention to practice prevention behavior. Yet, mothers’ self-disclosure about emotions and worries did not influence daughters’ breast cancer examination behavior. This is consistent with the interview data which, based on the daughter interviewees’ report, find that mother-daughter communication mainly serves to raise awareness. However, daughters’ intention to practice prevention behavior is only partially due to the mother-daughter cancer communication. Because of their mothers’ illness, daughters have more opportunities to talk about related topics, have greater access to breast cancer related information, and have a higher sensitivity than their peers about health issues. All these reasons make them more willing to practice prevention behaviors, such as doing exercise or eating healthy food. However, on the other hand, daughters state that the mother-daughter communication has limited influence on their intention toward practicing breast cancer examination. From the daughters’ point of view, even though their mother-daughter
breast cancer communication enhance their awareness of the importance of cancer examination, most of them, especially those who are younger, still hesitate to practice the examination. According to self-reported interview comments, daughters feel that if they take care of themselves, they should be fine. However, daughters over the age of 40 are more likely to get an exam once every two years. They attributed this behavior to the Taiwanese government’s policy, and its media outreach, of providing free mammograms to those women 45 and over, and women 40-44 with a history of family breast cancer.

**Uniqueness & Generalization**

Due to generational disparities, social norms, and culture differences, Taiwanese women have various self-disclosure performances. However, though this study is inclusive of Taiwanese women, how life stage affect women’s understanding and performance of their family values and gender roles can be considered a generalizable phenomenon for women worldwide. This concept provides an interesting lens in which to view the variety of areas influenced by women’s timing and life stage, and in regards to this study, how it informs the breast cancer mothers’ self-disclosure attitudes and behaviors. As previously mentioned, women’s life stages impact their understanding of family values and gender roles, which consequently influences breast cancer mothers’ self-disclosure attitudes and behaviors as well as daughters’ expectation on their mothers’ behaviors.

The common and widespread existence of support groups in the Taiwanese healthcare system is also fairly unique when compared to other Eastern countries. In Taiwan, support groups play a critical role in not only providing continuous patient care,
but also are often a required component for hospitals’ accreditation and appraisal. The abundance of groups allows for breast cancer patients/survivors to easily access information and support as long as they are willing to step out and ask for it. It should be noted that the term “support groups” here refer to meetings that take place in public places not online support groups. Online groups do exist, however, public meetings of breast cancer support groups with interpersonal communication is still the primary preferred communication method in Taiwan. This is due to the fact that majority of breast cancer women who attend these groups are over 50 years old, and this demographic are more familiar and comfortable obtaining their information through interpersonal communication rather than using the internet (Liao, Chiu, & Yueh, 2012).

Another area found in this study that may be generalizable to other countries is the philosophy of “face it, accept it, deal with it, and let it be.” As discussed in this work, this philosophy, drawn from Confucianism, is often used a coping strategy in Taiwan society; however, it can also be found in other East Asian countries, such as China, Japan, Korea, and Singapore who also share strong Confucianism beliefs (Lo & Li, 2010; Liu & Kong, 2003). In addition to the philosophy of “face it, accept it, deal with it, and let it be,” Confucianism may also influence individuals’ gendered ideal images, roles, and family values. For example, this philosophy dictates that a “virtuous woman” must follow the lead of the males in her family, from her father before her marriage to her husband during her married life, and then to her sons in her widowhood (Book of Etiquette and Ceremonial, n.d). This concept is one of the many influences used in society’s construction of gender roles and responsibilities. It would be worthwhile to examine how
often people in these other Eastern countries use similar coping strategies when facing difficulties in their lives. Also invaluable would be an overall comparison between Taiwan and other countries in what is considered “traditional” women’s gender roles with their societal expectations, responsibilities, and family values.

Finally, no matter whether in a collectivistic culture (Taiwan, China, Korea) or in an individualistic culture (the US, Germany, Finland), taking care and protecting one’s child is the primary expectation placed on mothers (Chodorow, 2001; Liu, 2006). Breast cancer mothers are no different however, whether in Taiwan or the U.S., these mothers have the additional burden of struggling to find a balance between their level of cancer conversation self-disclosure and their decision to withhold information. Fisher et al. (2014) interviewed 11 non-Hispanic White American women, ages 40 to 59 years old, who had biological daughters between the ages 12 to 20 years old. Similar to the Taiwanese mothers from this study, Fisher et al. found that the American breast cancer mothers also struggled to balance how much to share with their daughters and when. Both studies concurred that breast cancers mothers expressed worries that their openness in discussing their cancer would cause worry for their daughters and this directly influences their disclosure behavior. It may be possible to demonstrate a link that could provide justification for generalizability because of the geographical differences (East/West) between the sample pools of the two studies. However, the small number of participants from each study would make generalizability only a possibility that can be better supported by additional, larger, global studies in the future.
This study is the first research that addressed the influence of mother-daughter breast cancer communication on daughters’ prevention behaviors in Taiwan. Though this speaks to a rather unique group solely of Taiwanese women, many of the findings, especially those including universal gendered societal expectations and cancer communication challenges can reach more of generalizable conclusions as they are found in different cultures.

