

SOCIAL SUPPORT, PSYCHOLOGICAL AND PHYSICAL STATES
AMONG JAPANESE WOMEN WITH BREAST CANCER

by

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of the University of Maryland in partial fulfillment
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ABSTRACT

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In Western cultures, it has been reported that social support has effects on health outcomes among women with breast cancer. However, little is known about social support and the effects on health outcomes among Japanese women with breast cancer. In addition, there are no instruments with established reliability and validity to measure social support specific to Japanese populations giving consideration to cultural differences.

A cross-sectional study was designed incorporating quantitative and qualitative approaches for the purposes of: 1) testing the reliability and validity of instruments developed to measure social support with Western populations when used with Japanese women with breast cancer, 2) describing social support among Japanese women with breast cancer, 3) investigating how social support affects their psychological and physical states, and 4) exploring appropriateness of the use of instruments of social support developed in Western cultures in measuring the social

support of Japanese populations. A convenience sample of 113 Japanese women with breast cancer receiving follow-up care at a cancer center in Japan participated in the study. The Japanese versions of the Norbeck Social Support Questionnaire, the Interpersonal Relationship Inventory, and the 60-item General Health Questionnaire were used to obtain data. Descriptive statistics, Pearson correlations, and multiple regression analyses were employed. Among the 113 subjects, purposive sampling was done to include women with a variety of experience and perceptions of social support; 16 participants were interviewed by semi-structured interview questions; then, content analysis was performed. Comparison of the findings of content analysis with the results of quantitative data and with the social support instruments was performed.

The results of quantitative data analysis indicated five dimensions of social support: types, amount, reciprocity, conflict, and sources. Significant correlations between social support and person factors and between social support and psychological states among Japanese women with breast cancer were identified. However, comparing the findings of content analysis with the results of quantitative data analysis demonstrated some considerations when using the translated social support instruments on Japanese women with breast cancer. Reconsiderations for theory and recommendations for practice were addressed and future research was proposed.

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CHAPTER I

INTRODUCTION

Social support has direct effects on stress and on health outcomes, also buffers the effect of stress on health outcomes (Cobb, 1976; House, 1981; Cohen & Syme, 1985; House & Kahn, 1985; Lin, Dean, & Ensel, 1986; Norbeck, 1988; Vaux, 1988). This statement is based on studies of various populations including subjects who were experiencing stressful life events such as diagnosis of and treatments for cancer.

Studies of women with breast cancer conducted in Western countries and based on Western cultures indicated that social support is a significant factor in women's health outcomes (Woods & Earp, 1978; Spiegel, Bloom, & Yalom, 1981; Bloom, 1982; Funch & Mettlin, 1982; Peters-Golden, 1982; Funch & Marshall, 1983; Bloom & Spiegel, 1984; Taylor, Falke, Shoptaw, & Lichtman, 1986; Vachon, 1986; Lichtman, Taylor, & Wood, 1987; Penman et al., 1987; Ell, Nishimoto, Mantell, & Hamovitch, 1988; Friedman et al., 1988; Neuling & Winerfield, 1988; Northouse, 1988; Spiegel, Bloom, Kraemer, & Gottheli, 1989; Zemore, Rinholt, Shepel, & Richard, 1989; Zemore & Shepel, 1989; Dakof & Taylor, 1990; Primomo, Yates, & Woods, 1990; Levy et al., 1990; Oktay & Walter, 1991; Waxler-Morrison, Hislop, Mears, & Kan, 1991; Gotcher, 1992; Ferrans, 1994; Roberts, Cox, Shannon, & Wells, 1994; Hoskins et al., 1996).

However, the role of social support may be different in other cultures. Higgins and Dicharry (1991) stated that differences in social support exist from culture to culture. Culture consists of human beliefs, values, and behaviors (Shon & Ja, 1982). Kagawa-Singer (1994) stated that culture serves two purposes: It is "(a) integrative, providing the beliefs and values that give an individual a sense of identity, and (b) functional, establishing the rules for behavior that support an individual's sense of self-worth and maintain group function and welfare" (p. 364). Because of cultural differences, studies of social support should investigate the effects of social support on health outcomes among women with breast cancer who are in other cultures. Japanese culture, one of Eastern cultures, needs to be explored in relation to not only social support but also to breast cancer as an illness.

First, Japanese culture related to illness will be discussed. Hepburn (1988) stated that "although diseases have biological correlates, how they are recognized (if at all), expressed as illness, classified, understood, valued, and treated varies greatly from culture to culture" (p. 60). Therefore, the meaning of illness may differ from culture to culture. One of the Eastern beliefs is reincarnation. Originally a Buddhist concept, reincarnation considers an individual's present life to be related to the individual's previous life (Ohnuki-Tierney, 1984). Perception of illnesses and experiencing illnesses may be influenced by

this belief.

Moreover, Lock (1982) stated that Japanese separate psychological stress from physical stress. However, she also stated that there is no mind/body dichotomy in Eastern cultures, which means that there is no concept of mental health as distinct from physical health. Ohnuki-Tierney (1984) explained that within the healthy human body, a psychological and physiological equilibrium should exist. Lock (1982) explained a Japanese expression of *yamai wa ki kara*, which means that the psychological state affects one's physiological system. According to Ohnuki-Tierney, psychosomatic illnesses are described as psychological states with perceived physical illnesses of a particular organ. Thus, psychological states and physical states among Japanese may not be separated, so these need to be considered simultaneously.

Regarding cancer, however, Ohnuki-Tierney (1984) reported that Japanese believe cancer has definite causes such as certain types of food, manners of food intake, drinking, smoking, heredity, and others. In addition, Long and Long (1982) reported that Japanese public perception of cancer is "pain and suffering, and of human mortality" (p. 2102). These perceptions may influence their coping styles. Kagawa-Singer (1993) reported that coping styles are different between Japanese cancer patients and American cancer patients; the Japanese would "endure" cancer, and

Americans would "fight" it. Also, Ohnuki-Tierney stated that "Japanese attitude toward cancer is directly related to the philosophy of control over life.... Death from cancer denies the individual an active role" (p. 69).

Next, Japanese culture related to social support will be discussed. Social support requires interpersonal relationships, which are influenced by belief, value, and behavior. Long (1979) noted that Japanese social relationships are described as a contrast among inner and outer circles of relationships **miuchi**, **nakama**, and **tanin**. **Miuchi** is described as intimate relationships such as family members and close friends, **nakama** refers to comfortable groups of friends and relatives, and **tanin** denotes strangers or outsiders. Long wrote that "the norm of reciprocity and behavior of this outer circle [**tanin**] contrasts with those of the small circle of extremely intimate and enduring relations, **miuchi**, which consists of family and very close friends" (p. 38). **Nakama** is a Japanese term for those more comfortable groups of friends and relatives, who can depend on each other for a service, a gift, and an offer of assistance. Long also explained that most of the human world consists of **tanin**, strangers or outsiders, people with no continuing relation to ego. Moreover, Lock (1987a) explained differences of Japanese interpersonal relationships and the expression of needs between **uchi**, private or inside, and

soto, public or outside. According to Lock, Japanese tend to express **honne**, one's real or true intentions/feelings in private or inside, but express **tatemae**, the principles by which one should act in public or outside.

Interpersonal relationships within **miuchi** need to be considered. Doi (1973), a Japanese psychiatrist, introduced **amae**, a Japanese word for passive love and dependency that can be seen even in adult Japanese interpersonal relationships, especially within **miuchi**. Long and Long (1982) documented this phenomenon by describing a family who did not reveal the cancer diagnosis to the ill family member. Sometimes the family decides major medical treatment without discussing it with the ill family member, who does not even ask about the diagnosis or treatment. These phenomena are viewed as Japanese psychological dependence and accepted as nurturance, especially within **miuchi**.

Moreover, Lanham (1986) noted that Japanese Confucianism and Buddhism emphasize internal discipline, and both emphasize harmonious values and behaviors. Long (1992) described Japanese beliefs and values as creating harmonious relations with others through reciprocity and the fulfillment of social obligations as well as order and self-development. Reciprocity and social obligation should be considered along with the concepts of guilt and shame. Benedict (1989) stated that a culture of guilt places

emphasis on inner standards of conduct, but a culture of shame places emphasis on outward standards of conduct. Doi (1973) noted that guilt and shame were correlated and experienced simultaneously by a person. According to Doi, the sense of guilt is most sharply aroused when the individual betrays the trust of the members of his own group. To avoid sensing guilt and shame, Japanese may be reciprocal, and they may perform *giri*, social obligation, to maintain harmonious relations with their group members. According to Reader, Andreasen, and Stefansson (1993), *giri* was described as "a normative or ethical imperative requiring Japanese to behave as expected by the society in relation to another individual with whom one is in some meaningful, or particularistic relationship" (p. 27). Lock (1987a) described the preservation of harmony and suppression of conflict as "soft rule" which takes priority over an individual's rights and needs. In addition, Lock (1982) noted that since maintenance of harmonious family relationships remains as a core value, it can be a source of great tension. Thus, social support among Japanese should include its negative aspects as well as reciprocity.

Another characteristic of Japanese interpersonal relationships is the expression of emotions among Japanese, which is different from Westerners (Tierney, Minarik, & Tierney, 1994). Lazarus, Tomita, Opton, and Kodama (1966) described Japanese as "reluctant to express feelings" (p.

623). Lock (1987b) mentioned that Japanese patients find it difficult to discuss their feelings with medical professionals. Also, Lock added that there is a tendency to express themselves through physical symptoms, rather than to express themselves through feelings. Therefore, physical states should be determined with psychological states at the same time.

Moreover, Lock (1987a) stated that use of nonverbal communication reflects and is reinforced by Confucian and Buddhist heritage. Lebra (1984) wrote that expression of feelings between a Japanese husband and wife was not necessary to display love and intimacy because the husband and wife were viewed as *ittai*, a fusion of feeling. Kagawa-Singer (1987) noted that Japanese-American culture does not value verbalization. "A talkative person is considered to be of weak character" (p. 61) [e.g., the expression of anger among cancer patients]. Also, Kagawa-Singer (1993) reported that Japanese-American cancer patients were rarely directly offered emotional support, even though family members, friends, and employers are very patient and supportive. Because of these characteristics, types and amount of social support may be different from those who are in Western cultures. Thus, emotional support needs to be explored as verbal and nonverbal, as well as direct and indirect.

The other characteristic of interpersonal relationships among Japanese is group orientation. Japanese culture is group oriented in values and behavior compared with Western

cultures (Matsumoto, 1970; Nakane, 1972; Kagawa-Singer, 1987; Reischauer, 1988). Ohnuki-Tierney (1984) described the differences in group and self between Japanese and Western cultures as recognizing relationships to others in Japanese culture versus being individually autonomous in Western cultures. Matsumoto (1970) observed Japanese society as group oriented rather than viewing the individual as a dominant part of the social environment. According to Doi (1973), Japanese maturity is related to the control of self; in other words, maturity is how to operate the self in relation to members in groups. Also, Lock (1982) noted that status and role are ascribed rather than achieved, and the needs of the individual should be subordinated to those of the group.

Group therapy for cancer patients may be successful because of group orientated values and behavior in Japanese culture. However, Lock (1987b) noted that though Japanese show their interest in self-help groups, the groups are not as successful as those in the West. Belonging to groups may not be effective if members do not express their feelings or communicate with others. Since such self-help groups are composed of strangers, *tanin*, it is considered inappropriate to express one's feelings. *Honne*, one's real or true intentions/feelings, is expressed only in *uchi*, private or inside, which means that they would need to categorize self-help groups as *uchi* in order to express feelings and

emotions. In addition, a lack of success may be because Japanese perceive a talkative person to be of weak character; thus, verbal communication in these groups is not valued, as it is by Westerners. Belonging to groups may not be effective because members communicate through being together physically and emotionally, rather than through direct emotional expression. However, belonging may have more negative effects than positive to Japanese, such as creating conflict. The reasons for conflict might be an avoidance of sensing guilt and shame, prioritizing one's group members' needs, and some members may subordinate their needs for the group's needs to maintain harmony. These characteristics of group therapy might be barriers to coping with stressful life events such as the diagnosis and treatment of breast cancer.

These major differences in how those of Japanese culture view themselves and their relationship to others impact the manner in which social support can be examined in Japanese women with breast cancer. Social support must be explored to understand its role, importance, relevance and meaning within a different culture. Types and amount of social support may be different among Japanese women with breast cancer. One example of this may be direct emotional support. The amount of direct emotional support may be different because Japanese value less overt expression of emotion, yet it also could be that emotional support is provided in nonverbal and indirect manners. Also, because

Japanese may try to avoid sensing guilt and shame, there are some differences in receiving the type and amount of social support based on who offers support and on whom one is offering support to.

Next, as dimensions of social support, reciprocity and conflict may be different among Japanese women with breast cancer. Reciprocity, which is related to *giri* and to a sense of guilt and shame, may differ between Japanese and Western cultures. Moreover, inadequate reciprocal relationships and the maintenance of harmony may cause negative influences in interpersonal relationships; conversely, adequate reciprocal relationships may induce positive influences in interpersonal relationships.

Finally, because the characteristics of Japanese interpersonal relationships, *miuchi*, *nakama*, and *tanin* as well as *uchi* and *soto*, influence how those of Japanese culture relate to and interact with individuals, sources of social support need to be assessed. In addition, because Japanese have both individual and group orientation, they may relate to both individual and group sources for their social support. Thus, individual and group sources of social support should be included as factors to study in Japanese women with breast cancer as well as types, amount, reciprocity, and conflict as dimensions of social support.

Leininger (1991) noted that "the social structure and worldview of Western and non-Western culture are strong

influences on care practices leading to health or well-being" (p. 57). Norbeck and Tilden (1988) suggested that the knowledge of social support be retested in other cultures. Thus, although social support has been observed to have direct effects on stress and on health outcomes, and social support buffers the effect of stress on health outcomes among women with breast cancer in Western cultures, social support should be studied among women with breast cancer who are in other cultures. For women with breast cancer, the diagnosis of and treatment for breast cancer cause stress. Psychological and physical states, as dimensions of health outcomes related to social support, are two important dimensions of health outcomes. Therefore, the variables of social support, psychological and physical states, as health outcomes, among women with breast cancer should be studied.

Understanding of social support of breast cancer patients who are experiencing this disease in non-Western cultures may provide new knowledge of the effects of social support on health outcomes. Japanese culture is different from Western cultures; thus, the effects of social support on health outcomes among Japanese women with breast cancer may be different. Psychological and physical states are dimensions of health outcomes as a part of the adjustment for women with breast cancer (Scott & Eisendrath, 1985/86). Also, these two dimensions of health outcomes need to be determined among Japanese at the same time because they view the psychological and physical states simultaneously. A

study describing social support and investigating its effects on psychological and physical states among Japanese women with breast cancer may provide new knowledge about the concept of social support.

Statement of the Problem

In Western cultures, it was reported that social support has effects on health outcomes among women with breast cancer. However, little is known about social support and the effects on health outcomes, psychological and physical states, among Japanese women with breast cancer. Moreover, there are no instruments with established reliability and validity to measure social support specific to Japanese populations that address cultural differences.

The Purpose

The purpose of this study was 1) to test the reliability and validity of instruments developed to measure social support with Western populations when used with Japanese women who are experiencing breast cancer, 2) to describe social support among Japanese women with breast cancer, 3) to investigate how social support affects their psychological and physical states, and 4) to explore appropriateness of the use of instruments of social support developed in Western cultures in measuring the social support of Japanese populations.

Significance of the Study

Cancer has been the leading cause of death in Japan since 1981, and the incidence of breast cancer has been increasing, especially in Japanese women who are in their 40s (Kakizoe, 1995; Fukutomi, 1996). In 1986, breast cancer was the second highest incidence of cancer among Japanese women, and it is estimated that it will be the highest cancer diagnosis among them by the year 2000 (Kobayashi, Imura, & Takahisa, 1990; Koyama, 1991). Despite the increasing incidence of breast cancer among Japanese women, only a few studies have been conducted on social support and its relation to health outcomes of Japanese women with breast cancer (Matsuki, Miki, Horikoshi, Kashima, & Otani, 1992a; Matsuki, Miki, Horikoshi, Kashima, & Otani, 1992b; Yamamoto & Kojima, 1995). Thus, little is known about the phenomenon.

Hisada (1987), a Japanese sociologist, noted that social support varies by types and sources of who provides it such as family, friends, co-workers, and professionals. Hisada also observed that social support has important effects on maintaining and promoting health. This statement was based on Hisada's review of studies of social support on Western populations as well as a few studies of social support on Japanese populations. However, these were not studies on social support of Japanese breast cancer patients.

The studies on Japanese populations reported some

evidence of effects of social support on health outcomes. For instance, Japanese have a low incidence of coronary heart disease. By controlling associated factors of the disease (e.g., age, serum cholesterol, systolic blood pressure, etc), the studies indicated that there is a high incidence of heart disease in Japanese who migrate to the United States. The studies stated that they no longer have the low disease rate because they gave up Japanese social and cultural ties (Matsumoto, 1970; Marmot & Syme, 1976; Reed et al., 1982). In addition, because social support has been identified as a major factor in improving health outcomes among women with breast cancer in Western cultures, the importance of social support and its potential as a major factor to Japanese women with breast cancer need to be explored.

Understanding the characteristics of social support among Japanese women with breast cancer will help provide a basis for assessment and intervention. Also, knowing the effects of social support on psychological and physical states can help health care professionals to provide guidance and to improve patients' psychological and physical states. Moreover, examination of social support instruments in other cultures will lead to further studies of this concept and will help in the understanding of this concept for diverse cultures.

Conceptual Framework for the Study

The conceptual framework for this study was the description of the relationship of stress, social support, person factors, and health outcomes: psychological and physical states (Figure 1). It was derived from two conceptual models: 1) the stress, appraisal, and adaptation model (Lazarus & Folkman, 1984), and 2) the stress, social support, and health model (Cobb, 1976; House, 1981; Cohen & Syme, 1985; House & Kahn, 1985; Lin et al., 1986; Norbeck, 1988; Vaux, 1988).

First, Lazarus and Folkman (1984) described a transactional model of stress, appraisal, and adaptation outcomes which takes into consideration characteristics of the person as well as situation factors that are the nature of stressful environmental events. The individual is seen as bringing to the cognitive appraisal of a stressful event unique properties which influence their experience of this event. Person factors are the unique aspects of the individual that influence cognition about the stressful event. Situation factors are those properties of the stressful event which influence cognitive process (Lazarus & Folkman, 1984).