**Limitation**

This study fills a need in mother-daughter breast cancer communication research by examining different levels of factors that may influence breast cancer mothers’ self-disclosure intentions and the influence of mother-daughter communication on the daughters’ prevention behavior. While this research offers a new look into this particular relationship from a unique perspective, it does have some limitations. Below I specify the limitations in using qualitative methods and quantitative methods separately.

**Qualitative Research Method Limitation**

First, there are temporal, geographical, and financial restrictions when conducting interviews. Because this is an overseas research, the researcher had only two months to locate participants and conduct interviews. This greatly limited the number of participants, particularly daughters.

Second, there are limitations attached to snowball sampling as a recruitment tool in that this method often results in participants who share backgrounds, socioeconomic status, education etc. Depending on the participant pool, they might also share like-
minded traits such as political affiliation or religious beliefs. The pool of this study was drawn from personal contacts and participant referrals from religious organizations and support groups in hospitals. Therefore, it should come as no surprise that the participants shared a strong religious faith or had found the value in participating in cancer support groups, and in some cases both. Thus breast cancer mothers without a religion or who do not participate in any support groups were, through no intention of the researcher, excluded. This could be considered problematic in presenting a bias. Although the results did show that religion and support group engagement has significant meaning on the breast cancer patients’/survivors’ coping strategies, those who do not participate also need to be considered.

Third, the interviewees in this study represent a particular range of experiences, compared with general breast cancer patients/survivors. On the whole, the participants were more outgoing, extroverted, and willing to share their stories. A smaller segment was introverted, keeping their distance from others and not as forthcoming with stories and experiences. The imbalance of extroverts to introverts is not an adequate representative sample from which to generalize findings.

Fourth, the interviewees in this study all self-reported to have fairly high socioeconomic status. Those who suffered severe financial pressures were most likely to be unintentionally excluded from this study. This becomes problematic in that this sample of women from a higher socioeconomic class are privileged with more access to resources and the luxury of having the time to join support groups. This group does not fairly represent the many breast cancer patients/survivors who experience financial
constraints that drastically limit their choices. Future studies need to include a better range of socioeconomic groups, from the privileged to underprivileged, to better capture the experiences, communication, and limitations of breast cancer patients/survivors.

**Quantitative Research Method Limitation**

Unlike the qualitative data collection, this survey was conducted over a longer period of time (four months). However, like in the qualitative research, all the participants were recruited through personal contacts or participant referral. It is also important to mention the extreme difficulty in recruiting participants to take the survey. Many potential participants were disqualified because of stringent inclusion requirements. For example, in order to participate, women had to not only be breast cancer patients/survivors, they also had to have at least one daughter in order to fulfill the basic requirement. In addition, there are many questions in the survey (around 108 questions) which caused some participants to only fill out part of the survey, leaving the rest of the questions blank. This resulted in missing values and gaps in the data that could not be addressed.

Moreover, based on the quantitative results, the two scales that measure cultural values may, in retrospect, not be the best measurement to examine breast cancer mothers’ mother-daughter communication and relationship. The scales, gender roles and family values, appear to be too limited in scope. Both scales, which were adopted from the “Taiwan Social Change Survey” (2014), were employed in order to measure how culture impacts the breast cancer mothers’ self-disclosure intention and behavior. However, the questions that these two scales measured only focused on the participants’ level of
agreement of housework arrangement or gendered division of labor, and the level of obedience for their parents and family. It would be better to integrate these two scales since both of them are related to measure participants’ traditional level; furthermore, it is good to include more diverse questions to ensure better targeted findings. Additionally, culture has many dimensions; instead of measuring how traditional dimension influences mother-daughter relationship and communication, maybe a better way is to find or create a scale that includes more than one dimension.

Yet, this does not mean that culture is not important. From the report of the interview data, the philosophy of “face it, accept it, dealt with it, and let it be” is a newly emerged cultural theme that does influence breast cancer mothers’ intention to disclose themselves. Thus, perhaps a better way to measure the influence of cultural factor on breast cancer mothers’ self-disclosure intention is to develop a new scale that specifically addresses the influence of more contemporary views.