Social support has direct effects on stress and on health outcomes. In addition, social support buffers the effect of stress on health outcomes (Cobb, 1976; House, 1981; Cohen & Syme, 1985; House & Kahn, 1985; Lin et al., 1986; Norbeck, 1988; Vaux, 1988).

The conceptual framework for this study has 1) stress, 2) social support, 3) psychological and physical states as health outcomes, and 4) person factors. The conceptual framework describes the relationship among the components. Stress is related to psychological and physical states as dimensions of health outcomes. Social support includes the components of types, amount, reciprocity, conflict, and sources. Social support has effects on stress and on psychological and physical states, and social support buffers the effect of stress on psychological and physical states. Person factors consist of age, marital status, religion, and socioeconomic status (i.e., education, employment status, and income). Person factors are related to social support and to psychological and physical states. Psychological and physical states, the dimensions of health outcomes, relate to each other.

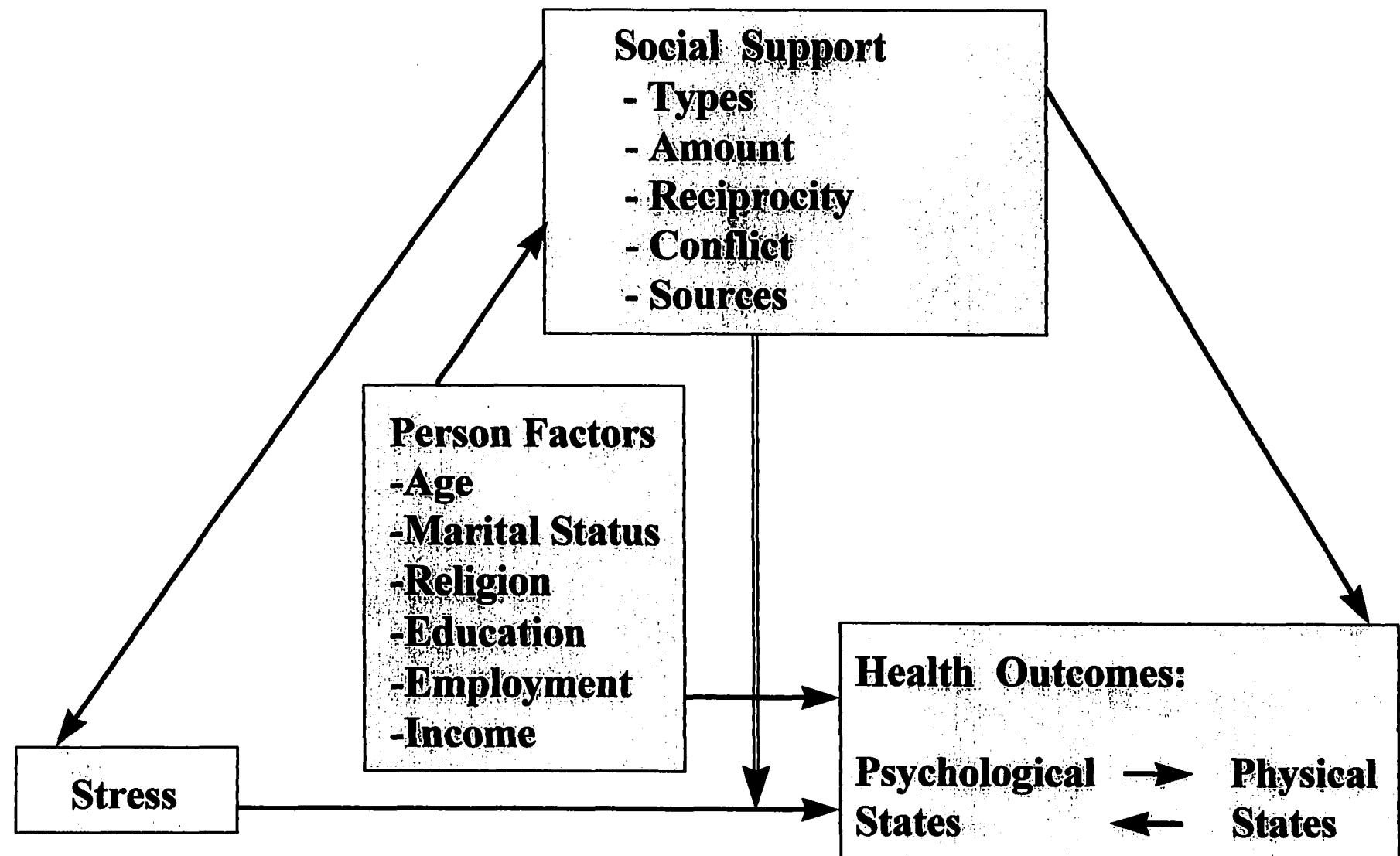


Figure 1: The Conceptual Framework: The Relationship of Stress, Social Support, Person Factors, and Health Outcomes: Psychological and Physical States

Note. → Main effects; ↔ Buffering effects

Research Questions and Hypotheses

The overall research questions were 1) What are the key features of social support of Japanese women with breast cancer and how do these affect their psychological and physical states? and 2) What are the reliability and validity of Western developed social support instruments and considerations when used on Japanese populations? There are two research questions under these above overall research questions.

Research question #1

What are the components of social support among Japanese women with breast cancer?

Hypotheses were the following:

- a. There are different types of social support with differences in amount that Japanese women with breast cancer are receiving.
- b. Social support among Japanese women with breast cancer is received and provided as a reciprocal support.
- c. There is a negative aspect in the social support Japanese women with breast cancer are receiving.
- d. Sources of social support among Japanese women with breast cancer are mainly family members and close friends, and group sources of social support exist.

Research question #2

What are the relationships of social support, person factors, and psychological and physical states among Japanese women with breast cancer?

...
...

Hypotheses were the following:

- a. Person factors are significantly related to types, amount, reciprocity, conflict, and sources of social support among Japanese women with breast cancer.
- b. Person factors are significantly related to psychological and physical states among Japanese women with breast cancer.
- c. There are significant relationships among types, amount, sources, reciprocity, and conflict of social support, and psychological and physical states among Japanese women with breast cancer.
- d. Person factors predict amount of social support among Japanese women with breast cancer.
- e. Person factors predict psychological states among Japanese women with breast cancer.
- f. Social support predicts psychological states among Japanese women with breast cancer.
- g. Social support predicts physical states among Japanese women with breast cancer.
- h. By statistically controlling physical states, person factors and social support predict psychological states among Japanese women with breast cancer.

Definition of Terms

For the purpose of this study, the following concepts were theoretically and operationally defined as stated below.

Stress

Lazarus and Folkman (1984) defined psychological stress as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p. 19). The diagnosis of cancer and the treatments for cancer are known to be a significant physical and psychological stress (Krouse & Krouse, 1982; Frank-Stromborg, Wright, Segalla, & Diekmann, 1984; Frank-Stromborg & Wright, 1984; Frank-Stromborg, 1989; Hughes, 1993; Stanton & Snider, 1993). Matsuki and others (1992a) described the psychological stress of Japanese mastectomy patients, especially at the times of receiving diagnosis of breast cancer and before breast surgery. Therefore, it is recognized that the diagnosis of breast cancer and the treatments for the cancer are stressful life events for Japanese women, so stress was not measured in this study.

Social support

1. Types and amount

Kahn (1979) defined social support as the following: Interpersonal transactions that include one or more of the following: the expression of positive affect of one person toward another; the affirmation or endorsement of another person's behaviors, perceptions, or expressed views; the giving of symbolic or material aid to another. (p. 85)

Referring to Kahn's definition, types of social support were

defined as positive affect, affirmation, and aid. Amount, as a dimension of social support, was defined as the degree of received social support of the total of the three types of social support. These dimensions of social support were operationally defined as scores on the Norbeck Social Support Questionnaire (NSSQ) (Norbeck, 1980). The scores on the subscales of Affect, Affirmation, and Aid were used as types of social support, and the scores of the Total Functional variable, the total scores of the three types of social support, were used as amount of social support.

The rationale for including these dimensions was that there is some evidence of the effects of types and amount of social support on health outcomes, psychological and physical states, of women with breast cancer (Woods & Earp, 1978; Bloom, 1982; Funch & Mettlin, 1982; Funch & Marshall, 1983; Bloom & Spiegel, 1984; Vachon, 1986; Lichtman et al., 1987; Ell et al., 1988; Friedman et al., 1988; Northouse, 1988; Spiegel et al., 1989; Zemore & Shepel, 1989; Levy et al., 1990; Primomo et al., 1990; Waxler-Morrison et al., 1991; Gotcher, 1992). In addition, types and amount of social support might be different among Japanese women with breast cancer because of the differences in interpersonal relationships in Japanese culture.

2. Reciprocity and conflict

Reciprocity was defined as "the perceived availability or occurrence of an exchange of emotional or tangible goods or services, or the returning of emotional or tangible goods

or services" (Tilden, Nelson, & May, 1990a, p. 338). Conflict was defined as "perceived discord or stress in relationships caused by behaviors of others or the absence of behaviors of others, such as the withholding of help" (Tilden et al., 1990a, p. 338). These two terms were defined operationally as the responses on the subscales of Reciprocity and Conflict in the Interpersonal Relationship Inventory (IPRI) (Tilden et al., 1990a). The IPRI consists of three subscales: Support, Reciprocity, and Conflict. To measure the dimensions of reciprocity and conflict, the subscales of Reciprocity and Conflict were used in this study.

The rationale for including reciprocity and conflict of social support was that since the nature of reciprocity and conflict in Japanese culture is different than in Western cultures, these dimensions of social support might be perceived differently in Japanese women, and they might have different effects on psychological and physical states among Japanese women with breast cancer. In addition, conflict, a negative element of social support, has not been explored in the studies of social support (Shinn, Lehmann, & Wong, 1984; Shumaker & Brownell, 1984; Wortman, 1984; Rook & Dooley, 1985; Tilden & Galyen, 1987).

3. Sources

Sources of social support were theoretically defined as origins of affect, affirmation, and aid that are provided by others, including the number of origins, duration of

relationships, and frequency of social contact. Sources of social support were operationally defined as the scores of the Total Network variable in the NSSQ (i.e., the sum of the number in personal network, duration of relationships, and frequency of social contact), and the responses to the Personal Network in the NSSQ (i.e., the list of the people of their social networks). In addition, since the NSSQ does not address group sources of social support, group sources were obtained through interviews.

The rationale for including sources of social support was that they might be different among Japanese since their interpersonal relationships are characterized as *miuchi* (intimate relationships such as family members and close friends), *nakama* (comfortable groups of friends and relatives), and *tanin* (strangers or outsiders), as well as *uchi* (private or inside) and *soto* (public or outside). Group sources of social support were also focused on because one of the characteristics of Japanese interpersonal relationships is group oriented values and behaviors.

Psychological states

A theoretical definition of psychological states was derived from Lazarus and Folkman's (1984) definition of psychological stress, which is defined as the state of an individual's psychological symptoms as the results of the relationships between the person and the environment that is appraised by the person as taxing or exceeding his or her

resources and endangering his or her well-being.

Psychological states were operationally defined as the subjects' responses on the 60-item General Health Questionnaire (60-item GHQ) (Goldberg, 1972). The total score of the 60-item GHQ was used to indicate psychological states.

The rationale for including psychological states was that it is a major health outcome in relation to social support among women who are experiencing stressful life events such as diagnosis and treatment of breast cancer (Woods & Earp, 1978; Bloom, 1982; Funch & Mettlin, 1982; Bloom & Spiegel, 1984; Vachon, 1986; Lichtman et al., 1987; Ell et al., 1988; Friedman et al., 1988; Northouse, 1988; Zemore & Shepel, 1989; Primomo et al., 1990; Gotcher, 1992). In addition, a few studies reported psychological states among Japanese women with breast cancer as significant health outcomes (Matsuki et al., 1990a; Matsuki et al., 1990b). Thus, psychological states need to be explored.

Physical states

Physical states were theoretically defined as the states of an individual's physical signs and symptoms which are commonly experienced by women with breast cancer. Physical states were operationally defined as subjects' responses to the Physical States Interview Form, which consists of signs and symptoms that are commonly experienced by women who have had breast surgery due to the malignant disease.

The rationale for including physical states was that it is one dimension of health outcomes of breast cancer (Funch & Marshall, 1983; Spiegel et al., 1989; Levy et al., 1990; Waxler-Morrison et al., 1991). Also, because there is no mind/body dichotomy in Eastern cultures, physical states need to be determined simultaneously with psychological states in Japanese culture.

Person factors

Person factors were defined as demographic characteristics which influence their social support, psychological and physical states. There were six characteristics: age, marital status, religion, and socioeconomic status (i.e., education, employment status, and income). Person factors were operationally defined as the response to the Person Factor Survey Form.

As influencing factors of social support and psychological states, age (Lin et al., 1986), employment status (Ensel, 1986a), marital status (Ensel, 1986b), and socioeconomic status (Ensel, 1986a) were reported. Education was a factor in social support among women with breast cancer (Feather & Wainstock, 1989). Religion in Japan might be characterized as participation in religious rituals. Because the majority of Japanese are Buddhists and Shintos (Reader et al., 1993), it is possible that the responses to religious questions might present little variance. However, religion was included because it is one of the dominant factors in Japanese culture.

Assumptions

Japanese culture is a factor in Japanese breast cancer patients' social support and their psychological and physical states. Social support has effects on psychological and physical states among Japanese women with breast cancer.

Limitations

The following limitations of this study were recognized:

1. The study was designed as a cross-sectional correlational study to measure Japanese women's social support at one point in time. A longitudinal design with multiple data collection points would yield a richer description of social support along the illness continuum and will be recommended for future study.
2. The sample was selected by convenience, and self-report was one of the data collection methods for the study.

Summary

In this chapter, the introduction, statement of the problem, purpose of this study, significance of the study, conceptual framework for the study, research questions and hypotheses, definition of terms, assumptions, and limitations were presented.

Chapter Two will review the literature relevant to this study.

CHAPTER II

REVIEW OF THE LITERATURE

Psychological and physical states of women with breast cancer will be reviewed in relation to 1) social support (i.e., types, amount, reciprocity, conflict, and sources), and 2) person factors (i.e., age, marital status, religion, and socioeconomic status, which is composed of education, employment status, and income). Also, illness-related factors (i.e., types of breast surgery, adjuvant treatments, stage of breast cancer, time since diagnosis of breast cancer, and breast reconstruction) will be reviewed for the sample inclusion criteria in this study.

Social Support

In this section, types, amount, reciprocity, conflict, and sources of social support related to psychological and physical states will be discussed.

Types

Several investigators reported that there were some significant relationships between types of social support and psychological states of women with breast cancer. Emotional support from family was reported as a significant factor in a patient's adjustment to breast cancer (Northouse, 1989a). Bloom and Spiegel (1984) reported that emotional support from family members affects the women's sense of well-being. Gotcher (1992) reported that family

support and patient-family interactions were positively related to a patient's psychological adjustment. They concluded that emotional support from family members was an important variable in distinguishing between well-adjusted and maladjusted patients. A positive correlation was found between family cohesiveness and adjustment to breast cancer (Bloom, 1982; Friedman et al., 1988). Primomo and others (1990) reported that affect and affirmation, as types of social support, were negatively correlated with depression. Hoskins and others (1996) examined the relationships between marital support (i.e., support from spouse) and emotional adjustment among married women with breast cancer at multiple points in time, from seven to 10 days postsurgical period to one year after breast surgery. They found significant correlations between support and emotional adjustment at most points.

Funch and Mettlin (1982) compared the effects of types of social support on dimensions of health outcomes. They reported that emotional support showed a positive influence on overall psychological adjustment, especially when it was from family members as well as professional support. However, financial support was positively correlated to physical recovery, but it was not correlated with psychological adjustment to breast cancer.

Moreover, group support intervention for breast cancer patients was reported as an effective strategy for improving mood (Spiegel et al., 1981; Taylor et al., 1986), and for

their longer length of life (Spiegel et al., 1989).

There were a few studies of social support among Japanese women with breast cancer. First, Yamamoto and Kojima (1995) studied types of social support of Japanese breast cancer patients. They measured social support through their Social Support Frequency Questionnaire which they developed for their study. Factor analysis showed that there were only two factors, as types of support: emotional and informational support. However, there was no further information about reliability and validity of the instrument. Matsuki and others (1992b) measured social support through the Japanese version of the Norbeck Social Support Questionnaire (JNSSQ) at two points in time: before admission to hospital and three years after mastectomy. They reported amount of social support as well as types: affect, affirmation, and aid. Amount and all types of social support were slightly increased from before admission to hospital to three years after mastectomy. Because of Japanese cultural characteristics, there may exist different types of social support. Also, as the above studies reported two or three types of social support, types of social support for Japanese women with breast cancer need to be clarified, and they should not be dependent on which instruments are used.

The studies of social support in Western cultures indicated there are some relationships between types of social support and health outcomes. Emotional support was positively correlated with psychological and overall

adjustment. Financial support was related to physical recovery, and group support related to improved mood states and length of life. The studies of Japanese women with breast cancer suggested that types of social support need to be clarified. Although there are no social support instruments with established reliability and validity to measure social support in Japanese women with breast cancer, it should not be dependent on which social support instruments are used. To explore appropriateness of the use of instruments of social support developed in Western cultures in measuring the social support of Japanese populations is significant.

In addition, Ura (1992), a Japanese sociologist, reviewed studies of social support that were conducted in Western cultures. His review of findings identified there were two types of social support, emotional support and instrumental aid. He added subcategories under each type of social support. For example, two subcategories under the emotional support were attachment/emotional and admiration or positive feedback; two subcategories under instrumental aid were direct and indirect provision of instrumental aid. According to Ura, these types of social support were assumed after his review of social support in Western literature. However, he suggested types of social support be clarified through empirical studies. The Western framework of types of social support may be different from types of social support in Japanese culture. He also suggested that studies of

social support need to consider how to integrate the other factors in social support, such as person factors and sources of social support.

In sum, types of social support were reported in relation to psychological and physical states on Western women with breast cancer such as emotional, professional, financial, and group support. The studies of social support of Japanese women with breast cancer suggested a need to clarify types of social support. Even though there are no social support instruments with established psychometric properties to measure social support in Japanese women with breast cancer, it should not be dependent on which social support instruments are used. Thus, types of social support was included to describe them and to investigate the relationships of Japanese breast cancer patients' psychological and physical states. In addition, Japanese cultural characteristics should be considered to determine appropriateness of use of social support instruments that were developed in Western cultures.

Amount

Amount, as a dimension of social support, can be described as correlations between amount of social support and psychological and physical states of breast cancer patients. Northouse (1988) reported that amount of social support and adjustment in mastectomy patients positively correlated at three days and 30 days after mastectomy. Hoskins and others (1996) found that women who perceived

more support had better emotional adjustment. Bloom (1982) reported that subjects who were spending more time on leisure activities and having greater social contact were in a better mood and felt less distress than those who spent less time with social activities. Zemore and Shepel (1989) reported a positive correlation between emotional support and adjustment to breast cancer. Funch and Marshall (1983) reported that social involvement showed a positive correlation with survival, length of life. Vachon (1986) noted that lack of social support correlated with psychological distress. In sum, these research reports indicated that there were positive correlations between the amount of social support, including social contact or social involvement, and psychological and physical states.

Amount of social support, and its relationships to physical complications was studied by Woods and Earp (1978). They compared the effectiveness of social support on psychological states between women with zero or one physical complication and women with two or more physical complications. They found that if women had only one physical complication, social support had a significant influence on their psychological states as these women were less depressed. However, when women had multiple physical complications, the amount of social support was increased, but the increased amount of social support did not show significant effects on depression. They concluded that the number of physical complications, two or more, induced the

availability of social support, but the increased social support had no effect on depression for women with multiple physical complications. Because the study examined these interactions of variables, the results revealed that amount of social support buffers the effects of physical complications on depression.

These studies of social support of Western women with breast cancer indicated that there were significant positive correlations among amount of social support, and psychological and physical states, and there were buffering effects of social support on physical states on psychological states such as depression. However, little is known about the relationships of amount of social support and psychological and physical states of Japanese women with breast cancer. Thus, amount of social support was included for describing and assessing the relationships of social support and psychological and physical states among Japanese women with breast cancer.

Reciprocity

Since reciprocity was defined as "the perceived availability or occurrence of an exchange of emotional or tangible goods or services, or the returning of emotional or tangible goods or services" (Tilden et al., 1990a, p. 338), in this section, the review of literature will include not only exchanging support with others, but also women with breast cancer providing support to others.

Only a few studies have reported on reciprocity of

social support among women with breast cancer. Northouse (1988) studied social support among mastectomy patients and their spouses. She noted that patients received support from their spouses, and they, in turn, provided support to their spouses. Primomo and others (1990) stated that reciprocity with her partner was higher than reciprocity with family, friends, or others; the reciprocity with her partner was related to less depression among chronically ill patients, including breast cancer patients. In addition, Ferrans (1994) reported, in her qualitative study on breast cancer patients, that respondents indicated helping others through activities, such as Reach to Recovery, church work or helping disabled people, helped the respondents to cope.

Even though there were only a few studies on reciprocity of breast cancer patients in Western cultures, they suggested that reciprocity may be an important factor in adjustment to breast cancer. One of the characteristics of Japanese culture is the reciprocal nature of Japanese interpersonal relationships; however, it has not been explored in the study of social support among Japanese women with breast cancer. Therefore, the relationship between reciprocity and psychological and physical states of Japanese women with breast cancer was determined.

Conflict

Even though the majority of studies of social support emphasized positive aspects of social support as leading to better psychological states, especially emotional support

from family members, Wortman (1984) mentioned that if support comes from the wrong person or if it is the wrong type of support, it may cause stress. Since one of the negative aspects of social support is conflict, which is defined as "perceived discord or stress in relationships caused by behaviors of others or the absence of behaviors of others, such as the withholding of help" (Tilden et al., 1990a, p. 338), the literature review on the studies of conflict or negative aspects of social support, included both negative results caused by perceiving or receiving support and caused by absence of support.

Lichtman and others (1987) noted that though most breast cancer patients received social support from family and friends that was warm and helpful, one-fourth of their study sample indicated that they experienced isolation due to rejection or withdrawal. In addition, Smith, Redman, Burns, and Sagert (1985) studied isolation and loneliness among breast, endometrial, and ovarian cancer patients. In their study, 17.2 percent of their sample ($N = 357$) indicated that they felt isolated or alone after their diagnosis of cancer, and this response was more likely to be higher in widowed and separated women than in single and married women. The evidence of feelings of isolation may influence family members' communication, which is a significant source of support for breast cancer patients. In addition, Dakof and Taylor (1990) interviewed 55 cancer patients, including breast cancer patients, and the study

indicated that the cancer patients had experiences of receiving helpful and unhelpful support from their spouses, family members, friends, acquaintances, other cancer patients, medical doctors, and nurses (e.g., their spouses viewed cancer patients as being too negative, unsupporting, not understanding ongoing worry about recurrence, and too much worrying or being pessimistic).

In Western cultures, a few studies indicated evidence of negative elements of social support; however, the studies did not examine how these negative elements affect psychological and physical states. Conflict, a negative element of social support, has not been a focus of studies of social support (Shinn et al., 1984; Shumaker & Brownell, 1984; Wortman, 1984; Rook & Dooley, 1985; Tilden & Galyen, 1987; House, Landis, & Underson, 1988; Smith, Fernengel, Holcroft, Gerald, & Marien, 1994). The study of social support should include not only positive elements of social support but also negative elements. Moreover, because of the characteristics of Japanese interpersonal relationships, especially maintaining harmony, avoiding shame and guilt, and valuing group orientation, conflict may be an important factor. However, little is known about conflict as a negative aspect of social support among Japanese women with breast cancer. Given the role of harmony in Japanese culture, as well as the limited attention given to conflict as an element of social support, conflict was included as a dimension of social support to describe and investigate the

relationships to psychological and physical states among Japanese women with breast cancer.

Sources

Sources of social support were defined as origins of affect, affirmation, and aid that are provided by others, including the number of origins, duration of relationships, and frequency of social contact. Therefore, in this section, the literature review on sources will include not only origins of support but also its number of origin, duration of relationships, and frequency of social contact.

Royak-Schaler (1991) reviewed studies on psychological process and interpersonal factors, and she noted that the major sources of support were family, physicians and other professionals, and other patients. Smith and others (1985) reported that spouses were the most important members in the network for married women, and relatives were the most important members for single women. Ferrans (1994) reported that the participants indicated that support from friends was important through the treatment process and afterward. Waxler-Morrison and others (1991) noted that among breast cancer patients who can call three or more friends for support or help, there was a positive correlation with their survival, compared to those with fewer than two friends. Northouse (1981) reported that there were strong negative correlations between the number of significant others and the fear of recurrence. However, Northouse (1988) reported, in a different study report, that social network size did

not show a significant correlation with adjustment of mastectomy patients at three days and 30 days after surgery.

Moreover, Matsuki and others (1992b) reported their correlational longitudinal study on anxiety related to social network size among Japanese women who have had mastectomy. They measured social network through the subscale of Total Network in the JNSSQ. They reported that the social network size was small (i.e., the mean was 6.2 before hospital admission for mastectomy and 8.7 at three years after mastectomy), and most of the support sources were family members and friends. The social network size and the level of anxiety were negatively correlated until three months after mastectomy. At three years after mastectomy, the subjects showed a larger social network size than before, but they received less support from each provider (Matsuki et al., 1992b).

In sum, in Western cultures, individual sources of social support have effects on psychological and physical states. In Japanese culture, as reported by Matsuki and others, sources of social support were family members and friends. Because of the characteristics of Japanese interpersonal relationships, the descriptions of *miuchi* (intimate relationships such as family members and close friends), *nakama* (comfortable groups of friends and relatives), and *tanin* (strangers or outsiders) as well as *uchi* (private or inside) and *soto* (public or outside),

family members and close friends might be major sources of social support for Japanese women with breast cancer. In addition, because of group oriented values and behaviors, which are the characteristics of Japanese interpersonal relationships, the sources of group social support should be determined.

Person Factors

In this section, person factors, age, marital status, religion, and socioeconomic status (i.e., education, employment states, and income) will be discussed.

Age

Age was studied in relation to social support as well as in relation to psychological adjustment. First, among women who have had mastectomy, age as a factor exhibited a positive correlation with receiving social support (Feather & Wainstock, 1989).

Second, there were some inconsistent findings in adjustment to breast cancer associated with age. Bloom (1982) reported that there were not significant relationships between psychological distress and age. However, Vinokur, Threatt, Caplan, and Zimmerman (1989) reported that age was a factor in psychological adjustment; older breast cancer patients indicated that they had better mood status than younger breast cancer patients. They also reported that older breast cancer patients showed lower levels of anxiety. Similarly, Trief and Donohue-Smith (1996)

found that younger women with breast cancer (i.e., younger than 54 years old) were higher in anxiety, depression, or anger than older women. Jamison, Wellish, and Pasnau (1978) studied breast cancer patients between 30 and 70 years of age. They reported that women over 45 years old had better psychological adjustment than those under 45 years old.

In sum, in Western cultures, age seems to be a factor in relation to receiving social support. The studies of age related to breast cancer patients' psychological states indicated both significant and non-significant findings. Thus, age was included to investigate its relations to psychological and physical states as well as to describe its relation to social support of Japanese women with breast cancer.

Marital status

Marital status demonstrated significant correlation with social support, psychological and physical states. Feather and Wainstock (1989) reported that married women with breast cancer received higher amounts of support of affect and aid than the others. Also, they found that divorced women had a larger social network than women who were single, separated, or widowed (Feather & Wainstock, 1989). Roberts and others (1994) studied differences in social support and its relationships with psychological states between married and single women with breast cancer. They reported that married women received more social support than single women, and they showed a significant

negative correlation between the amount of social support and depression, as compared to single women. Bloom (1982) reported that married women showed less psychological stress than those who were not married. Lewis, Zahlis, Shands, Sinsheimer, and Hammond (1996) reported that depression levels were significantly higher for single women with breast cancer compared to married or partnered women with breast cancer. Jamison and others (1978) reported that women who had longer marriages had better emotional adjustment. In addition, Neale, Tilley, and Vernon (1986) reported that married women with breast cancer survived significantly longer than those who were widowed.

In sum, in Western cultures, marital status, including the length of marriage, is a factor in social support, psychological and physical states. In Japanese culture, little is known about the relationships between social support and marital status and between marital status and psychological and physical states of breast cancer patients. Therefore, marital status was included in this study.

Religion

Among breast cancer patients, spirituality, or intrinsic religion, was positively correlated not only with their hope but also their spiritual well-being (Mickley, Soeken, & Belcher, 1992). Also, Northouse (1989a) reported that religion was a factor of helping women cope with breast cancer.

In Western cultures, a few studies indicated that

religion was positively correlated with adjustment to breast cancer. In Japan, the primary Japanese religions are Buddhism and Shinto. Christianity in Japan is less than one percent of the total Japanese population (Reader et al., 1993) so that this may present little variance. However, since Japanese religion is characterized by a participation in religious rituals, and religion is one of the dominant characteristics of Japanese culture (Tierney et al., 1994), religion was included in this study.

Socioeconomic status

Feather and Wainstock (1989) reported that breast cancer patients who were less educated received more emotional support than those with more education. Waxler-Morrison and others (1991) reported that there was no correlation between levels of education and survival. Furthermore, social relationships in the context of employment status were reported to have a positive correlation with survival. Waxler-Morrison and others (1991) studied the relationships between survival and social relationships; one of the assessed factors was employment status. They reported that employed women with breast cancer showed higher survival rates than unemployed women with breast cancer. In sum, a few studies indicated socioeconomic status as an association to social support and psychological and physical states in Western cultures.

Education is a factor of employment status and income in Western cultures. However, Japanese women who received

high education are not always employed. Okamoto and Naoi (1991) reported that about 19 percent of Japanese women who had their college or graduate degrees did not have jobs when they completed their education. In addition, about one-half of Japanese women 20 to 69 years old were unemployed, and half of these desired to be employed (Okamoto & Naoi, 1991). Lebra (1984) noted that career life in Japan tends to be sacrificed to being a wife and mother.

Different from Western societies, socioeconomic status in Japan may have different descriptions of social support and have effects on psychological and physical states. Thus, socioeconomic status (i.e., education, employment status, and income) was assessed as social factors, not only in relation to social support but also in relation to psychological and physical states.

Illness-related Factors

In this section, illness-related factors associated with health outcomes will be reviewed. The factors are types of breast surgery, adjuvant treatment, stage of breast cancer, time since diagnosis of breast cancer, and breast reconstruction.

Types of Breast Surgery

Studies reported that lumpectomy patients experienced fewer body image changes, less depression, less anxiety, and better psychological adjustment than others (Sanger & Reznikoff, 1981; Bartelink, van Dam, & van Dongen, 1985; de

Haes & Welvaart, 1985; Taylor et al., 1985; Fallowfield, Baum, & Maguire, 1986; Lasry et al., 1987; Kemeny, Wellisch, & Schain, 1988; Meyer & Aspegren, 1989; Ganz, Schag, Lee, Polinsky, & Tan, 1992; Scain, d'Angelo, Dunn, Lichter, & Pierce, 1994). For example, Taylor and others (1985) compared mood, self-esteem, and global adjustment among the three groups of women who underwent different surgical treatments: lumpectomy, modified radical mastectomy, and radical mastectomy. They reported that women who had a lumpectomy had a better psychological adjustment than women who had modified radical mastectomy or radical mastectomy.

In contrast, some studies reported that there were no significant differences in anxiety, depression, or fear of cancer recurrence in women with different types of breast surgeries. Omne-Ponten, Holmberg, Bergstrom, Sjoden, and Burns (1993) reported that there were no significant differences in anxiety between women who have had breast-conserving surgery and those who have had mastectomy. Holmberg, Omne-Ponten, Burns, Adami, and Bergstrom (1989) also reported that anxiety or depression had no significant relationship to types of surgery, but there was a tendency to be less anxious and less depressed for women who chose breast-conservation as compared to women who had mastectomy. Steinberg, Juliano, and Wise (1985) reported that there were no significant differences in mood disturbance or depression between lumpectomy and mastectomy patients. In addition, de Haes, van Oostrom, and Welvaart (1986) reported that there

was no relation between types of surgery and fear of recurrence.

Other studies reported that significant and non-significant findings in different types of breast surgery depended on the specific aspects that were evaluated. Wellish and others (1989) compared several aspects of adjustment between mastectomy and lumpectomy patients about 21 months after their surgeries. They reported that lumpectomy patients had significantly better body images and a greater sense of sexual desirability than mastectomy patients, but there was no significant difference in medical concerns or problems in social activities.

Types of surgery may be determined by the extent or stages of the cancer. The above findings were not consistent, but types of surgery may be a confounding variable. Therefore, this factor needs to be controlled. In addition, in Japan, since 70 to 80 percent of breast surgery involves either a modified or radical mastectomy (Kobayashi et al., 1990; Fukutomi, 1996), this study included only women who have had a modified or radical mastectomy.

Adjuvant Treatment

Fallowfield and others (1986) reported significantly lower rates of anxiety and depression in patients who did not receive any adjuvant treatment compared to those who were treated with lumpectomy plus radiation therapy. Hughson, Cooper, McArdle, and Smith (1986) compared patients who had chemotherapy and radiation therapy with those who

had radiation alone. They reported high depression and anxiety among subjects who had both chemotherapy and radiation compared to those who had radiation alone. Dean (1987) reported that mastectomy patients who also had chemotherapy or radiation therapy had significantly lower psychological adjustment than those who had mastectomy only. These studies indicated that receiving adjuvant treatment has negative effects on psychological states such as anxiety and depression.

In contrast, Taylor and others (1985) reported that there were no significant differences in overall psychological adjustment between women who had received radiation therapy as compared to those who had chemotherapy. In addition, when they examined only chemotherapy patients, there was no relationship to poorer psychological adjustment when previous and ongoing chemotherapy were assessed together. There were significant relationships to psychological adjustment when only ongoing chemotherapy was assessed at the time of data collection. These findings may be related to side effects from the therapy, or their concerns of cancer prognoses requiring the chemotherapy.

The findings implied that adjuvant treatment cannot be assessed as a simple factor related to psychological states without considering other factors such as cancer prognoses that require adjuvant treatments and side effects from the treatments themselves. Side effects from adjuvant treatment for breast cancer vary in not only types and characteristics

of adjuvant treatment but also individual reactions (Lovo, Leventhal, Easterling, & Nerenz, 1989; Wickham, 1989; Baird, Donehower, Stalsbroten, & Ades, 1991; Dodd, 1988; Dodd, & Dibble, 1993; Groenwald, Goodman, Frogge, & Yarbro, 1993; Passik, Newman, Brennan, & Holland, 1993; Barnicle, 1996; Knobf, 1996; O'Rourke & Robinson, 1996; Wickham, 1996). Adjuvant treatment may be contributing to the complexity of phenomena as a confounding variable. Thus, in this study, receiving adjuvant treatment such as chemotherapy and radiation therapy at the time of data collection was an exclusion criterion. Also, patients who have had adjuvant treatment within the last six months were excluded due to possible lasting side effects from the adjuvant treatments. Moreover, recurrence of breast cancer and other types of cancer diagnosis require treatments for the cancer and may have effects on psychological and physical states. Therefore, only those diagnosed with breast cancer as the first and only cancer diagnosis were included in this study.

Stage of Breast Cancer

Vinokur and others (1989) reported that there was a positive correlation of anxiety and depression with severity of breast cancer. Taylor and others (1985) stated that poor prognoses were associated with poor psychological adjustment. Casseileth and others (1985) compared three groups of breast cancer patients: active care, follow-up care, and palliative care. They found that mood disturbance was the highest in palliative treatment compared with active

and follow-up care women. The highest anxiety level and greatest mood disturbance were seen in women undergoing palliative therapy. Patients who were receiving follow-up care were the lowest in mood disturbance and anxiety (Casseileth et al., 1985).

In sum, patients who were at the advanced stage were high in mood disturbance, high anxiety, and poor overall adjustment. Subjects who require palliative care may need to deal with both physical and psychological concerns intensely so they may have different stress. Nelles, McCaffrey, Blanchard, and Ruckdeschel (1991) reviewed studies of social support among breast cancer patients, and they suggested that the studies of social support need to evaluate social support at the different stages of cancer. In order to control for stage of disease as a confounding variable, only patients who were diagnosed with the early stages of breast cancer, stage I and stage II, and those who were not having recurrence of the cancer or not receiving palliative care at the time of data collection were included in this study.

Time Since Diagnosis of Breast Cancer

Some studies compared psychological adjustment of breast cancer patients with breast benign patients at different points in time. Maguire and others (1978) investigated the differences in psychological process between mastectomy patients and a control group of breast benign patients, and they reported that there was a high psychiatric morbidity in the first year after mastectomy. Morris, Greer, and White

(1977) conducted a longitudinal study and compared on psychological and social adjustment of mastectomy patients with breast benign patients. They reported that 70 percent of their mastectomy patients were no longer stressed at one year after mastectomy, and at two years, there was no significant difference in social adjustment between mastectomy patients and the control group of breast benign patients.