**Implications and Future Research Direction**

Given the increasing rates of breast cancer as well as the strong mother-daughter relationship in Taiwan society, this study is important for understanding factors that influence breast cancer patients’/survivors’ disclosure intentions and for exploring the influence of mother-daughter communication on daughters’ prevention behavior. This study is the first to examine factors that influence the breast cancer mothers’ self-disclosure intentions in Taiwan. As such, it offers an exploratory rather than a comprehensive look at this topic. Implications and future research directions are discussed below.
**Implications**

The work is valuable for family and health communication, in both Taiwan and the US. Despite growing diversity in U.S., little is known about these factors in intercultural settings. This study provides an opportunity to increase understanding of how people from East Asian cultures employ communication when facing difficult health topics, specifically breast cancer. This research fills an intercultural niche in both health and family communication research. For Taiwan, since this study is the first study that focuses on mother-daughter breast cancer communication and its influence on daughters’ prevention behavior, some practical implications can be developed, which are addressed below.

*The role of hospitals and physicians.* Physicians project the image of intelligence and authority, and often their influence on their patients and the public was not fully grasped (Chen & Chong, 2005). Though this study investigates the significance of breast cancer mothers’ cancer communication on daughters’ prevention behaviors and examinations, it does provide insight into the importance of physicians in the mother/daughter discussion dynamic. For example, by spending just a couple of extra minutes in conversation with breast cancer patients and their family members, physicians can remind those present of the importance of having open and informative mother-daughter breast cancer communication strongly emphasizing the daughters’ genetic predisposition to contracting the same disease. Physicians can also instruct family members on the importance of cancer prevention behaviors and, as highly respected members of society, have their advice embraced and adopted. Adding voice and influence
directly to the mother/daughter cancer communication, physicians can encourage the breast cancer mothers to take their daughters for breast cancer examinations when they are old enough, and stress to the daughters the importance of staying diligent with breast exams.

Additionally, this study demonstrates the positive outcomes for breast cancer patients/survivors who are involved in support groups. The multitude of benefits features not only an avenue to gaining new information on healthcare and prevention behaviors, but also provides vital mental health benefits such as increased self-esteem and sense of purpose. It should be noted that support groups are widely available in Taiwan, being required at almost all medium-sized or comprehensive general hospitals as a component for the hospital’s accreditation (Health Promotion Administration, 2014). Moreover, this study offers valuable justification for hospitals and healthcare providers to remain steadfast in maintaining support group services. Once again, the influence of physicians can be utilized in encouraging new breast cancer patients to participate in support groups by explaining the positive outcomes that result from this activity, and how these positive outcomes tie directly to patients’ quality of life.

The role of support groups. A support group usually consists of patients/survivors, healthcare professionals, and social workers. One of the fundamental activities of the group is to hold educational workshops, which often focus on new treatments and medicine. However, workshops and/or discussions on patients’ mental health and family communication are rarely introduced. Identity self-adjustments, such as the process of patients/survivors’ progression from diagnosis through acceptance, and
cancer communication are integral components that require attention. Support groups are the ideal vehicle to introduce these sensitive topics because breast cancer patients/survivors may be more willing to share their situations and concerns with others who have gone and are going through similar emotional challenges. If efforts, including support groups, were made to improve breast cancers mothers’ level of information, strategies for family cancer communication, family bonding activities, and mental health outlooks, this could in turn positively impact the mother-daughter cancer communication. It has the potential to pave the way for an even closer mother-daughter relationship with more frequent and deeper cancer discussions followed by the daughters’ adoption of healthy prevention behaviors.

*The role of government.* Taiwanese government has shown a commitment to breast cancer prevention by offering free mammograms for all women over 45 and those 40-44 with a family history of breast cancer. Local health bureaus, which operate under the direction of the Taiwanese government, perform extensive outreach by going into communities, especially remote location, in an effort to recruit women to take mammograms. This outreach would provide an excellent opportunity for local health bureaus to promote the effectiveness of mother-daughter cancer communication and its influence on their daughters’ prevention behaviors. By planting this into the communities, the government can raise awareness of not just breast cancer patient/survivor mother-daughter cancer discussion, but of the benefits of all cancer and general open family communication. Additionally, as awareness of breast cancer becomes more commonplace in Taiwanese society, it may also have a transformative effect on the stigma attached to
the disease and the negative stereotype attached to being “less than” society’s ideal female image.

This study illustrates the power of mothers’ advice on daughters’ prevention behavior, an area the government could tap into by developing better programming, publicity, and outreach communicating the importance of mother-daughter communication. This would be a more effective technique than using fear to package general information on how important diligent breast care is to women’s health. The Taiwanese government should also commit more funding for research on the outcomes of family and health communication. This study should serve as evidence of the importance and influence of family communication and provide justification that these areas of research deserve more attention, resources, and funding.

**Future Research Direction**

For future research, both qualitative and quantitative, researchers may expand upon this topic by examining different relationships, such as mother-son or sibling relationships, in breast cancer and other cancer contexts. Themes uncovered in this study may also be explored in countries that share similar cultural backgrounds, such as Japan or Korea, which would provide data that can be utilized to compare and contrast different countries’ findings.