Several studies compared psychological states of breast cancer patients at different points in time. Wolberg and others (1989) reported that there were no significant differences in the levels of anxiety among breast cancer patients between the time of diagnosis and the time of completion of treatment. Northouse (1989b) studied adjustment to breast cancer at three days, 30 days, and 18 months after mastectomy. She reported that as time since surgery increased, levels of positive mood and role functioning improved, but levels of distress did not improve. Worden and Weisman (1977) found that breast cancer patients' emotional distress was at a peak at about two to three months after mastectomy. According to Wolberg and others (1989), breast cancer patients had less mood disturbance and better psychological adjustment at the completion of treatment for the cancer than at the time of diagnosis. Wong and Bramwell (1992) compared anxiety levels of women who had mastectomy at one to two days before hospital discharge and one to two weeks after hospital

discharge. They found that levels of anxiety were not changed at these two points in time. Polivy (1977) stated that breast cancer patients indicated better psychological states immediately after surgery than at six to 11 months after surgery. She concluded that there was denial of loss initially after their surgery but that, over time, the denial was broken down by the reality of the loss.

A few studies investigated breast cancer patients psychological or physical concerns at different points in time. Jamison and others (1978) wrote that the most difficult time for breast cancer patients occurred when they discovered the lump in their breast, even more than the postoperation days in the hospital or more than two to three months after surgery. Cohen (1982) described breast cancer patients' different concerns at different times: at the time she discovered a lump, after several months or years. They expressed fear of not surviving surgery, of disfigurement following mastectomy, of cancer cells in the lymph glands, and of the effects of adjuvant treatment. These reports indicated that women with breast cancer had some concerns all the time. Moreover, Polinsky (1994) reported on long-term breast cancer survivors' physical states. Her study subjects ($N = 223$) were 16-month to 32-year survivors who had mastectomy or lumpectomy with or without axillary node dissection (204 subjects, 91.5%, had axillary node dissection). They still indicated physical effects, such as arm weakness, breast sensation, phantom breast syndrome, arm

swelling, and numbness in areas affected by surgery.

In sum, the studies of psychological adjustment showed that there were no significant differences if the studies compared women with benign breast disease and women with breast cancer at a few years after mastectomy. There were some indications that mood was influenced by time after surgery; a longer time was related to improved mood status. There were no significant changes in anxiety related to time since diagnosis if the studies compared the levels of anxiety among breast cancer patients within a short period of time. Regarding psychological states, the Polivy study (1977) revealed that women immediately after surgery indicated better psychological states than those six months after surgery because of denial. In addition, women with breast cancer had psychological and physical concerns all the time. In these studies, time since surgery or time since diagnosis with breast cancer varied, but women with breast cancer still had psychological and physical concerns even years after diagnosis and after breast surgery. Reviewing these study findings, in this study, breast cancer patients were included if they were at least six months beyond mastectomy and no longer than five years after mastectomy. Six months after mastectomy was used as a minimum term because it is the factor of denial in relation to better psychological states (Polivy, 1977), and because it is a recovery period for mastectomy. The period of five years after mastectomy was employed as a maximum term because

survival rate of other types of cancer is usually determined at five years. Time may influence the patients' perceptions of cancer in both their psychological and physical states, even though breast cancer survival is determined among health care professionals at 10 years after the diagnosis, and even though women with breast cancer have their psychological and physical concerns all the time even years after being diagnosed with breast cancer.

Breast Reconstruction

Psychological and physical outcomes also have been studied in women with breast cancer who received breast reconstruction. First, some studies reported on breast reconstruction related to psychological adjustment (Noone, Frazier, Hayward, & Skiles, 1982; Stevens et al., 1984; Schain, Wellisch, Pasnau, & Landsverk, 1985; Wellisch, Schain, Noone, & Little, 1985; Filiberti et al., 1986; Mansel, Horhan, Webster, Shrotria, & Hughes, 1986). For example, Filibert and others (1986) studied psychological states of breast cancer patients who have had breast reconstruction (N = 43). Among these 43 subjects, 33 subjects (76.7%) were satisfied with the results of breast reconstruction, 16 subjects (37.2%) indicated better body image, and 16 subjects (37.2%) proved to themselves that they had overcome the disease. Noone and others (1982) interviewed 28 subjects who had immediate breast reconstruction at the time of mastectomy. Twenty-five subjects (89.2%) indicated that immediate breast

reconstruction helped them cope with the emotional aspects of their mastectomy experiences, and 26 subjects (92.8%) stated that they were happy with their breast reconstruction. In contrast, Taylor and others (1985) compared mastectomy patient's adjustment between reconstructed women ($n = 6$) and nonreconstructed women ($n = 25$), and they reported that there were no significant differences in adjustment. However, as discussed by the investigators, the sample size ($N = 31$) was too small to investigate statistical significance due to low power.

Some studies focused on the time factor involved in receiving breast reconstruction. Goin and Goin (1982) investigated adjustment of 10 women who have had breast reconstruction. They stated that immediate breast reconstruction appeared better adjustment. Stevens and others (1984) compared some psychological aspects between women who had immediate breast reconstruction ($n = 13$) and those who had delayed breast reconstruction ($n = 12$). Women who had immediate breast reconstruction were more satisfied with reconstruction, had less sexual difficulties, were less depressed, and had less body image disturbance than women who had delayed breast reconstruction. In a similar study, Wellisch and others (1985) found significantly higher psychological symptoms in women who had delayed breast reconstruction ($n = 38$) than in those who had immediate breast reconstruction ($n = 24$). In contrast, Schain, Wellish, Pasnau, and Landsverk (1985) compared psychological

symptoms among three groups: immediate breast reconstruction ($n = 25$), early breast reconstruction (i.e., no later than one year, $n = 13$), and delayed breast reconstruction (i.e., later than one year, $n = 25$). They found that there were no significant differences among the three groups, but they reported that there were slightly fewer numbers of psychological symptoms in the early breast reconstruction group than the other two groups. In sum, these studies revealed that receiving breast reconstruction was related to better psychological adjustment when compared to not receiving breast reconstruction, and immediate or early reconstruction appeared better psychological adjustment than delayed breast reconstruction.

Moreover, some studies reported that types of breast reconstruction related to psychological adjustment. Mansel and others (1986) compared the psychological states of women among three types of immediate breast reconstruction: rectus abdomins ($n = 45$), latissimus dorsi ($n = 38$), and subpectoral implants without a flap ($n = 12$). They stated that there were no significant differences in the patient's reaction to reconstruction, their cosmetic results, and psychological assessment among women with these three types of breast reconstruction. In addition, according to Goin and Goin (1988), the procedure of tissue expansion was noted as an emotionally distressing factor during the actual expansion.

Furthermore, physical complications from breast

reconstruction are related to psychological and physical states of the patient. Mansel and others (1986) noted that potential physical complications may occur from breast reconstruction such as flap necrosis and incisional hernia of the abdominal wound. However, Knobf and Stahl (1991) noted that the rate of physical complication from breast reconstruction was less than 10 percent. They listed physical complications such as skin necrosis, seroma, hematoma, capsular contractures, infection, loss of the implant, delayed wound healing, cellulitis, and specifically with tissue expanders, deflation and failure to expand.

Johnson and others (1989) reported that the rate of breast cancer recurrence did not differ between women who had had breast reconstruction and those who had not.

Breast reconstruction is a significant factor in the psychological and physical states of women who have had a mastectomy. Although physical complications may present potential problems, psychologically, breast reconstruction may provide better psychological adjustment, especially if it is immediate. In Japan, the number of women receiving breast reconstruction is related to the medical institutions and breast surgeons. In order to control the effects of breast reconstruction as a confounding variable, women who have received breast reconstruction were excluded from this study.

Through the above review of the illness-related factors, five sample inclusion criteria were listed as the

following:

1. Diagnosis of stage I or stage II breast cancer at the time of diagnosis.
2. Mastectomy, either radical or modified, and no less than six months and no more than five years after mastectomy.
3. No adjuvant treatment at the time of data collection, or if previous adjuvant treatments, it must be at least six months after the completion of chemotherapy and/or radiation therapy.
4. No breast reconstruction surgery received.
5. No recurrence of breast cancer, no other cancer diagnoses, or no palliative care at the time of data collection.

In addition to the above criteria developed from illness-related characteristics, four inclusion criteria were also determined.

1. Age: over 20 years old with no upper limitation. It was to include participants from a variety of generations to the study.
2. Place of birth and residence: A participant must be a Japanese woman who was born in Japan and lived in Japan. It was to exclude participants who have been exposed to other cultures.
3. Informed of a diagnosis of breast cancer as "breast cancer." This criterion was included since not all breast cancer patients are informed of their diagnosis in Japan (Long & Long, 1982; Ross, 1995; Watanabe, 1996).

4. No psychiatric disorders or no receiving psychiatric treatment.

These inclusion criteria were seen the Inclusion Criteria Form (Appendix A).

Summary

In this chapter, a critique of relevant literature was presented. Reviewing the studies of women with breast cancer in Western cultures, dimensions of social support, and person factors related to psychological and physical states were reviewed, but only a few studies on Japanese women with breast cancer were described. Illness-related factors were also reviewed to develop inclusion criteria.

Chapter Three will discuss the methodology of this study.

CHAPTER III

METHODOLOGY

The design, description of the setting, sample, instrumentation, data collection procedures, pilot study, and data analyses will be presented in this chapter.

Design

This study combined a descriptive correlational design with a qualitative approach. A cross-sectional study was designed using quantitative techniques, and a qualitative portion was added to fulfill the overall purposes of the research: 1) to test the reliability and validity of instruments developed to measure social support with Western populations when used with Japanese women who are experiencing breast cancer, 2) to describe social support among Japanese women with breast cancer, 3) to investigate how social support affects their psychological and physical states, and 4) to explore appropriateness of the use of instruments of social support developed in Western cultures in measuring social support in Japanese populations. In the quantitative portion of the study, social support instruments developed in Western cultures were used; in the qualitative portion of the study, an interview method was used to more fully understand social support as experienced by Japanese women with breast cancer.

Description of the Setting

This study was conducted at the Outpatient Breast Clinic at one cancer center located in a metropolitan area in Japan. In the cancer center, patients diagnosed with breast cancer were hospitalized to receive major treatments for the cancer. The length of hospital stays in Japan tends to be long (Iglehart, 1988; Yamamoto, Kobayashi, & Yano, 1993), and the majority of the patients at the cancer center were hospitalized for two to three weeks. After their discharge, they continued to receive their treatments and follow-up care at the Outpatient Breast Clinic. Subjects were recruited during an outpatient visit.

Sample

Obtaining the Sample

Prior to the initiation of the study, the University of Maryland Institutional Review Board reviewed and approved this plan for protection of human subjects in this study (Appendix B). Use of copyrighted instruments was approved by the instrument developers or the company holding copyright (Appendix C).

The research plan and letter that described the study were sent to the setting. Meetings were held with nursing staffs and medical doctors, where the proposal was presented and discussed. Then, data collection was initiated. In order to communicate the issues of procedures and progress of data collection, discussion with nursing staffs was held

periodically during the data collection term. No major issues were raised.

Sampling

For the quantitative portion of the study, a convenience sampling technique was used. The sample size was determined based on plans to perform Pearson correlation and multiple regression analysis. For the qualitative portion of study, based on demographic and illness-related characteristics of the convenience sample, purposive sampling was used to include women with a variety of demographic and illness-related characteristics that might offer a variety of experiences and perceptions of social support.

During the data collection period, 171 potential subjects were listed. Among the 171, 145 potential subjects whom the investigator could contact with were invited to participate in this study. At this time, the study was explained and questions were answered. One hundred thirteen subjects agreed to participate in the study, but 32 potential subjects did not. Therefore, the participation rate was 77.9 percent, and refusal rate was 22.1 percent. The reasons for refusals were: lack of time because of working situations ($n = 10$) ; having many medical examinations for the day ($n = 2$) ; having appointments with family members or friends right after physical assessment ($n = 8$) ; needing to take care of ill family members at home or at other hospitals ($n = 6$) ; physical disabilities, such as

being unable to write, hear, or see ($n = 3$); and no desire to participate in the study due to being the first visit to the cancer center after her discharge ($n = 1$) and having family crises ($n = 2$).

Comparison of the Sample with those Refusing to Participate

Based on medical records data, t-tests and Chi-square tests were performed to examine differences between the patients who chose to participate ($N = 113$) and those who refused ($N = 32$). Two t-tests were performed to examine the differences in interval level data (i.e., age and months after breast surgery) between the two groups: the participant group and the nonparticipant group. The t-test on age was compared: the participant group ($M = 54.12$; $SD = 9.81$) and the nonparticipant group ($M = 57.72$; $SD = 9.25$). The results showed there were no significant differences in age for the two groups, $t (143) = -1.92$, $p = .06$. The t-test on months after breast surgery also was compared: the participant group ($M = 30.31$; $SD = 15.11$) and the nonparticipant group ($M = 27.00$; $SD = 16.07$). The results were not significant, $t (143) = 1.04$, $p = .30$.

Moreover, two Chi-square tests were performed to examine the differences in nominal level data (i.e., stage of breast cancer and surgery types) between the two groups. The Chi-square test on the stage of breast cancer, stage I and stage II, was not significant, $\chi^2 (1, N = 145) = .00737$, $p = .93$. The Chi-square test on surgery types, modified radical mastectomy and radical mastectomy, was not

significant, χ^2 (1, N = 145) = .91991, p = .34.

In sum, based on the results of these t-tests on age and months after breast surgery and Chi-square tests on the stage of breast cancer and surgery types, there were no significant differences between the women who participated and those who did not participate.

Protection of Human Subjects

Potential participants were informed of the study by the investigator when they visited the Outpatient Breast Clinic for their follow-up care. The purpose of the study, procedures, risks and benefits, confidential treatment of any information received, the voluntary nature of participation, and the lack of penalty for withdrawal from the study were explained to them. There was no documentation of personal identification on any data collection forms. They were given the opportunity to refuse to participate, and 32 individuals did so.

Description of the sample

The data were obtained over a five-month period starting in May, 1996 and ending September, 1996. The convenience sample of 113 subjects for the quantitative portion of the study will be described. In addition, the 16 women from that 113 who also participated in the qualitative interview will be presented.

As described in Chapter Two, the inclusion criteria were the following:

1. Age: over 20 years old with no upper limitation.

2. Place of birth and residence: A participant must be a Japanese woman who was born in Japan and lived in Japan.
3. Informed of a diagnosis of breast cancer as "breast cancer."
4. No psychiatric disorders or no receiving psychiatric treatment.
5. Diagnosis of stage I or stage II breast cancer at the time of diagnosis.
6. Mastectomy, either radical or modified, and no less than six months and no more than five years after mastectomy.
7. No adjuvant treatment at the time of data collection, or if previous adjuvant treatments, it must be at least six months after the completion of chemotherapy and/or radiation therapy.
8. No breast reconstruction surgery received.
9. No recurrence of breast cancer, no other cancer diagnoses, or no palliative care at the time of data collection.

The demographic characteristics of the 113 subjects were presented in Table 3.1. The age range was 33 to 83 years, with a mean of 54.12 years ($SD = 9.81$). Ninety (79.7%) subjects were married. Sixty-seven (59.3%) subjects identified their religious beliefs as "none," six (5.3%) subjects as Buddhism and Shinto, 29 (25.7%) subjects as Buddhism, two (1.8%) subjects as Shinto, four (3.5%) subjects as Christianity, and four (3.5%) subjects as other. Among these identified as having some religious beliefs ($n =$

45), only 24 (21.2%) subjects described their religious activities, as occurring once a year to everyday. About one-half of the subjects ($n = 51$, 45.1%) had a high school education. Fifteen (13.3%) subjects had their education under the Japanese Old Educational System, which was characterized as varying in quality and quantity of formal education because it was before and during World War II. For example, school children were supporting and participating in agricultural and/or factory work, instead of studying at schools. About one-half of the subjects ($n = 58$, 51.3%) were employed, either full-time, part-time, or self-employed. The household income range was 2,400,000 to 22,000,000 in Japanese Yen, with a mean of 9,076,811.59 in Japanese Yen ($SD = 4,656,751.74$). [At the time of data collection, one U.S. dollar equaled to 100 to 110 in Japanese Yen]. The number of family members ranged, excluding the subject, from zero to four, with a mean of 2.12 members ($SD = 1.20$). The number of relatives living within 80 kilometers (i.e., 50 miles) ranged, including family members, from zero to 55, with a mean of 13.68 members ($SD = 12.58$). The subjects who were attending self-help groups were only three (2.7%); while the subjects who have contact with other cancer patients privately were 61 (54.0%). For some subjects, there were missing data.

Table 3.1
Demographic Characteristics of the Sample

Characteristic		n	%
Age	33 - 39	4	3.5
	40 - 49	38	33.6
	50 - 59	39	34.5
	60 - 69	23	20.4
	70 - 79	7	6.2
	80 - 83	2	1.8
	TOTAL	113	100.0
		M	54.12
		SD	9.81
		Range	33 - 83
Marital Status	Never married	4	3.5
	Married:		
	- Live together	89	78.8
	- Live separately due to job reason	1	0.9
	Separated	1	0.9
	Divorced	9	8.0
	Widowed	9	8.0
	TOTAL	113	100.1*
Religion	Buddhism & Shinto	6	5.3
	Buddhism	29	25.7
	Shinto	2	1.8
	Christianity	4	3.5
	Others	4	3.5
	None	67	59.3
	Missing	1	0.9
	TOTAL	113	100.0
Religious activities: Respondents in the above, except 'None' or missing (n = 45)			
No activities	21		
Not so often (1/year)	18	—	
Sometimes (1/month)	3	—	n = 24
Often (1/week)	2	—	(21.2%)
Very often (1/day)	1	—	

Note. * Percent does not add up to 100% due to rounding.

Table 3.1 (Continued)

Characteristic		n	%
Education	Junior high school	7	6.2
	High school	51	45.1
	Junior college	19	16.8
	College	12	10.6
	Technical school	8	7.1
	Old Educational System	15	13.3
	Missing	1	0.9
<hr/>			
	TOTAL	113	100.0
<hr/>			
Employment Status	Employed: Full-time	24	21.2
	Employed: Part-time	20	17.7
	Self-employed	14	12.4
	Homemaker	29	25.7
	Unemployed	24	21.2
	Retired	1	0.9
	Missing	1	0.9
<hr/>			
	TOTAL	113	100.0
<hr/>			
Income: Household (in Japanese yen)			
2,400,000 - 4,999,999	13	11.5	
5,000,000 - 9,999,999	30	26.5	
10,000,000 - 14,999,999	15	13.3	
15,000,000 - 19,999,999	6	5.3	
20,000,000 - 22,000,000	5	4.4	
Missing	44	38.9	
<hr/>			
	TOTAL	113	99.9*
<hr/>			
M	9,076,811.59		
SD	4,656,751.74		
Range	2,400,000 - 22,000,000		

Note. * Percent does not add up to 100% due to rounding.

Table 3.1 (Continued)

Characteristic	n	%
Number of Family Members in Household, Excluding the Subject		
0	7	6.2
1	35	31.0
2	26	23.0
3	26	23.0
4	18	15.9
Missing	1	0.9
TOTAL	113	100.0
		<u>M</u> 2.12
		<u>SD</u> 1.20
		Range 0 - 4
Number of Relatives who live within 80 kilometers (i.e., 50 miles)		
0	3	2.7
1 - 9	44	38.9
10 - 19	27	23.9
20 - 29	10	8.8
30 - 39	6	5.3
40 - 49	6	5.3
50 - 55	3	2.7
Missing	14	12.4
TOTAL	113	100.0
		<u>M</u> 13.68
		<u>SD</u> 12.58
		Range 0 - 55
Attending Self-Help Group		
Yes	3	2.7
No	109	96.5
Missing	1	0.9
TOTAL	113	100.1*
Having Contact with Other Cancer Patients		
Yes	61	54.0
No	44	38.9
Missing	8	7.1
TOTAL	113	100.0

Note. * Percent does not add up to 100% due to rounding.

The illness-related characteristics of the 113 subjects were presented in Table 3.2. By use of the TNM method of breast cancer stage, 61 (54.0%) subjects were classified as the Stage I, and 52 (46.0%) subjects were classified as the Stage II. Only one (.9%) subject had a radical mastectomy, and the other 112 (99.1%) subjects had modified radical mastectomy. Among the 112 subjects who have had modified radical mastectomy, one (.9%) subject had bilateral surgery. In terms of the number of months after their surgeries, 21 (18.6%) subjects were six to 12 months, 24 (21.2%) subjects were 13 to 24 months, 29 (25.7%) subjects were 25 to 36 months, 22 (19.5%) subjects were 37 to 48 months, and 17 (15.0%) subjects were 49 to 60 months. Regarding adjuvant treatments received in the past, 63 (55.8%) subjects had chemotherapy, and only one (.9%) subject had radiation therapy. Six (5.3%) subjects were having ongoing hormonal therapy at the time of data collection. About one-third of the subjects ($n = 42$, 37.2%) used a commercially produced breast prosthesis. Over one-half of the subjects ($n = 73$, 64.6%) were postmenopausal, and about one-third of the subjects ($n = 38$, 33.6%) had other medical problems (e.g., hypertension, diabetes, and arthritis).

Table 3.2
Illness-Related Characteristics of the Sample

Characteristic	n	%
Stages of the breast cancer:		
TNM Method		
Stage I	61	54.0
Stage II	52	46.0

TOTAL	113	100.0
Types of breast surgery		
Radical mastectomy	1	0.9
Modified radical mastectomy	112	99.1

TOTAL	113	100.0
Months after breast surgery		
6 - 12	21	18.6
13 - 24	24	21.2
25 - 36	29	25.7
37 - 48	22	19.5
49 - 60	17	15.0

TOTAL	113	100.0
	M	30.31
	SD	15.11
	Range	6 - 60
Chemotherapy in past		
Yes	63	55.8
No	50	44.2

TOTAL	113	100.0
Radiation therapy in past		
Yes	1	0.9
No	112	99.1

TOTAL	113	100.0
Receiving ongoing hormonal therapy		
Yes	6	5.3
No	107	94.7

TOTAL	113	100.0

Table 3.2 (Continue)

Characteristic	n	%
Use of prosthesis		
Using one on the market	42	37.2
Using hand made prosthesis	31	27.4
Filling gauze and/or towels	15	13.3
Using one for regular bras	10	8.8
Using combination of the above	4	3.5
Not using any types	11	9.7
TOTAL	113	99.9*
Menopausal Status		
Pre-	29	25.7
Peri-	11	9.7
Post-	73	64.6
TOTAL	113	100.0
Other medical problems (e.g., Hypertension, Diabetes, and Arthritis)		
Yes	38	33.6
No	75	66.4
TOTAL	113	100.0

Note. * Percent does not add up to 100% due to rounding.

Among the 113 subjects, purposive sampling was performed to solicit for the qualitative interview. Women with a variety of demographic and illness-related characteristics were chosen so that a variety of experiences and perceptions of social support would be possible. Twenty-one women were invited to participate in both the quantitative and qualitative portions of this study. Among the 21, five women agreed to participate only in the quantitative portion of study but not in the qualitative portion of study. The reasons for refusals were having no time for the interview but only for the quantitative data

collection. These five women were asked due to their demographic characteristics of being single, in her 30s, and full-time employee ($n = 1$), being in her 80s ($n = 1$), being separated ($n = 1$), having a college degree ($n = 1$), and attending a self-help group for breast cancer patients ($n = 1$). Eventually, 16 women participated in both qualitative and quantitative portions of this study.

The demographic and illness-related characteristics of the 16 interviewed participants were presented in Table 3.3. About one-half ($n = 7$, 43.8%) of the participants were in their 50s; about one-half ($n = 7$, 43.8%) of the participants had a high school education. Over one-half ($n = 9$; 56.3%) of the participants were married; about one-third ($n = 5$; 31.3%) of the participants identified their employment status as homemaker, and over one-half ($n = 9$, 56.3%) of the participants were employed either full-time, part-time, or self-employed. In terms of religious belief, over one-half ($n = 10$, 62.5%) of the participants identified as none.

About one-third ($n = 6$; 37.5%) of the participants were in the second year following surgery. The others were either within the first year of surgery, the third, the fourth, or in the fifth year. None had had radiation therapy, but one-half ($n = 8$; 50.0%) of the participants received chemotherapy in the past as adjuvant treatment therapy. Three (18.8%) participants were having ongoing hormonal therapy at the time of data collection.

Compared with the characteristics of the 113 subjects,

the characteristics of the 16 participants lacked a woman who is in her 30s or 80s, who is separated, who is attending a self-help group, who had a radical mastectomy, or who had radiation therapy in past.

Table 3.3
Demographic and Illness-Related Characteristics of
the 16 Interviewed Participants

Age	Education	Marital Status	Employment Status	Religion	Months After Surgery	Adjuvant TX in Past	Ongoing Hormonal TX
74	Old ED system	Widowed	Homemaker	Buddhism	12	No	No
76	Old ED system	Widowed	Retired	Buddhism	53	Yes	No
50	High school	Married	Homemaker	None	7	No	No
40	Junior college	Married	Homemaker	None	9	No	Yes
59	High school	Married	Part-time	Buddhism	15	Yes	No
50	Technical School	Divorced	Part-time	None	42	No	No
51	High school	Divorced	Full-time	Christianity	13	No	Yes
52	Junior college	Married	Homemaker	Buddhism	31	No	No
43	High school	Married	Self-employed	None	42	Yes	No
52	High school	Married	Part-time	Shinto	17	No	Yes
60	Junior college	Married	Part-time	None	48	Yes	No
66	Old ED system	Widowed	Retired	None	23	Yes	No
46	College	Married	Part-time	None	35	Yes	No
50	High school	Married	Homemaker	None	22	Yes	No
48	High school	Married	Self-employed	None	16	No	No
43	Junior college	Never Married	Full-time	None	29	Yes	No

Instrumentation

The Inclusion Criteria Form (Appendix A)

The Inclusion Criteria Form included information on potential participants such as age, place of birth, place of residence, no psychiatric disorder or no psychiatric treatment, informed diagnosis, stage of breast cancer, date and type of breast surgery, adjuvant treatment, breast reconstruction surgery, palliative care, other cancer diagnosis, and other medical problems. The form was completed by the investigator, based on the patient's medical record.

The Norbeck Social Support Questionnaire (Appendix D)

Types (i.e., affect, affirmation, and aid), amount, and individual sources of social support were measured by the Norbeck Social Support Questionnaire (NSSQ) (Norbeck, 1980), which was developed based on Kahn's definition of social support. The Japanese version of the NSSQ (JNSSQ) translated by Minami (1984) was used. The JNSSQ consists of eight items, excluding one item to measure loss of social support that is found in the NSSQ, since loss of social support does not directly measure support (Minami, 1984). Respondents are asked to list the people in their personal network and then to rate each person on each subscale in this network using a five-point Likert scale, from (1) "not at all" to (5) "a great deal." The lowest possible score is zero, and the highest score is unlimited, since there is no limit to the number of people one can identify in their network. Both the

NSSQ and the JNSSQ have two variables (i.e., Total Functional and Total Network) and five subscales (i.e., Affect, Affirmation, Aid, Duration, and Frequency) (Norbeck, 1980; Minami, 1984). Regarding Affect, Affirmation, and Aid, each subscale has two items; each subscale of Duration and Frequency has one item. The scores on the Total Functional variable are the sum of the three subscale scores of Affect, Affirmation, and Aid. The scores on the variable of Total Network are calculated as the sum of the number in Personal Network and two subscale scores of Duration and Frequency.

In this study, types of social support were measured through the three subscales of Affect, Affirmation, and Aid; amount of social support was measured through the Total Functional variable. Responses to the Total Network variable and to the list of Personal Network were used as an indication of individual sources of social support. The instrument has been used in a variety of populations, including Western and non-Western women with breast cancer (Lindsey, Ahmed, & Dodd, 1985; Feather & Wainstock, 1989; Primomo et al., 1990; Matsuki et al., 1992a; Matsuki et al., 1992b; Lewis et al., 1996).

Reliability

Norbeck, Lindsey, and Carrieri (1981) reported reliability testings of the NSSQ. Test-retest of the NSSQ was done on nursing students ($N = 67$) with a one-week interval. The Pearson product-moment correlation coefficients for each item of subscale ranged from .85 to

.92 and for the Total Functional variable was .90. Internal consistency of the NSSQ for each subscale was also performed on nursing students ($N = 75$) and computed intercorrelation coefficients for pairs of items Affect .97, Affirmation .96, and Aid .89. The correlations among the three network property items (i.e., number in personal network, duration of relationships, and frequency of contact) ranged from .88 to .96 (Norbeck et al., 1981). These results showed acceptable reliability of the NSSQ (Waltz, Strickland, & Lenz, 1991; Nunnally & Bernstein, 1994).

Validity

Several validity testings of the NSSQ were reported (Norbeck et al., 1981; Norbeck, Lindsey, & Carrieri, 1983; Norbeck, 1985). First, construct validity study was conducted with hospital employees ($N = 131$) by using the two social support instruments that were the NSSQ and the Fundamental Interpersonal Relation Orientation (FIRO), developed by Schutz. Researchers reported significant correlations between Affection and Inclusion in the FIRO, and Affect, Affirmation, and Aid in the NSSQ, but not between the Control in the FIRO and the subscales in the NSSQ (Norbeck et al., 1983). Concurrent validity study was done between the NSSQ and the Social Support Questionnaire (SSQ) developed by Schaefer, Cohen, and Lazarus. Subjects were nursing students ($N = 42$). The results showed there were significant correlations between the subscales of Emotional in the SSQ and Affect in the NSSQ ($r = .51$; $p <$

.001) and between the subscales of Emotional in the SSQ and Affirmation in the NSSQ ($r = .56$; $p < .001$) (Norbeck et al., 1981). Additional concurrent validity study was done with the Personal Resource Questionnaire (PRQ), which was developed by Brandt and Weinert. Subjects were 55 nursing students. Moderate and low significant correlations were found (Norbeck et al., 1983). Predictive validity was tested by regression analysis on the Brief Symptom Inventory (BSI), developed by Derogatis. Subjects were critical care nurses ($N = 164$). The predictive independent variable of the NSSQ showed on the dependent variable of the BSI significant correlation; it was explained as a variance of 5.4 percent ($p = .002$) (Norbeck, 1985).

Social desirability testing was performed by use of the Marlowe-Crowne Social Desirability Index (MCSDI). None of the items in the NSSQ showed significant correlations to the MCSDI (Norbeck et al., 1981).

Moreover, Minami (1984) reported the translation process of the NSSQ into Japanese and the results of the equivalence test between the NSSQ and the JNSSQ. Minami noted that the translation of the NSSQ into Japanese was performed by committee approach with consultation from the instrument developers, but no back translation. The committee consisted of three Japanese graduate students who were studying in the U.S. The equivalence test between the NSSQ and the JNSSQ was conducted on the sample of English and Japanese bilingual subjects ($N = 15$) by obtaining data

with a one-week interval (Time I: the NSSQ; Time II: the JNSSQ) and computing Pearson product-moment correlation coefficients. The results of Pearson product-moment correlation coefficients ranged from .74 to .97 on item level, and .96 on Total Functional on variable level. The lowest item level Pearson product-moment correlation coefficient, .74, was the item that includes the term "respect." The author noted that the term "respect" in the item should be considered cultural and linguistic differences between English and Japanese (Minami, 1984).

Reliability on the study sample

As Norbeck and others (1981) reported, the internal consistency of the NSSQ through intercorrelation coefficients for pairs of items, Pearson product-moment correlation coefficients between the pairs of items were computed. The results were Affect two items .94, Affirmation two items .93, and Aid two items .90. Since the Total Functional variable was the sum of the three subscale scores (i.e., Affect, Affirmation, and Aid), the correlations of the three subscales were assessed for internal consistency. The results ranged from .81 to .95. The relationships among the three network property items (i.e., number in personal network, duration of relationships, and frequency of contact) ranged from .91 to .99 (Table 3.4). The results were similar to those of Norbeck and others' reports, and the internal consistency of the JNSSQ was determined as acceptable (Waltz et al., 1991; Nunnally & Bernstein, 1994).

Table 3.4
Pearson Product-Moment Correlation Coefficients for All Pairs of Items, Subscales, and Variables of the JNSSQ (N = 113)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14
1. Affect #1														
2. Affect #2	.94													
3. Affect (Total 1-2)	.99	.99												
4. Affirmation #1	.95	.91	.95											
5. Affirmation #2	.92	.90	.92	.93										
6. Affirmation (Total 4-5)	.95	.92	.95	.99	.98									
7. Aid #1	.78	.75	.78	.80	.72	.77								
8. Aid #2	.83	.82	.84	.82	.77	.81	.90							
9. Aid (Total 7-8)	.83	.80	.83	.83	.77	.81	.98	.97						
10. Total Functional (Total 3, 6, 9)	.97	.95	.97	.97	.93	.97	.88	.92	.92					
11. Duration in Relationship*	.92	.89	.92	.92	.89	.92	.79	.79	.81	.93				
12. Frequency of Contact*	.83	.78	.81	.82	.79	.82	.71	.73	.74	.83	.91			
13. Number in Network	.93	.89	.92	.93	.89	.93	.80	.79	.82	.93	.99	.92		
14. Total Network (Total 11-13)*	.91	.87	.90	.91	.87	.90	.78	.78	.80	.91	.99	.97	.99	

Note. All significant levels were based on a two-tailed test. All were $p < .0001$
 * (N = 112)

Validity on the study sample

Validity of Total Functional was examined by computing Pearson product-moment correlation coefficients between the Total Functional variable in the JNSSQ and the Support subscale in the Japanese version of the Interpersonal Relationship Inventory (JIPRI), which will be described in the next section.

The Interpersonal Relationship Inventory (Appendix E)

Reciprocity and conflict of social support were measured by the Interpersonal Relationship Inventory (IPRI), which was developed using Homans and Blaus's social exchange theory and Foa's equity theory. The IPRI has three subscales: Support, Reciprocity, and Conflict. The IPRI is a 39-item (13 items per subscale), five-point Likert scale. One item is reverse scored. Each subscale score is used as a separate score, which is calculated as a summing score of 13 items in a subscale and divided by 13. The possible subscale score range is from one to five. The high score of each

subscale indicates high in its measure (Tilden et al., 1990a; Tilden, Nelson, & May, 1990b). In this study, the scores on the subscales of Reciprocity and Conflict were used for the dimensions of reciprocity and conflict. The IPRI has not been used for women with breast cancer, but it has been used for a Japanese-American population (Tilden, Hirsch, & Nelson, 1994). For this study, the IPRI has been translated into Japanese (JIPRI) with use of back translation. An equivalence test between the IPRI and the JIPRI was conducted on the sample of English and Japanese bilingual subjects by computing Pearson product-moment correlation coefficients (Appendix F). Revision of the JIPRI with consultation was employed. Then, a pilot study on Japanese breast cancer patients was conducted (Appendix G). These steps will be described later.

Reliability

Tilden and others (1990a) reported test-retest and internal consistency reliability of the IPRI. Test-retest reliability, with a two-week interval, was performed on a group of undergraduate nursing, psychology, and community college students ($N = 43$). The Pearson product-moment correlation coefficient of each subscale was significant: Support ($r = .91$), Reciprocity ($r = .84$), and Conflict ($r = .81$) (Tilden et al., 1990a). Internal consistency was performed on the same subjects, and the alpha of each subscale was .92 on Support, .83 on Reciprocity, and .91 on Conflict (Tilden et al., 1990a). Moreover, Tilden and others

(1994) reviewed reliability on 19 research studies that used the IPRI. The internal consistency in the 19 studies was over .70. Acceptable reliability of the IPRI was demonstrated (Waltz et al., 1991; Nunnally & Bernstein, 1994).

Validity

Tilden and others (1990a) reported several validity testings of the IPRI. For a content validity testing, the content validity index (CVI) of the IPRI was done by a panel of three judges that consisted of two academicians and a nurse clinician who were selected due to their expertise in social support and instrument development. The CVI was reported as .97 (Tilden et al., 1990a).

Theory testing was performed by use of the Sarason Life Experiences Survey (LES) as modified by Norbeck, the Brief Symptom Inventory (BSI), the Personal Resource Questionnaire (PRQ), and the Family Relationships Index (FRI). The results showed high intercorrelation between Support and Reciprocity, moderate inverse relationships between Support and Conflict, moderate relationships in expected directions between the IPRI subscales and the BSI (i.e., negative correlation between Support in the IPRI and the BSI, negative correlation between Reciprocity in the IPRI and the BSI, and positive relation between Conflict in the IPRI and the BSI) (Tilden et al., 1990a).