Certain factors that were found in this study to influence disclosure intentions cannot be changed, such as age, socioeconomic status, and cancer stage when the breast cancer mothers when diagnosed. However, other factors, such as those related to attitudes, beliefs, and behaviors toward breast cancer prevention can be changed through
education and intervention. Future research should explore culturally sensitive intervention strategies to enhance mother-daughter cancer communication in Taiwan, such as developing coping strategies which emphasize the importance of the philosophy of “face it, accept it, deal with it, and let it be” for both breast cancer mothers and their family members.

Mother-daughter relationship is a unique bond and though this study is focused on mother-daughter communication about breast cancer and its influence on the daughters’ prevention behavior, it would be interesting to examine how the daughters approach communication with their mothers from the perspectives of care giving and shared coping. It can also be extended to other women-specific cancers, such as cervical cancer; or cancer in general, like lung cancer or stomach cancer. In addition, this study is about mother-daughter communication on daughters’ prevention behavior, but the relationship can be reversed. Future studies can target families in which daughters are the cancer patients and explore how mother-daughter communication influences both mothers’ and daughters’ cancer-related behaviors.

Quantitative data in this study illustrated that breast cancer mothers’ advice significantly influences daughters’ level of worry of getting breast cancer, prevention behavior, and breast cancer examination. The result of qualitative analysis reveals many other factors that can impact the daughters’ breast cancer exam intention and behavior, such as examination fee for those under 40, fear of the possibility of getting breast cancer, and the belief that God decides everything for man (fatalism). Future qualitative and quantitative research should explore these additional factors systematically.
APPENDIX A

INFORMED CONSENT DOCUMENT TO PARTICIPATE IN RESEARCH

Taiwanese Mother-Daughter Breast Cancer Communication and Its Influence on Daughters’ Prevention Behaviors

PURPOSE OF THE STUDY
The purpose of this research is to seek the pattern of self-disclosure between breast cancer survivor moms and their daughters as well as the potential factors that influence mothers' self-disclosure behaviors.

PARTICIPATION
Your participation is voluntary and you may withdraw from the interview at any time and for any reason. If you decide not to participate or if you withdraw form the interview, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

PROCEDURES
If you volunteer to participate in this interview, you would set up a time to meet with the interviewer. During the interview, besides your basic demographic information and cancer history, the interviewer will ask you about your relationship and communication with your daughter(s). This interview will mainly focus on the depth, breadth, and frequency of your communication with your daughter(s), in addition. It should take you around 60~75 minutes to finish.

RISKS
There are no foreseeable risks for participating this research.
BENEFITS
There are no benefits to you as a participant other than further research regarding how family communication enhances breast cancer patients/survivors’ family member awareness of the importance of prevention behaviors. It is our hope that the knowledge gained through this research will improve mother-daughter communication quality for breast cancer patients/survivors.

CONFIDENTIALITY
This interview will be audio recorded. The recording will be safely stored on researcher’s computer, which is password-protected, and the researcher is the only person who has access to the recording information. Since the interview will be held in mandarin, the research is the only person who transcribes and translates the interview, and your name will be anonymous in the report.

CONTACT
This research study is conducted by Wan-Lin Chang, a doctoral candidate, under the supervision of Dr. Xiaoquan Zhao from the Department of Communication, George Mason University. If you have any questions or concerns about this research, please feel free to contact Wan-Lin Chang at wchang9@gmu.edu or Dr. Xiaoquan Zhao at xzhao3@gmu.edu. The Office of Research Integrity and Assurance at George Mason University granted ethics approval for this study on April 28, 2014. You may contact the George Mason University Office of Research Integrity & Assurance at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

CONSENT
By signing the name and date below, I signify I have read this form and agree to participate in this study. If I have any further questions I know whom to contact.

Name:__________________________

Date of Signature:__________________________
APPENDIX B

INFORMED CONSENT DOCUMENT TO PARTICIPATE IN RESEARCH

Taiwanese Mother-Daughter Breast Cancer Communication and Its Influence on Daughters’ Prevention Behaviors

PURPOSE OF THE STUDY
The purpose of this research is to seek the pattern of self-disclosure between breast cancer survivor moms and their daughters as well as the potential factors that influence mothers' self-disclosure behaviors.

PARITCIPATION
Your participation is voluntary and you may withdraw from the interview at any time and for any reason. If you decide not to participate or if you withdraw from the interview, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

PROCEDURES
If you volunteer to participate in this interview, you would set up a time to meet with the interviewer. During the interview, besides your basic demographic information and cancer history, the interviewer will ask you about your relationship and communication with your mother. This interview will focus on your breast cancer risk perception, cancer prevention attitudes and behavior, in addition. It should take you around 60~75 minutes to finish.

RISKS
There are no foreseeable risks for participating this research.
BENEFITS
There are no benefits to you as a participant other than further research regarding how family communication enhances breast cancer patients/survivors’ family member awareness of the importance of prevention behaviors. It is our hope that the knowledge gained through this research will improve mother-daughter communication quality for breast cancer patients/survivors.

CONFIDENTIALITY
This interview will be audio recorded. The recording will be safely stored on researcher’s computer, which is password-protected, and the researcher is the only person who has access to the recording information. Since the interview will be held in mandarin, the research is the only person who transcribes and translates the interview, and your name will be anonymous in the report.

CONTACT
This research study is conducted by Wan-Lin Chang, a doctoral candidate, under the supervision of Dr. Xiaoquan Zhao from the Department of Communication, George Mason University. If you have any questions or concerns about this research, please feel free to contact Wan-Lin Chang at wchang9@gmu.edu or Dr. Xiaoquan Zhao at xzhao3@gmu.edu. The Office of Research Integrity and Assurance at George Mason University granted ethics approval for this study on April 28, 2014. You may contact the George Mason University Office of Research Integrity & Assurance at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

CONSENT
By signing the name and date below, I signify I have read this form and agree to participate in this study. If I have any further questions I know whom to contact.

Name: __________________________

Date of Signature: __________________________
APPENDIX C

Breast Cancer Mother Interview Protocol

Introduction
Thank you for having an interview with me today. I am Wan-Lin Chang, a doctoral candidate, from the Department of Communication, George Mason University. The purpose of this study is to understand the disclosure pattern of breast cancer moms and their daughters. Furthermore, this study is trying to investigate how would you view your relationship with your daughters. To facilitate the note taking, I would like to record our conversation today. To keep your information confidential, I am the only one who has access to the recording, and all the relevant materials will be destroyed after transcription. In addition, you are required to sign a consent form devised to meet our human subject requirements. Essentially, this document states that: (1) all information will be held confidential, (2) your participation is voluntary and you may stop at any time if you feel uncomfortable, and (3) we do not intend to inflict any harm. Thank you for your agreeing to participate.

This interview is supposed to be no longer than 75 minutes. During this time, we have several questions. If time begins to run short, it may be necessary to interrupt you in order to push ahead and complete this line of questioning.

Pause 2~3 minutes for the interviewee to read through the consent form: Are there any questions or concerns about the research or the consent form?

Collect: If there are no more questions about the consent form or the research, please sign here. (Make sure participants retain a copy.)
Begin the interview.

If you have no more questions, let’s get start with your background information.

- When were you born?
- What is your education level?
- Please briefly tell me about your breast cancer experiences. (Make sure participants provide information about: diagnosis date of breast cancer, stage of breast cancer, treatments and surgery they experienced, and their last time of treatment)
- Who is the main caregiver during your treatment process? Who do you depend on when you need support, including practical and emotional?
- How many daughters do you have?
- How old were they when you were first diagnosed with breast cancer and how old are they now?
- Do your daughters live with you now? (If no, make sure the participants provide information about their daughters’ job, marital status, how often they see each other, and how often do they communicate with each other through phone, email, or text)
- How do you evaluate your relationship with your daughters? Please explain.
- How would you rate your daughters’ risk of breast cancer? And what are the reasons that make you think your daughter(s) have this level of risk?
- Have you provided advice to your daughter(s) about things they should do to lower their breast cancer risk? If yes, what advice did you provide? If no, why not?
- How do you view the breast cancer prevention services such as physical examination of breast by a healthcare provider, breast ultrasound, or mammogram? Would you recommend your daughter(s) to do these examinations?
- Regarding breast cancer issues, have you disclosed any information or shared your emotions with your daughters back to your treatment period and current time? Why or why not? (Make sure participants provide information about under what circumstances they would disclose themselves? How do they communicate these issues regarding time and frequency?)
Wrap-Up

Thank you for your time to share your information and opinions with me. Your identity will remain private, and what was said would remain confidential in this research. The information and opinions you shared with me today will be used to understand disclosure pattern between breast cancer survivor moms and their daughters. Again, here is my contact information, if you have any questions or concerns about this research or the interview, please do not hesitate to contact me. Thank you. I hope you have a good rest of day.
APPENDIX D

Daughters’ of Breast Cancer Patients/ Survivors Interview Protocol

Introduction
Thank you for having an interview with me today. I am Wan-Lin Chang, a doctoral candidate, from the Department of Communication, George Mason University. The purpose of this study is to understand the disclosure pattern of breast cancer moms and their daughters. This study is trying to investigate how would you view your relationship with your mother, and furthermore, this study will get information about your breast cancer risk perceptions, prevention attitudes and behaviors. To facilitate the note taking, I would like to record our conversation today. To keep your information confidential, I am the only one who has access to the recording, and all the relevant materials will be destroyed after transcription. In addition, you are required to sign a consent form devised to meet our human subject requirements. Essentially, this document states that: (1) all information will be held confidential, (2) your participation is voluntary and you may stop at any time if you feel uncomfortable, and (3) we do not intend to inflict any harm. Thank you for your agreeing to participate.