Construct validity was performed by the factor analysis approach ($N = 340$). The total variance was 47.5 percent. All

items in the subscale of Conflict were loaded on the factor of Conflict, but five items in the subscale of Reciprocity and all items in the subscale of Support were included on the factor of Support. The remaining eight Reciprocity items were loaded on the factor of Reciprocity. Tilden and others (1990a) noted that "the concept of reciprocity appears to be divided into balance as a part of support, and doing for/giving back as separate from support" (p. 339).

Another construct validity test for the IPRI was performed through the contrasted group approach. The subjects included a group of married and home residents ($n = 42$) and a group of battered women who lived in shelters ($n = 30$). A t-test group mean comparison was computed. Significant differences between the two groups were found in each subscale at $p \leq .0002$ (Tilden et al., 1990a).

The multitrait-multimethod approach was performed to examine divergent, convergent, and discrimination validity testings. Subjects were women who were in the second trimester of an uncomplicated pregnancy ($N = 30$). Only two subscales, Support and Conflict, were determined. First, divergent validity testing was performed by computing correlations between Support and Conflict by self-report ($r = -.44$) and between Support and Conflict by visual analog scales through interviewers ($r = -.32$). Convergent validity was then tested through computing correlations between Support by self-report and Support by visual analog scale through interviewers ($r = .57$), and between Conflict by

self-report and Conflict by visual analog scale through interviewers ($r = .33$). The divergence relation was lower than the convergence relation at absolute value. Third, discriminant validity testing was performed by computing correlations between Support by visual analog scale through interviewers and Conflict by self-report ($r = -.27$), and between Support by self-report and Conflict by visual analog scale through interviews ($r = -.38$). Thus, the discriminant validity was not established because there was no consistency with the correct pattern and the last correlation was not the lowest at absolute value among these correlation estimations in construct validity testings (Tilden et al., 1990a).

Concurrent validity was tested by use of other instruments such as the PRQ and the FRI. The correlation between the PRQ and Support in the IPRI was significant ($r = .64$). Conflict in the FRI and Conflict in the IPRI were correlated significantly ($r = .62$); Cohesion in the FRI and Support in the IPRI were related ($r = .67$); and Expression in the FRI and Reciprocity in the IPRI were correlated ($r = .46$) (Tilden et al., 1990a).

Predictive validity was tested by performing hierarchical multiple regression analyses. Subjects were graduate and undergraduate college students and patients ($N = 235$). Eleven variables were entered on the dependent variable of the BSI to measure psychological symptoms with the variable entering order of group, age, stress, stress

times group, age times group, stress times age, support, reciprocity, conflict, support times stress, and support times conflict. All variables accounted for 38.7 percent of the variance in psychological symptoms. All variables, except Reciprocity, significantly affected psychological symptoms, either as single or interaction variables. The interaction of conflict and support was estimated in relation to the BSI. In other words, people with high conflict who were low in support showed high levels of symptoms; their symptoms decreased as their support increased. People with low conflict showed low levels of symptoms, and they were not affected by support (Tilden et al., 1990a).

Social desirability testing was performed by use of the MCSDI ($N = 235$). The results were not significantly correlated between Support and the MCSDI ($r = .06$) and between Reciprocity and the MCSDI ($r = .15$), but there was a low significant correlation between Conflict and the MCSDI ($r = -.23$). Normative data were reported on the sample of a group health maintenance organization (HMO) members ($N = 531$) (Tilden et al., 1990a).

Tilden and others (1994) suggested that translation of the IPRI should be done with caution because the theories of equity and social exchange may not be comparable among non-Western subjects. Prior to conducting an actual study, a pilot study of translated instruments was recommended (Brislin, 1970; Jones & Kay, 1992). Thus, prior to this

study, several steps were undertaken, performed to insure a valid translation of the IPRI into Japanese. This included: 1) translation of the IPRI into Japanese, 2) equivalence test between the IPRI and the JIPRI, 3) revision of the JIPRI, and 4) pilot study.

1. Translation of the IPRI

Since back translation was highly recommended for verifying the translation of an instrument (Brislin, 1970; Chapman & Carter, 1979), the IPRI was translated into Japanese with use of back translation by three qualified professional translators. Because performing back translation without having knowledge of the original version of a measure is important (Brislin, 1980), blind back translation was performed. Examination of meaning errors between the original English version of the IPRI and the back translated English version of the IPRI was performed by two oncology nurse researchers at the University of Maryland. The investigator reviewed the JIPRI with the results of the examination of meaning errors; it was found that 15 items out of 39 items needed to be changed. The second translation was processed with back translation, and evaluation of the meaning errors was followed. Zero meaning error was reached, despite some differences in grammar (e.g., Japanese does not specify single and plural) and cultural and linguistic differences (e.g., the term "happy" in the original IPRI was back translated into "satisfy"). This is consistent with the notion that Japanese show

emotion less than Westerners. Since "happy" indicates emotions, maybe "satisfy" is a less emotional term and thus more appropriate for Japanese. Discussion with one of the translators was held. The term "happy" is used only for positive life events among Japanese, and they tend to use "satisfy" to express positive feelings of daily living. Therefore, it was decided to carry out an equivalence test without processing the further translation and back translation but with considering the terms, "happy" in the original IPRI and "satisfy" in the back translated IPRI.

2. Equivalence test between the IPRI and the JIPRI

An equivalence test is an important step to assess equivalence of both original and translated versions of the instrument (Jones, 1987). Therefore, the equivalence test between the IPRI and the JIPRI was conducted on subjects bilingual in both English and Japanese by computing Pearson product-moment correlation coefficients. The inclusion criteria for the bilingual subjects were 1) Japanese males or females; 2) Japanese who had been educated in Japan, at least to high school; 3) Japanese came to the U.S. for higher education and/or to work in an environment that requires English; and 4) Japanese who had no stressful life events during the data collection period. Network sampling was performed, and 16 bilingual subjects participated in the equivalence test. There were seven males and nine females. The age range was 27 to 71 years old, with a mean of 48.43 years (SD = 12.9), and the years in the U.S. ranged from 9

months to 35 years, with a mean of 16.21 years ($SD = 11.43$). The data collection was done by a mailing method with a two-week interval (Time I: the IPRI; Time II: the JIPRI).

The results can be found in Tables F.1, F.2, and F.3 (Appendix F). The time to complete the JIPRI ranged from five to 20 minutes, with a mean of 10.69 minutes ($SD = 5.68$) (Table F.1). Internal consistency of each subscale of the JIPRI was assessed by computing alpha; the results were Support .89, Reciprocity .54, and Conflict .89 (Table F.2). Each item was assessed, especially the items in the subscale of Reciprocity since the alpha .54 is not acceptable (DeVellis, 1991; Nunnally & Bernstein, 1994). Among the items of Reciprocity, it was found the lowest correlation of the item that was reversed scored. Chapman and Carter (1979) recommended correlations on subscale and item levels in both versions. Thus, the Pearson product-moment correlation coefficients on subscale and item levels were computed to evaluate the equivalence between the IPRI and the JIPRI on subscale and item levels. The subscale level Pearson product-moment correlation coefficients were Support .93, Reciprocity .76, and Conflict .78 (Table F.3). Because the newly translated version of the IPRI is considered as a new instrument (Jones, 1987), the results were acceptable levels. However, the item level Pearson product-moment correlation coefficients identified only 15 items out of 39 items as over .70. In addition, several bilingual subjects wrote comments on the JIPRI such as the term *ki ni kakaru*

hito (people I care about). It will be described in the next step, revision of the JIPRI.

3. Revision of the JIPRI

Revision of the JIPRI was performed based on the results of the equivalence test and the suggestions from a Japanese nurse researcher, who has been exposed to both Japanese and American cultures, has translation experience on nursing literature, and has conducted studies of social support on Japanese cancer patients. The major change was the term of **ki ni kakaru hito** (people I care about). The equivalence test between the IPRI and the JIPRI showed that **ki ni kakaru hito** was perceived by the bilingual subjects as not only referring to "people I have intimate relationships with" but also "people I do not have intimate relationships with but I am worried about." The purpose of the IPRI is to obtain the information of intimate relationships. Thus, the term was changed to **shitashii hito** (people I have intimate relationships with) to emphasize "intimate relationships."

Moreover, before conducting a pilot study, Japanese breast cancer patients' perceptions of the JIPRI were considered. Ten Japanese women with breast cancer were approached at the cancer center and were asked to complete the JIPRI. Also, they were asked about any difficulties with or thoughts about the JIPRI. These women were not enrolled in the study. They identified the terms **doui suru** (agree) and **doui shinai** (disagree) as being "lawlike." Before they

had their breast surgeries, they needed to submit the form of **Doui Sho** (Agreement Sheet), which is similar to an informed consent in the U.S. A few participants showed some sensitive reactions, and they asked about the meanings of the terms. Therefore, the terms were changed to **so omou** (I think so) and **sou omowanai** (I do not think so).

4. Pilot study

Prior to the actual data collection, a pilot study was conducted on 10 Japanese women with breast cancer at the cancer center. The results can be found in the Tables G.1 and G.2 (Appendix G). Internal consistency was determined by computing alpha on each subscale, and the results were Support .84, Reciprocity .87, and Conflict .77 (Table G.1). Intercorrelationships between subscales were Support and Reciprocity ($r = .78$; $p < .01$), Support and Conflict ($r = -.59$; $p < .10$), and Reciprocity and Conflict ($r = -.69$; $p < .05$) (Table G.2). The results were similar to Tilden and others' (1990a) reports. The Pearson product-moment correlation coefficient between the Total Functional variable in the JNSSQ and the Support subscale in the JIPRI was $r = .41$ ($p = .23$), and the shared variance was 16.8 percent.

Reliability on the study sample

Table 3.5 presented alpha on each subscale as Support .79, Reciprocity .70, and Conflict .78, and the results were acceptable (Waltz et al., 1991; Nunnally & Bernstein, 1994).

Table 3.5
Alpha Reliability on Each Subscale of the Japanese Interpersonal Relationship Inventory (JIPRI)

Subscale	Alpha	N
Support	.7884	112
Reciprocity	.7042	110
Conflict	.7786	112

Validity on the study sample

Intercorrelations between subscales in the JIPRI were described in Table 3.6. The correlation between the subscales of Support and Reciprocity was acceptable ($r = .74$; $p < .0001$; $r^2 = .55$) and similar to the results reported by Tilden and others (1990a). However, different from the reports from Tilden and others (1990a) or the results of the pilot study, conflict did not show significant correlations with support ($r = -.06$) or with reciprocity ($r = .01$). Moreover, the Pearson product-moment correlation coefficients were computed to evaluate concurrent validity of the Total Functional variable in the JNSSQ and the Support subscale in the JIPRI. The results were $r = .3032$ ($p = .001$; $r^2 = .092$).

Table 3.6
Intercorrelations between the Subscales in the Japanese Interpersonal Relationship Inventory (JIPRI)

	1.	2.	3.	N
1. Support				112
2. Reciprocity	.7391*			109
3. Conflict	-.0634	.0105		111

Note. All significant levels were based on a two-tailed test.

* $p < .0001$

The General Health Questionnaire (Appendix H)

The General Health Questionnaire (GHQ) was developed by Goldberg at the Institute of Psychiatry in London in 1972. The GHQ was designed to be a self-administered screening test aimed at detecting respondents with a non-psychotic psychiatric illness by assessing the severity of psychiatric disturbance in community settings such as primary care or among general medical outpatients (Goldberg, 1972; Goldberg & Williams, 1988). The GHQ has been used with various populations, including breast cancer patients (Vachon, Lyall, Rogers, Cochran, & Freeman, 1981; Hughes, 1982; Vachon, 1986; Hughson, Cooper, McArdle, & Smith, 1988; Fallowfield, 1994).

The GHQ has five versions: 60-, 30-, 28-, 20-, and 12-item GHQs. The 28-item GHQ is determined as 'scaled,' which was developed through factor analysis of the 60-item GHQ. The total score of the 60-item GHQ is widely used as an indication of psychological distress, disturbance, states, or health. It takes six to 10 minutes to complete. To determine the cut-off score, two scoring methods were developed: the Likert scoring and the modified GHQ scoring methods. A four-point Likert scoring method is scored as 0, 1, 2, 3 column respectively (e.g., Not at all: 0; No more than usual: 1; Rather more than usual: 2; Much more than usual: 3). The range of the total score in this method is 0 to 180. The modified GHQ scoring method has the first two and last two severity choices scored the same; 0, 0, 1, and

1, respectively. The range of the total score in this method is zero to 60. A low score means a better psychological state. The cut-off score of the 60-item GHQ, if modified GHQ scoring method is used, is 11/12, meaning that the higher the score (e.g., over 12), the greater the possibility of the patient being disturbed, and the more severe the disturbance is likely to be (Goldberg, 1972; Goldberg & Williams, 1988).

The GHQ was translated into Japanese by Nakagawa and Daibou (1985a) with the use of a committee approach and back translation. The Japanese version, the JGHQ, was used on a Japanese population, and results of psychometric properties were reported on the 60-item JGHQ (Nakagawa & Daibou, 1985b), on the 30-item JGHQ (Kitamura, Sugawara, Aoki, & Shima, 1989; Kitamura, Shima, Toda, & Sugawa, 1993; Kitamura, Shima, Sugawara, Toda, 1994; Kitamura, Toda, Shima, & Sugawara, 1994a; Kitamura, Toda, Shima, & Sugawara, 1994b), and on both versions of the 60-item and the 30-item JGHQs (Takeuchi & Kitamura, 1991). The studies which used the 30-item JGHQ employed it as a screening test and applied it to Japanese pregnant women. Compared with the 30-item JGHQ, Takeuchi and Kitamura's (1991) study of the factor structures of the 60-item JGHQ on a Japanese population were more similar to Goldberg and Hillier's (1979) study of the factor structures of the 60-item GHQ on a British population. This will be described in the validity section. In addition, the modified scoring (i.e., 0, 0, 1, and 1) of

the 60-item JGHQ reported better validity test results than the other scoring method (i.e., 0, 1, 2, and 3) (Nakagawa & Daibou, 1985b; Kitamura et al., 1993). Therefore, in this study, the 60-item JGHQ scored by the modified GHQ scoring method was used as an indicator of psychological states. The possible score in modified GHQ scoring is zero to 60, and a low score means a better psychological states.

Even though the GHQ was translated into various foreign languages for each version, this review of psychometric properties of the GHQ focuses on only the 60-item GHQ English and Japanese versions.

Reliability

Goldberg (1972) reported internal consistency of the 60-item GHQ. A split-half reliability coefficient was reported as .95 on a sample of psychiatric outpatients ($N = 853$). He also reported test-retest of the 60-item GHQ with a six-month interval. Three groups of psychiatric outpatients were recruited; the results of the test-retest with a six-month interval showed: 1) 20 patients given a standardized psychiatric interview by Goldberg on each occasion ($r = .90$); 2) 65 patients who in patients' opinion stayed about the same ($r = .75$); and 3) 51 patients who in their doctors' opinions stayed about the same ($r = .51$). The results of 1) and 2) were acceptable (Waltz et al., 1991; Nunnally & Bernstein, 1994).

Validity

Goldberg (1972) reported his examinations of the 60-

item GHQ as a screening instrument. The subjects were 200 patients in a general practice in London, England. The study had used a cut-off score that was 11/12. Sensitivity was 95.7 percent, and specificity was 97.8 percent.

Worsley, Walters, and Wood (1978) reported construct validity through factor analysis on the 60-item GHQ. Their study was conducted with 127 gynecology outpatients in Australia. Eight factors were extracted: 1) poor performance (accounted for 63.3 percent of the variance), 2) depression, 3) sleep disturbance, 4) anhedonia-anergia, 5) loss of confidence, 6) general illness, 7) social dysfunction, and 8) headache. Goldberg and Hillier (1979) examined construct validity of the 60-item GHQ by a factor analysis approach. Subjects were 523 general medical patients in South Manchester, England. By computing varimax rotation, four factors were extracted, accounting for 48 percent of variance: 1) somatic symptoms, 2) anxiety and insomnia, 3) social dysfunction, and 4) severe depression. These four factors were the subscales of the 28-item GHQ.

Several studies determined concurrent validity of the 60-item GHQ. First, Goldberg and Blackwell (1970) performed correlations between the 60-item GHQ and clinical assessment by a psychiatrist using a standardized psychiatric interview. Subjects were psychiatric patients ($N = 200$) and results showed that the Pearson product-moment correlation coefficient between the 60-item GHQ and clinical assessment was at an acceptable level ($r = .80$). Second, Benjamin,

Decalmer, and Haran (1982) determined the correlations with Clinical Interview Schedule (CIS) for 92 female community subjects who were in their 40s in Manchester, England. The results showed a significant relationship with CIS total score (Spearman) ($r = .63$) and overall severity rating ($r = .55$). Worsley, Walters, and Wood (1977) studied the correlation with the Role Problems Checklist (RPCL) with gynecology patients ($N = 97$) at Melbourne, Australia. They found a significant correlation between the 60-item GHQ and the RPCL ($r = .74$). Waring, Weisz, and Grinberg (1980) examined the concurrent validity of the 60-item GHQ with the Schedule of Recent Life Events (SRLE). The subjects were 74 general medical patients in London, England. They reported that the Pearson product-moment correlation coefficient between the 60-item GHQ and the SRLE was significant ($r = .41$).

Validity testings of the JGHQ were reported by Nakagawa and Daibou (1985b). By using the modified GHQ scoring method, which is 0, 0, 1, and 1 respectively for each column, the cut-off score was reported as 16/17 on Japanese subjects (i.e., 69 neuroticism patients and 55 healthy subjects), sensitivity was 79.7 percent and specificity was 96.4 percent. This cut-off score was higher than 11/12, which was reported by Goldberg (1972). Nakagawa and Daibou (1985b) noted that this difference in cut-off score was influenced by cultural and social differences.

Construct validity of the 60-item JGHQ was examined

through group contrasted approach. The groups in the study were a neuroticism group ($n = 69$) and a group of healthy subjects ($n = 55$). The subjects in the neuroticism group were receiving counseling and psychotherapeutics, and/or taking tranquilizer medications at outpatient settings. The group of healthy subjects selected through their criteria (e.g., no psychiatric treatments; no medication taken for insomnia; no treatment for common cold or gastric intestinal problems over four days; not taking medication for high blood pressure; no more than four days absence from work; no death of family members or relatives within one year). The results of the t-test group mean comparison were significantly different between the two groups ($p < .01$) (Nakagawa & Daibou, 1985b).