This interview is supposed to be no longer than 75 minutes. During this time, we have several questions. If time begins to run short, it may be necessary to interrupt you in order to push ahead and complete this line of questioning.

Pause 2~3 minutes for the interviewee to read through the consent form: Are there any questions or concerns about the research or the consent form?
Collect: If there are no more questions about the consent form or the research, please sign here. (Make sure participants retain a copy.)

Begin the interview.

If you have no more questions, let’s get start with your background information.

- When were you born?
- What is your education level?
- Do you live with your mom now?
- How old were you when your mom was diagnosed with breast cancer?
- Can you tell me what stage of breast cancer did your mom have? What treatments and surgery did your mom experience?
- Can you tell me how do you find out your mom was diagnosed with breast cancer? Who told you the news? Under what circumstances?
- Please briefly tell me you feelings and reactions when you first know your mom has breast cancer.
- Who is the main caregiver during the treatment process?
- How do you evaluate your relationship with your mother? Please explain. (How was your relationship with your mom before she was diagnosed with breast cancer? Are there any differences before and after she was diagnosed with breast cancer or treatment?)
- How do you view your communication with your mom? Make sure participants provide information about how do they communicate these issues regarding time and frequency?)
- Regarding breast cancer issues has your mom disclose related information or shared emotions with you? Back to her treatment period and current time?
- Do you think your mom hide information from you? Why or why not? (Make sure participants provide information about her perceptions?)
- How would you rate your risk of breast cancer? And what are the reasons that make you think you have this level of risk?
- Has your mom provided advice to you about things you should do to lower the breast cancer risk? If yes, what advice did she provide?
- Do you think your mom’s advice influence your prevention attitude and behaviors? If yes, in what way?
- How do you view the breast cancer prevention services such as physical examination of breast by a healthcare provider, breast ultrasound, or mammogram?

**Wrap-Up**
Thank you for your time to share your information and opinions with me. Your identity will remain private, and what was said would remain confidential in this research. The information and opinions you shared with me today will be used to understand disclosure pattern between breast cancer survivor moms and their daughters. Again, here is my contact information, if you have any questions or concerns about this research or the interview, please do not hesitate to contact me. Thank you. I hope you have a good rest of day.
APPENDIX E

MOTHERS’ CONSENT TO PARTICIPATE IN RESEARCH

Taiwanese Mother-Daughter Breast Cancer Communication and Its Influence on Daughters’ Prevention Behaviors

PURPOSE OF THE STUDY
The purpose of this research is to seek the pattern of self-disclosure between breast cancer survivor moms and their daughters as well as the potential factors that influence mothers' self-disclosure behaviors.

PARTICIPATION
Your participation is voluntary and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

PROCEDURES
If you volunteer to participate in this study, you would be asked to tell your demographic information, your own cancer history and perceived risks. In addition, you will be asked to complete three scales which ask your opinions regarding female roles, family values, and nurturing goal. Finally, you will be asked to fill out three scales: the mother-daughter relationship scale, self-disclosure scale, and openness of breast cancer communication scale. It should take you around 15-20 minutes to finish.
RISKS
There are no foreseeable risks for participating this research.

BENEFITS
There are no benefits to you as a participant other than further research regarding how family communication enhance breast cancer patients/survivors’ family member aware the importance of prevention behaviors. It is our hope that the knowledge gained through this research will improve mother-daughter communication quality for breast cancer patients/survivors.

CONFIDENTIALITY
While it is understood that no computer transmission can be perfectly secure, all efforts will be made to protect the confidentiality of your transmission. The survey database is password-protected. The researcher is the only person who will see your survey answers. You are not required to supply your name and contact information to complete the survey. However, you need to give your email address for the gift card drawing. The email address will be used only for the gift card drawing and will not appear in any reports or publications. At no time will your survey answers be connected back to you.

CONTACT
This research study is conducted by Wan-Lin Chang, a doctoral candidate, under the supervision of Dr. Xiaoquan Zhao from the Department of Communication, George Mason University. If you have any questions or concerns about this research, please feel free to contact Wan-Lin Chang at wchang9@gmu.edu or Dr. Xiaoquan Zhao at xzhao3@gmu.edu. Research Integrity and Assurance at George Mason University granted ethics approval for this study on April 28, 2014. You may contact the George Mason University Office of Research Integrity & Assurance at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.
CONSENT

By signing the name and date below, I signify I have read this form and agree to participate in this study. If I have any further questions I know whom to contact.

Name: __________________________

Date of Signature: __________________________
APPENDIX F

ADULT DAUGHTERS’ CONSENT TO PARTICIPATE IN RESEARCH

Taiwanese Mother-Daughter Breast Cancer Communication and Its Influence on Daughters’ Prevention Behaviors

PURPOSE OF THE STUDY
The purpose of this research is to seek the pattern of self-disclosure between breast cancer survivor moms and their daughters. In addition, this research examines how the self-disclosure influence daughters’ perceived risks and their prevention behaviors.

PARTICIPATION
Your participation is voluntary and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

PROCEDURES
If you volunteer to participate in this study, you would be asked to tell your demographic information, your perceived risks of breast cancer, and some questions regarding your mother-daughter relationship, your perception of your mother’s openness of breast cancer communication. It should take you around 10 minutes to finish.

RISKS
There are no foreseeable risks for participating this research.
BENEFITS
There are no benefits to you as a participant other than further research regarding how family communication enhance breast cancer survivors’ family member aware the importance of prevention behaviors. It is our hope that the knowledge gained through this research will improve mother-daughter communication quality for breast cancer survivors.

CONFIDENTIALITY
While it is understood that no computer transmission can be perfectly secure, all efforts will be made to protect the confidentiality of your transmission. The survey database is password-protected. The researcher is the only person who will see your survey answers. You are not required to supply your name and contact information to complete the survey. However, you need to give your email address for the gift card drawing. The email address will be used only for the gift card drawing and will not appear in any reports or publications. At no time will your survey answers be connected back to you.

CONTACT
This research study is conducted by Wan-Lin Chang, a doctoral candidate, under the supervision of Dr. Xiaoquan Zhao from the Department of Communication, George Mason University. If you have any questions or concerns about this research, please feel free to contact Wan-Lin Chang at wchang9@gmu.edu or Dr. Xiaoquan Zhao at xzhao3@gmu.edu. Research Integrity and Assurance at George Mason University granted ethics approval for this study on April 28, 2014. You may contact the George Mason University Office of Research Integrity & Assurance at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.
CONSENT

By signing the name and date below, I signify I have read this form and agree to participate in this study. If I have any further questions I know whom to contact.

Name: __________________________

Date of Signature: __________________________
APPENDIX G

DAUGHTERS’ ASSSENT TO PARTICIPATE IN RESEARCH

Daughter Form (Daughter under 18 years old)
Taiwanese Mother-Daughter Breast Cancer Communication and Its Influence on Daughters’ Prevention Behaviors

Invitation to Participate
You are asked to participate in a research study. You are eligible if your mother has breast cancer, and you are older the age of 12 years old.

Why Are You Doing This Study?
We are interested in learning more about how breast cancer survivor moms disclose their cancer treatment and emotions with their daughters. In addition, if this disclosure influence daughter prevention behaviors.

What Are You Asking Me To Do?
If you volunteer to participate in this study, we would ask you to fill out an a hard-copy survey. As to the hard-copy survey, all you need to do is to complete the survey. It will take about 10 minutes to complete the survey. And after you complete it, please put the survey and this form into the self-addressed stamped envelope and send it back.

Will This Study Help Me or My Mom?
There are no benefits for participating in this study. The study may help us better understand the influence of breast cancer patients/ survivor mothers’ self- disclosure on daughters’ prevention behaviors.
Do I Have to be in This Study?
You can choose whether to be in this study or not. If you volunteer to be in this study, you can still choose to stop at any time without any consequences. If you do not feel comfortable answering a question you can skip it. If for any reason you finish the questionnaires and you do not want us to use the information you can tell us and we will take it out. If either you or your mother decides you don’t want to participate in the study we will still keep the other person in the study. We do not need both you and your mother to agree to do the study; so don’t worry about whether or not you both participate. You can make this decision just for yourself.

Privacy
We will do everything we can to make sure that the information we get from you is kept safe and not shared with anyone else. We will not ask for any information about your name or contact information like your address or email address. However, you need to give your email address for the gift card drawing. The email address will be used only for the gift card drawing and will not appear in any reports or publications. Your mother will not be told whether you participated or not, and she will never be given any information about what you said in the survey. This information will be kept confidential and never shared with your mother.