Construct validity testing of the 60-item JGHQ was done through factor analysis approach. Subjects were healthy and neuroticism patients ($N = 401$). The results of the factor analysis showed that there were 12 factors that accounted for 53.5 percent of variance. The 12 factors were similar to the factors extracted by the factor analysis of Goldberg and Hillier's study (1979) except the factor of "thoughts of death." Nakagawa and Daibou (1985b) noted that Japanese might have a different perception of death than the British. Moreover, Takeuchi and Kitamura (1991) compared the factor structures of two versions, the 60-item and the 30-item JGHQs. The study sample was a group of high school and university students ($N = 236$). They reported that the factor

structures of the 60-item JGHQ were social functioning, anxiety, somatic symptoms, and depression, while the factor structures of the 30-item JGHQ were general dysphoria, social functioning, depressive thoughts, difficulty in concentration, and insomnia. As it was noted, the results of factor structures on the 60-items JGHQ were similar to the results of the 60-item GHQ (Nakagawa & Daibou, 1985b).

Concurrent validity of the 60-item JGHQ was tested by use of other instruments and clinical evaluation by psychiatrists, such as the Present State Examination (PSE) for the concurrent validity test ($N = 81$). The results indicated significant correlation ($r = .64$; $p < .0001$) between the 60-item JGHQ and the PSE (Nakagawa & Daibou, 1985b).

Reliability on the study sample

Reliability on this study sample ($N = 108$) was determined by internal consistency. The result was an alpha of .9284, which was acceptable (Waltz et al., 1991; Nunnally & Bernstein, 1994).

Physical States Interview Form (Appendix I)

The Physical States Interview Form was developed to obtain information about the physical signs and symptoms that are commonly experienced by women who have had breast surgery for malignant disease. Items were derived from the literature review on physical signs and symptoms related to surgery for breast cancer (Woods & Earp, 1978; Vinkur et al., 1989; Baird et al., 1991; Koyama, 1991; Groenwald et

al., 1993; Passik et al., 1993; Polinsky, 1994; Knobf, 1996; Kwekkeboom, 1996). The items were 1) poor wound healing, 2) arm swelling, 3) pain in the affected arm and/or surgical area, 4) impaired range-of-motion of the arm, 5) arm sensation (e.g., numbness, burning, stiffness, tingling, heaviness, and/or weakness), 6) breast sensation (e.g., numbness and/or itching), 7) breast phantom sensation, 8) other signs, and 9) other symptoms. An interview method was used since some items may need to be explained to participants (e.g., clarification of breast sensation and breast phantom sensation). The participants stated "yes" or "no" for each item; they then described the signs and symptoms if they stated "yes." Content analysis of their descriptions of signs and symptoms was performed on certain participants' responses "yes" or "no." A cumulative score of "yes" responses was used to indicate physical states. Possible scores are zero to nine. A low score indicates a better physical state.

Three other physical conditions were included: 1) breast prosthesis, 2) menopausal states, and 3) other medical problems. These three items were included to describe the physical conditions of the study sample.

Reliability on the study sample

For intrarater reliability of this instrument, the content analysis was performed twice by the investigator with a two-week interval (Time I and Time II). The results of the content analysis were the same in Time I and Time II.

The Person Factor Survey Form (Appendix J)

The person factors were measured through the Person Factor Survey Form. There were six items: 1) age, 2) marital status, 3) religion, 4) education, 5) employment status, and 6) income, with the last three items indicating socioeconomic status. In addition, the items of attending a self-help group and having contact with other cancer patients were included as well as the items of the number of people who live in the household and the number of relatives who live within 80 kilometers (i.e., 50 miles).

Semi-Structured Interview Questions (Appendix K)

The following five semi-structured interview questions were used for the qualitative portion of the study.

1. Tell me your story about help; how has it affected your life since you were diagnosed with breast cancer?
2. What kinds/how many things did people do to help you after you were diagnosed with breast cancer?
Verbal/nonverbal? Directly/indirectly offered?
3. Who/what was the most helpful to you and in what ways?
Individuals? Groups?
4. Who/what was the most stressful to you in what ways?
Individuals? Groups?
5. In what ways, if any, did you provide help to others?
How would you describe how you provided help to others?

Data Collection Procedures

The data collection was conducted by the investigator

over a five-month period. Data collection procedures were included:

1. One day before each Outpatient Breast Clinic Day:
 - a. Names of potential subjects were obtained through a review of medical records using the Inclusion Criteria Form (Appendix A).
 - b. Contacted health care professionals to make certain that each potential participant had been informed of her diagnosis of breast cancer as "breast cancer."
2. On the day of Outpatient Breast Clinic Day:
 - a. Explained the study to each potential participant.
 - b. Obtained agreement to participate in this study.
 - c. Asked her to respond to the Person Factor Survey Form (Appendix J).
 - d. Interviewed her by using the Physical States Interview Form (Appendix I).
 - e. Identified women to invite to participate in the qualitative interview. The investigator performed purposive sampling to identify participants with a variety of demographic and illness-related characteristics that might offer a variety of experiences and perceptions of social support. Individual interviews focused on the five semi-structured interview questions (Appendix K). All interviews were conducted by the investigator and tape-recorded if the participant permitted. Frequently the participants preferred not to be tape-recorded,

which was respected as personal and cultural characteristics. The interview was conducted before obtaining data with the social support instruments. This was done to learn about their perceptions of social support without being influenced by Western frameworks of social support. Ongoing content analysis was performed, and interviews were performed until no new themes appeared. Eventually, 16 participants were interviewed. The length of interviews ranged from 20 to 100 minutes. The length of each interview increased as interviews progressed. This was attributed to the improving skill and comfort of the investigator. As data analysis progressed and additional themes were identified, interviews became longer to better explore developing themes with subsequent participants.

- f. All women were asked to respond to the following Japanese versions of self-report instruments, in the following order:
- 1) The Norbeck Social Support Questionnaire (Appendix D).
 - 2) The Interpersonal Relationship Inventory (Appendix E).
 - 3) The General Health Questionnaire (Appendix H).

Pilot Study

A pilot study was conducted on 10 Japanese women with breast cancer at the cancer center for a one-week period.

The purpose of the pilot study was to learn the correlations among the subscales and variables of the social support instruments, to determine the effectiveness and appropriateness of the quantitative and qualitative data collection procedures, and to determine overall feasibility of this study. After the data collection for the pilot study, participants were asked their feelings and thoughts about responding to the instruments and interview questions.

As summarized the pilot study of the JIPRI, alpha for internal consistency of each subscale of the JIPRI was Reciprocity .87 and Conflict .77 (Table G.1). The correlations among the subscales of the JIPRI were Support and Reciprocity $r = .78$ ($p < .01$), Reciprocity and Conflict $r = -.69$ ($p < .05$), Support and Conflict $r = -.59$ ($p < .10$) (Table G.2). The correlations among the subscales and variables of the JNSSQ were over .92 ($p < .0001$) (Table G.3), and they were acceptable. To evaluate concurrent validity, the correlation between the Total Functional variable in the JNSSQ and the Support subscale in the JIPRI was computed, the results were $r = .41$ ($p = .23$), and the shared variance was 16.8 percent. In addition, the time to complete the instruments was 30 to 45 minutes.

Some participants preferred to participate in the study while they were waiting, and others liked to participate after they finished all of their activities at the cancer center (e.g., physical assessments and medical examinations). Subjects' preferences for the timing of their

study participation were respected. The schedules of outpatients and the environment at the cancer center were assessed, such as participants' time and space for responding to the instruments and rooms for interviews. No major changes in the data collection procedures were made.

Data Analysis

Quantitative data analysis

The Statistical Package for the Social Sciences (SPSS) (SPSS Inc, 1993) was used for quantitative data analysis. The steps were the following:

1. The responses on the instruments were checked. Coding and double-coding were performed depending on the characteristics of data.
2. The data were entered into the SPSS and checked mistakes in the data file.
3. The frequency distribution, central tendency, skewness, and normal distribution of each variable were obtained.
4. The psychometric properties of each instrument were examined.
5. Whether or not the assumption for the inferential tests were met were determined.
6. Analyzed the data for each research question and hypothesis.

Research question #1

What are the components of social support among Japanese women with breast cancer?

The hypotheses were the following:

- a. There are different types of social support with differences in amount that Japanese women with breast cancer are receiving.
- b. Social support among Japanese women with breast cancer is received and provided as a reciprocal support.
- c. There is a negative aspect in the social support Japanese women with breast cancer are receiving.
- d. Sources of social support among Japanese women with breast cancer are mainly family members and close friends, and group sources of social support exist.

Research question #2

What are the relationships of social support, person factors, and psychological and physical states among Japanese women with breast cancer?

The hypotheses were the following:

- a. Person factors are significantly related to types, amount, reciprocity, conflict, and sources of social support among Japanese women with breast cancer.
- b. Person factors are significantly related to psychological and physical states among Japanese women with breast cancer.
- c. There are significant relationships among types, amount, sources, reciprocity, and conflict of social support, and psychological and physical states among Japanese women with breast cancer.
- d. Person factors predict amount of social support among

Japanese women with breast cancer.

- e. Person factors predict psychological states among Japanese women with breast cancer.
- f. Social support predicts psychological states among Japanese women with breast cancer.
- g. Social support predicts physical states among Japanese women with breast cancer.
- h. By statistically controlling physical states, person factors and social support predict psychological states among Japanese women with breast cancer.

For all statistical analyses, the level of significance was set at .05. To answer the first research question, the components of social support among Japanese women with breast cancer, descriptive statistics were determined. For the second research question, testing of hypotheses a to c was done with Pearson product-moment correlation coefficients; hypotheses d to g were tested with regular multiple regression analysis; hypothesis h was tested by hierarchical multiple regression analysis.

For multiple regression analysis, preliminary data screening was done for the following: 1) frequency distribution; 2) skewness; 3) outlier; 4) normality of distribution of each variable through z-test and graphic techniques; and 5) scatter plots to check heterogeneous variance and curvilinearity. If there are any nominal or ordinal level data, the data need to be dummy coded (Stevens, 1992). However, after preliminary data screening,

several variables were recoded, and all variables for multiple regression analysis were dichotomous or interval level data. Thus, dummy coding was not performed. The other assumptions were determined, such as residual analysis, normal distribution, homoscedastic, and homogeneous variance. According to Stevens (1992), for multiple regression analyses, 15 subjects per independent variable should be obtained. If there are less than 15 subjects per independent variable, adjusted R^2 should be used. Therefore, interpretations of each regression analysis, either R^2 or adjusted R^2 , should be determined, depending on the subject and independent variable ratio. Moreover, multicollinearity was assessed because of the potential to be misleading (Cohen & Cohen, 1983). Stevens' (1992) criterion was used; high correlations among independent variables, about .80 or larger, were determined to be evidence of multicollinearity. These will be discussed in Chapter Four.

Qualitative data analysis

An inductive content analysis was performed as an ongoing process in several steps. First, five tape-recorded interviews were transcribed verbatim. The other 11 participants declined to be tape-recorded and the investigator took notes during these interviews. These notes were typed within one day of each interview to insure that the greatest amount of information was retained and documented. The investigator read each transcription or typed interview notes many times and began coding with

individual words, phrases, and examples that women shared about social support.

The investigator then translated each interview into English and performed ongoing content analysis in the same way as it had been done in Japanese. This translation was to obtain guidance from a qualitative researcher, especially to improve interview and analytic performance. This guidance was provided for a subsample of the interviews, four out of the 16 interviews, varying in the length of interview (i.e., short and long interviews) and interview procedures (i.e., taped and nontaped interviews). However, in this step, the investigator realized all Japanese codes at the beginning were changed into English codes, which risked premature cultural decontextualization. It was feared, from the experience, that Western frameworks of social support might influence the analysis, as well as that the early translation into English may lose linguistic and cultural meanings. Therefore, the investigator decided to use the Japanese version of the interview data in the remaining data analysis process.

The investigator continued to do interviews concurrent with analysis, and codes were confirmed by participants in four of the 16 interviews. No new categories were noted by these participants. The interviews were terminated when no new themes appeared, and some common and unique themes were identified.

The investigator read the Japanese version of the

transcripts or typed interview notes and coded and recoded. Coding and reading were done five times; the investigator then realized codes were the same and no more recoding was necessary. Analyzing the codes, the investigator continuously performed content analysis to integrate and to synthesize the identified common and unique themes of social support information into a descriptive structure and higher-order categories to identify and describe the dimensions of social support. Five major categories were identified as follows: 1) social support information; 2) psychological information; 3) family issues; 4) illness-related information; and 5) others. Some codes were double-coded because content overlapped. By using five different colored index cards, the investigator wrote each code separately, depending on the major five categories.

By using the index cards of social support information, integration and synthesis of common and unique themes of social support were performed. This involved identifying categories and finding the relationships of the categories. The identified common and unique themes and their relationships were outlined and written up in English to describe the participants' experiences of social support.

The investigator evaluated the rigor of the qualitative data for its reliability, credibility, applicability, consistency, and neutrality (Sandelowski, 1986).

1. Reliability:

The codings were assessed by the same analyst, the

investigator, but at separate times. Also, to make certain of an inductive content analysis for the investigator, codings were assessed by both a qualitative researcher and the investigator.

2. a. Credibility: Truth value

- 1) Interviews were performed with participants' orientation.
- 2) The data were read and coded in Japanese without translation into English to minimize the influence of Western frameworks of social support as well as filtration or loss of cultural meaning through translation, except for four early interviews so that guidance from a qualitative researcher could be obtained.
- 3) The analyzed common and unique themes were confirmed by the participants. Four interviews were confirmed. No new categories were identified by these participants.

b. Applicability: Fittingness

- 1) Purposive sampling was performed, according to demographic and illness-related characteristics.
- 2) Interviews continued until no more new themes appeared, and common and unique themes were identified.

c. Consistency: Auditability

Keeping the data for another researcher to evaluate is a "decision trail." As Erlandson, Harris, Skipper, and

Allen (1993) listed materials to evaluate for auditability, materials were reviewed as follows:

- 1) Raw data (e.g., the interview questions, documents for purposive sampling, tapes, and typed transcriptions and interview notes).
- 2) Data reduction and analysis products (e.g., the index cards for codes and the notes for outlining common and unique themes).
- 3) Data reconstruction and synthesis products (e.g., the notes for the final outlining of identified themes).
- 4) Process notes (e.g., the index cards for journals during data collection and data analysis).
- 5) Materials relating to intentions and dispositions (e.g., the related materials were kept in the safe boxes).
- 6) Information relative to any instrument development (e.g., the social support instruments and the notes for comparison).

These materials were kept for assessing consistency, auditability.

d. Neutrality: Confirmability

This included credibility, applicability, and consistency.

Summary

The methodology for this study, a description of design, the setting, sample, instrumentation, data collection procedures, pilot study, and data analyses were presented in this chapter.

The results of data analysis, including description of major research variables, research questions and hypotheses, and content analysis of qualitative data will be discussed in Chapter Four.

CHAPTER IV

RESULTS

The purpose of the study was 1) to test the reliability and validity of instruments developed to measure social support with Western populations when used with Japanese women who are experiencing breast cancer, 2) to describe social support among Japanese women with breast cancer, 3) to investigate how social support affects their psychological and physical states, and 4) to explore appropriateness of the use of instruments of social support developed in Western cultures in measuring the social support of Japanese populations. Data were obtained by self-report paper and pencil instruments, interview, and review of the subject's medical record. In this chapter, the results of the following data analyses will be presented: 1) quantitative data analysis, including a description of the major research variables and the answers to the research questions; and 2) qualitative data analysis (i.e., content analysis of interview data). Comparison of the findings of content analysis with the results of quantitative data and with the social support instruments follows.

Quantitative Data Analysis

Description of Major Research Variables

In this section, descriptive statistics for psychological and physical states will be presented.

Descriptive statistics for the social support instruments will be presented under the research questions.

Psychological States

The Japanese version of the General Health Questionnaire (JGHQ) was used as the measure of psychological states for this study. Possible scores for the JGHQ are zero to 60. The range of scores for the subjects ($N = 108$) for the JGHQ was zero to 47 with a mean of 12.82 ($SD = 10.15$) (Table 4.1). The lower scores indicate better psychological states.

The current data were compared with Nakagawa and Daibou's (1985b) data from Japanese populations. Their data on healthy subjects ($N = 55$) was a lower mean ($M = 8.08$; $SD = 5.29$) than the mean of the study sample. The group mean comparison showed significant differences between the two groups ($t = 3.24$; $df = 161$; $p < .01$). When compared with their data on neuroticism subjects ($N = 69$) with a mean of 29.54 ($SD = 13.51$), there were significant differences between the two groups ($t = 9.38$; $df = 175$; $p < .001$). Because of the significant differences, the data on the study sample were assessed with a cut-off point for the JGHQ, 16/17, reported by Nakagawa and Daibou (1985b). It was for information on Japanese study subjects of neuroticism or not, as reported sensitivity was 79.7 percent and specificity was 96.4 percent. Referring to the cut-off point for the JGHQ, among the 108 subjects, 73 (67.6%) subjects were less than or equal to 16, but the other 35 (32.4%)

subjects were greater than or equal to 17, the greater possibility of being disturbed psychological states.

Table 4.1
Mean, Standard Deviation, and Range for Psychological States (JGHO) (N = 108)

Mean	Standard Deviation	Actual Range	Possible Range
12.82	10.15	0 - 47	0 - 60

Physical States

The results of the physical states interview were presented in Table 4.2. Among the signs, arm swelling was reported by 31 (27.4%) subjects, and poor wound healing was reported by 12 (10.6%) subjects. Six (5.3%) subjects reported other signs, such as changes in posture and weight gain. In terms of symptoms, 72 (63.7%) subjects reported affected arm sensation, and 54 (47.8%) subjects reported breast sensation. Pain in the affected arm and/or the surgical area was experienced by 35 (31.0%) subjects. Nineteen (16.8%) subjects reported impaired range-of-motion of the affected arm. Presence of breast phantom sensation was reported by 17 (15.0%) subjects. Ten (8.8%) subjects reported other symptoms, such as fatigue and weakness.

Table 4.3 presented the total score of physical states, which was the measure of subject physical states in this study. Possible scores are zero to nine. Only 10 (8.8%) subjects had no signs or symptoms, while the remaining 103

subjects (91.2%) had one or more sign and/or symptom. The range was from zero to seven, with a mean of 2.27 (SD = 1.45).