What Happens After the Study?
The results of this study will help the researcher, Wan-Lin Chang, complete a research project for school. The results may also be printed in a journal for other people to read about. If you would also like to read about the results of this study you can contact Wan-Lin Chang through email at wchang9@gmu.edu and she will send you the information (by email).
CONTACT
This research study is conducted by Wan-Lin Chang, a doctoral candidate, under the supervision of Dr. Xiaoquan Zhao from the Department of Communication, George Mason University. If you have any questions or concerns about this research, please feel free to contact Wan-Lin Chang at wchang9@gmu.edu or Dr. Xiaoquan Zhao at xzhao3@gmu.edu. Research Integrity and Assurance at George Mason University granted ethics approval for this study on April 28, 2014. You may contact the George Mason University Office of Research Integrity & Assurance at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

ASSENT
I have read the information provided for the study “Taiwanese Mother-Daughter Breast Cancer Communication and Its Influence on Daughters’ Prevention Behaviors” as described. I understand that my mother has given permission for me to participate in this study, and I agree to participate in this study. I will be given a signed copy of this form.

Name: __________________________

Date of Signature: __________________________
APPENDIX H

INFORMED CONSENT DOCUMENT TO PARTICIPATE IN RESEARCH
Parent Form (With a daughter under 18 years old)

Taiwanese Mother-Daughter Breast Cancer Communication and Its Influence on Daughters’ Prevention Behaviors

INVITATION TO PARTICIPATE
Your daughter is asked to participate in a research study. She is eligible if her mother has breast cancer, and she is older the age of 12 years old.

PURPOSE OF THE STUDY
The purpose of this research is to seek the pattern of self-disclosure between breast cancer survivor moms and their daughters. In addition, this research examines how the self-disclosure influence daughters’ perceived risks and their prevention behaviors.

PARTICIPATION
Your daughter’s participation is voluntary and you may withdraw your daughter from the study at any time and for any reason. If you decide not to allow your daughter to participate or if you withdraw your daughter from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you, your daughter, or any other party.

PROCEDURES
If your daughter would like to volunteer to participate in this study, she will be asked to complete a hard-copy survey in the package at home. Your daughter will be asked to read
and signed an Assent form in the package before she begins the survey. It should take your daughter around 10 minutes to finish. After your daughter finishes the hard-copy survey and Assent form, please put them in the self-addressed stamped envelope package in the package and send it back.

**RISKS**
There are no foreseeable risks for participating this research.

**BENEFITS**
There are no benefits to your daughter as a participant other than further research regarding how family communication enhance breast cancer survivors' family member aware the importance of prevention behaviors. It is our hope that the knowledge gained through this research will improve mother-daughter communication quality for breast cancer survivors.

**CONFIDENTIALITY**
While it is understood that no computer transmission can be perfectly secure, all efforts will be made to protect the confidentiality of your daughter’s transmission. The survey database is password-protected. The researcher is the only person who will see the survey answers. Your daughter is not required to supply her name and contact information to complete the survey. However, your daughter needs to give their email address for the gift card drawing. The email address will be used only for the gift card drawing and will not appear in any reports or publications.

**CONTACT**
This research study is conducted by Wan-Lin Chang, a doctoral candidate, under the supervision of Dr. Xiaoquan Zhao from the Department of Communication, George Mason University. If you have any questions or concerns about this research, please feel free to contact Wan-Lin Chang at wchang9@gmu.edu or Dr. Xiaoquan Zhao at
Research Integrity and Assurance at George Mason University granted ethics approval for this study on April 28, 2014. You may contact the George Mason University Office of Research Integrity & Assurance at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

CONSENT
I understand that my daughter will participate in this study concerning mother-daughter breast cancer communication and its influence on daughters’ prevention behaviors, under the direction of Wan-Lin Chang, Department of Communication, George Mason University.

Name: __________________________

Date of Signature: __________________________
REFERENCES


Chan. (2009). 雪中足跡 聖嚴法師自傳. 三采：臺灣


Counseling, 8 (2), 153-174.


Doyle, C., Kushi, L. H., Byers, T., Courneya, K. S., Demark-Wahnefried, W., Grant,


Fisher, C. L. (2011). “Her pain was my pain”: Mothers and daughters communicatively sharing the breast cancer journey. In M. Miller-Day (Ed.), Going through this together: Family communication, connection, and health transitions (pp. 57–76). New York: Peter Lang


Liu, Z., & Kong, L. (2003). 新加坡的思想政治教育及其啟示. 新加坡文獻館

Lo, G., & Li, Y. (2010). 試論儒家思想的對外傳播. 齊魯學刊, 6, 29-34.


Tercyak, K. P., Mays, D., DeMarco, T. A., Peshkin, B. N., Valdimarsdottir, H. B.,


BIOGRAPHY

Wan-Lin Chang received her Bachelor of Arts from Tzu-Chi University, Hualien, Taiwan, in 2005. She then received her Master of Science in International Health Policy and Management from Brandeis University in 2008. She was employed as a research assistant in National Health Research Institutes in Taiwan for two years and as a Chinese instructor in Pacific Lutheran University in WA, USA for one year. She received her Doctor of Philosophy in Communication from George Mason University in 2015.