Table 4.2

Physical States: Physical Signs and Symptoms
(Multiple Responses)

Signs	N (113)	%
Poor wound healing	12	10.6
Arm swelling	31	27.4
Other signs [e.g., changes in posture, weight gain]	6	5.3
<hr/>		
Symptoms	N (113)	%
Pain: Affected arm and/or surgical area	35	31.0
Impaired range-of-motion of the affected arm	19	16.8
Affected arm sensation [Numbness, burning, stiffness, tingling, heaviness, weakness]	72	63.7
Breast sensation [Numbness, itching]	54	47.8
Breast phantom sensation	17	15.0
Other symptoms [e.g., fatigue, weakness]	10	8.8

Table 4.3

The Total Score of Physical States (N = 113)

Total Score	n	%	M	2.27
0	10	8.8	<u>SD</u>	1.45
1	30	26.5	Range	0-7
2	27	23.9		
3	22	19.5		
4	16	14.2		
5	7	6.2		
6	0	0.0		
7	1	0.9		
TOTAL	113	100.0		

Research QuestionsResearch question #1

What are the components of social support among Japanese women with breast cancer?

There were four hypotheses for this question. Each hypothesis will be addressed separately.

Hypothesis a: There are different types of social support with differences in amount that Japanese women with breast cancer are receiving.

The JNSSQ data (i.e., the subscales of Affect, Affirmation, and Aid, and the variable of Total Functional) were analyzed with descriptive statistics. The results were described in Table 4.4. The affect range for the study sample was 10 to 156 ($M = 61.99$; $SD = 31.51$); the affirmation range was 10 to 168 ($M = 63.82$; $SD = 33.25$); and the aid range was eight to 160 ($M = 59.42$; $SD = 32.58$).

Matsuki and others (1992b) used the JNSSQ on Japanese mastectomy patients ($N = 19$) to measure their social support at two points in time: before hospitalization and three years after mastectomy. They reported affect was a mean of 37.2 before hospitalization and 48.9 three years after the breast surgery; affirmation was a mean of 40.4 before hospitalization and 52.1 three years after the surgery; and aid was a mean of 41.1 before hospitalization and 49.5 three years after the surgery. Statistical group mean comparisons with this study sample were not possible because the group standard deviations were not reported by Matsuki and others.

However, all three types of social support on the current study sample were higher than Matsuki and others' reports.

Norbeck and others (1983) reported their normative data on American female adults ($N = 89$). The affect range was 14 to 196 ($M = 101.48$; $SD = 44.65$), the affirmation range was 11 to 194 ($M = 92.52$; $SD = 40.64$), and the aid range was 18 to 197 ($M = 87.18$; $SD = 39.93$). Comparison with these data showed there were statistically significant differences in affect ($t = 7.36$; $df = 200$; $p < .001$), affirmation ($t = 5.52$; $df = 200$; $p < .001$), and aid ($t = 5.44$; $df = 200$; $p < .001$). American females were significantly higher in all three types of social support than the current Japanese study sample.

Next, amount of social support, the data on the Total Functional variable in the JNSSQ, was determined. The amount of social support range on the study sample was 33 to 470 ($M = 185.23$; $SD = 92.78$). Matsuki and others (1992b) reported their data on amount of social support among their Japanese mastectomy patients as a mean of 118.7 before hospitalization and 150.6 three years after mastectomy. Statistical comparison with this study sample was not possible again due to the lack of standard deviations. Because amount of social support, the score of the Total Functional variable, is the sum of the scores on the three types of social support: affect, affirmation, and aid, amount of social support on the study sample was also higher than Matsuki and others' reports.

Norbeck and others (1983) also reported amount of social support on their normative data on American female adults ($N = 89$). The range was 43 to 567 ($M = 281.18$; $SD = 121.53$). Statistical significance between the current study sample and Norbeck and others' normative data was found ($t = 6.36$; $df = 200$; $p < .001$). The normative data on American females were significantly higher than this study sample.

Table 4.4

Means, Standard Deviations, and Ranges for the Subscales and Variables of the JNSSO: Affect, Affirmation, and Aid as Types and Total Functional as Amount of Social Support ($N = 113$)

JNSSQ	M	SD	Range	
1. Affect #1	32.46	16.09	4	- 78
2. Affect #2	29.53	15.88	6	- 80
3. Affect (Total 1-2)	61.99	31.51	10	- 156
<hr/>				
4. Affirmation #1	34.10	17.90	6	- 84
5. Affirmation #2	29.72	15.91	4	- 84
6. Affirmation (Total 4-5)	63.82	33.25	10	- 168
<hr/>				
7. Aid #1	31.86	17.52	4	- 80
8. Aid #2	27.56	15.92	4	- 80
9. Aid (Total 7-8)	59.42	32.58	8	- 160
<hr/>				
10. Total Functional (Total 3, 6, & 9)	185.23	92.78	33	- 470

Hypothesis b: Social support among Japanese women with breast cancer is received and provided as a reciprocal support.

The data on the Reciprocity subscale in the JIPRI were analyzed with descriptive statistics to address the hypothesis. The results were presented in Table 4.5. Possible scores for the reciprocity range from one to five. The reciprocity range for the subjects ($N = 110$) was 2.77 to 4.85 ($M = 3.75$; $SD = .42$). Tilden and others (1990a) reported their normative data on American subjects ($N = 531$) as a mean of 3.72 ($SD = .81$). Comparison between the two groups showed that there were no statistically significant differences in reciprocity ($t = .38$; $df = 639$).

Hypothesis c: There is a negative aspect in the social support Japanese women with breast cancer are receiving.

The data on the Conflict subscale in the JIPRI were analyzed with descriptive statistics to address the hypothesis. The results were displayed in Table 4.5. Possible scores for the conflict range from one to five. The range for the subjects ($N = 112$) was 1.23 to 3.92 ($M = 2.38$; $SD = .52$). Tilden and others (1990a) reported their normative data on American subjects ($N = 531$) as a mean of 2.75 ($SD = .87$). Group mean comparison between the two groups indicated there were statistically significant differences in conflict ($t = 4.34$; $df = 641$; $p < .001$). This

study sample was significantly lower in conflict than Tilden and others' normative data.

Table 4.5

Means, Standard Deviations, and Ranges for the Subscales in the JIPRI: Reciprocity and Conflict

JIPRI	M	SD	Range	N
Reciprocity	3.75	.42	2.77 - 4.85	110
Conflict	2.38	.52	1.23 - 3.92	112

Hypothesis d: Sources of social support among Japanese women with breast cancer are mainly family members and close friends, and group sources of social support exist.

This hypothesis was analyzed with the data on the Personal Network (i.e., the list of the people of their social networks) and the Total Network variable (i.e., the sum of the number in personal network, duration of relationships, and frequency of social contact) in the JNSSQ. On the Personal Network, the 113 subjects listed a total of 1194 persons in their networks. The number of people listed per subject ranged from two to 22 persons, with a mean of 10.57 persons ($SD = 4.99$). The data on the Total Network for the subjects ($N = 112$) ranged from 17 to 204, with a mean of 97.75 ($SD = 44.36$).

The data on the Personal Network were categorized as to their sources (Table 4.6). Family members and relatives comprised 56.2 percent, and friends comprised 31.7 percent.

Only 1.9 percent were medical doctors; no one listed any other health care professionals. Matsuki and others (1992b) reported that family members and friends were main sources of social support among Japanese mastectomy patients before hospitalization and three years after mastectomy. According to their reports, comparing the data in the two points in times, numbers of family members were slightly decreased at three years after mastectomy, but numbers of friends were slightly increased at three years after mastectomy. Both Japanese study samples indicated that sources of social support were family members and friends. In this study sample, relatives were also included as sources of social support. Group support will be determined through interview data analysis.

Table 4.6
The Summary of Personal Network: Listed by 113 Subjects

Relationships	Total n listed	%
Spouse	84	7.0
Children	170	14.2
Mother	47	3.9
Father	18	1.5
Sister	103	8.6
Brother	69	5.8
Mother-in-law	12	1.0
Father-in-law	6	0.5
Sister-in-law	46	3.9
Bother-in-law	11	0.9
Daughter-in-law	16	1.3
Son-in-law	9	0.8
Other relatives	81	6.8
Friends	379	31.7
Neighbors	70	5.9
Co-workers/boss	26	2.2
Doctor: Breast surgeon	10	0.8
Doctor: Home Doctor	11	0.9
Doctor: Chinese medicine	2	0.2
Others	24	2.0
TOTAL	1194	99.9*

Note. * Percent does not add up to 100% due to rounding.

Research question #2

What are the relationships of social support, person factors, and psychological and physical states among Japanese women with breast cancer?

There were eight hypotheses. To address each hypothesis, Pearson correlation and multiple regression analysis were employed. Prior to the analyses, the assumptions for the analyses were determined. First of all, each variable and data were assessed. The variables of marital status, religion, education, and employment status were recoded. The marital status data were recoded as dichotomous: '1' nonmarried, including never married, separated, divorced, and widowed; '2' married. Religion was recoded as '0' if they had no religious beliefs and '1' if they had any religious beliefs. Education was recoded as '1' for less than high school education, as '2' for high school education, and as '3' for more than high school education. The subjects who had their education under the Japanese Old Educational System were excluded because of variety of quality and quantity of education before and during World War II. The employment status data were recoded as dichotomous: '0' for unemployed, including homemaker, unemployed, and retired; '1' for employed, including full-time, part-time, and self-employed. Therefore, the levels of data were interval (age, income, affect, affirmation, aid, total functional, total network, reciprocity, conflict, and psychological and physical states), dichotomous (marital

status, religion, and employment status), and ordinal (education).

Normality of distribution was assessed by skewness (Z-test and histogram) and graphic techniques (stem and leaf plot, boxplot percent and median, normal plot chart, detrended normal plot chart, and K-S lilliefors). The data on affect, affirmation, aid, and total functional were identified as data with positive skewness without zero. The data of these variables were transformed by {Log 10}. The data on psychological states were identified as positive skewness with zero. The data were transformed by {Log 10 (X + 3)}; the constant, '3,' was used because the data were with zero. After these transformations, normality, skewness, and outliers for each variable were reassessed. Homoscedastic was assessed through scatter plot.

Further determinations of the data for multiple regression analysis were done. For income, one of the person factor variables, the response rate was low (N = 69; 61.1%), so that this variable was excluded to prevent reducing the sample size. In addition, regarding education, one of the categories was the Japanese Old Educational System. As noted previously, it was characterized as variety of quality and quantity of education before and during World War II. The number of subjects who responded to this category was 15. To prevent reducing sample size for the regression analysis, this variable was also excluded. Therefore, as noted in Chapter Three, all variables for multiple regression

analysis were dichotomous or interval level data. Thus, dummy coding was not performed. Outliers were examined based on Cohen and Cohen's (1983) criterion, which is that outliers of 1 to 2 percent of the total subjects are acceptable. To assess multicollinearity, Stevens' (1992) criterion was used; high correlations of independent variables about .80 or larger were determined to be evidence of multicollinearity.

Residual analysis was done with residual plots obtained and examined for normality. The histogram of residuals indicated that the data points followed the normal curve. Scatterplot of regression standardized was also assessed. The data were determined to be linear in nature.

By reviewing the sample size and number of predictive independent variables, the ratio of 15 per independent variable (Stevens, 1992) was assured and R^2 , not adjusted R^2 , was used as the measure of association for the study.

Hypothesis a: Person factors are significantly related to types, amount, reciprocity, conflict, and sources of social support among Japanese women with breast cancer.

To address this hypothesis, the data on the Person Factor Survey Form (i.e., age, marital status, religion, education, employment status, and income), the JNSSQ (i.e., affect, affirmation, aid, total functional as amount, and total network as sources), and the JIPRI (i.e., reciprocity and conflict) were analyzed with Pearson product-moment

correlation coefficients.

The results can be found in Table 4.7. Significant correlations were found between marital status and social support variables. Marital status was significantly related to aid, one of the types of social support, positively ($r = .246$; $p < .01$; $r^2 = .06$) and related to total functional, amount of social support, positively ($r = .202$; $p < .05$; $r^2 = .04$). Since the variable, marital status, recoded dichotomous level data: '1' if they were nonmarried, including never married, separated, divorced, and widowed; and '2' if they were married, the positive significant correlations revealed that married subjects were higher in aid and amount of social support than nonmarried subjects. Age, religion, education, employment status, and income were not significantly related to any of these social support variables. Thus, as person factors, only marital status supported the hypothesis.

Table 4.7
Pearson Product-Moment Correlation Coefficients for Person Factors and Social Support Variables

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	N
1. Age														113
2. Marital Status	-.131													113
3. Religion	.358**	.011												112
4. Education	-.452***	-.144	.013											97
5. Employment	-.282***	.009	-.193*	.064										113
6. Income	-.156	.478***	-.006	.323***	-.131									69
7. Affect	-.099	.168	.121	.067	-.153	-.030								113
8. Affirmation	-.113	.185	.094	.058	-.182	.016	.965**							113
9. Aid	-.141	.246**	.032	.012	-.070	.005	.794**	.816**						113
10. Total Functional	-.124	.202*	.095	.058	-.147	.001	.975**	.981**	.893**					113
11. Total Network	-.054	.166	.126	.041	-.122	.011	.888**	.885**	.766**	.897**				112
12. Reciprocity	.010	.029	.126	.076	.044	.018	.336**	.346**	.214*	.326**	.317**			110
13. Conflict	.058	-.070	-.086	-.173	.160	.082	-.117	-.162	-.177	-.157	-.131	.011		112

Note. All significant levels were based on a two-tailed test.

* $p < .05$

** $p < .01$

Hypothesis b: Person factors are significantly related to psychological and physical states among Japanese women with breast cancer.

The data on the Person Factor Survey Form (i.e., age, marital status, religion, education, employment status, and income), the JGHQ (i.e., psychological states), and the Physical States Interview Form (i.e., physical states) were analyzed with Pearson product-moment correlation coefficients to address the hypothesis. The Pearson product-moment correlation coefficients showed that there were no person factors significantly related to psychological states or to physical states (Table 4.8). The hypothesis was not supported.

Table 4.8
Pearson Product-Moment Correlation Coefficients for Person Factors, Psychological and Physical States

Variables	1.	2.	3.	4.	5.	6.	7.	8.	N
1. Age									113
2. Marital Status	-.131								113
3. Religion	.358**	.011							112
4. Education	-.452***	-.144	.013						97
5. Employment	-.282***	-.009	-.193*	.064					113
6. Income	-.156	.478***	-.006	.323***	-.131				69
7. Psychological States	-.008	-.126	-.128	.078	-.007	-.064			108
8. Physical States	.049	.017	-.006	.062	.020	-.027	.300**		113

Note. All significant levels were based on a two-tailed test.

* p < .05

** p < .01

Hypothesis c: There are significant relationships among types, amount, sources, reciprocity, and conflict of social support, and psychological and physical states among Japanese women with breast cancer.

The data obtained by the JNSSQ (i.e., affect, affirmation, and aid as types of social support, total functional as amount of social support, and total network as sources of social support), the JIPRI (i.e., reciprocity and conflict), the JGHQ (i.e., psychological states), and the Physical States Interview Form (i.e., physical states) were analyzed with Pearson product-moment correlation coefficients. The results were displayed in Table 4.9. The Pearson product-moment correlation coefficients showed that aid, one type of social support, was significantly negatively related to psychological states ($r = -.198$; $p < .05$; $r^2 = .04$). A higher score in aid was related to a lower score in the JGHQ: better psychological states. Conflict, one dimension of social support, showed a significant positive correlation to psychological states ($r = .302$; $p < .01$; $r^2 = .09$). A low score in conflict was related to a low score in the JGHQ: better psychological states. There were no significant correlations between these social support variables and physical states. Thus, the hypothesis was partially supported.

Table 4.9
Pearson Product-Moment Correlation Coefficients for Social Support, Psychological and Physical States

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	N
1. Affect										113
2. Affirmation	.965**									113
3. Aid	.794**	.816**								113
4. Total Functional	.975**	.981**	.893**							113
5. Total Network	.888**	.885**	.766**	.897**						112
6. Reciprocity	.336**	.346**	.214*	.326**	.317**					110
7. Conflict	-.117	-.162	-.177	-.157	-.131	.011				112
8. Psychological states		-.108	-.131	-.198*	-.141	-.079	-.137	.302**		108
9. Physical States	-.028	-.033	-.027	-.030	-.010	.116	.063	.300**		113

Note. All significant levels were based on a two-tailed test.

* p < .05

** p < .01

Hypothesis d: Person factors predict amount of social support among Japanese women with breast cancer.

To address this hypothesis, regular multiple regression analysis was employed. The independent variables, person factors, were age, marital status, religion, and employment status; the dependent variable was total functional as amount of social support.

To identify any evidence of multicollinearity, correlations among the independent variables were assessed. Stevens' (1992) criterion for multicollinearity was used, high bivariate correlations of independent variables about .80 or larger. Among the bivariate correlations of independent variables, the highest correlation was $r = .357$ between religion and age (Table 4.10). Thus, there was no

evidence of multicollinearity among the independent variables of person factors.

Table 4.10

The Summary of Correlation Matrix of Age, Marital Status, Religion, and Employment Status as Person Factors and Total Functional as Amount of Social Support (N = 112)

Variables	1.	2.	3.	4.	5.
1. Age					
2. Marital Status	-.125				
3. Religion	.357	.011			
4. Employment	-.307	-.004	-.193		
5. Total Functional	-.126	.203	.095	-.148	

The results of the regular multiple regression analysis were displayed in Table 4.11. The person factors explained 10.14 percent of the variance in total amount of social support; this explained variance was statistically significant ($R = .3184$; $R^2 = .1014$; $F = 3.017$; $p = .0211$). Each variable was assessed, and age was a significant variable ($Beta = -.2078$; $t = -2.024$; $p = .0454$). Independent of other variables in the model, increased age was associated with decreased amount of social support. The hypothesis was supported.

Table 4.11
Regular Multiple Regression of Age, Marital Status,
 Religion, and Employment Status as Person Factors on Total
 Functional as Amount of Social Support (N = 112)

Variable	Beta	t	P
Age	-.2078	-2.024	.0454
Marital Status	.1745	1.884	.0622
Religion	.1319	1.336	.1844
Employment	-.1853	-1.914	.0583

R = .3184

R² = .1014

F = 3.017

p = .0211

Hypothesis e: Person factors predict psychological states
 among Japanese women with breast cancer.

To address this hypothesis, regular multiple regression analysis was employed. The independent variables, person factors, were age, marital status, religion, and employment status; the dependent variable was psychological states.

To identify evidence of multicollinearity, correlations among the independent variables were assessed. The highest correlation was r = .332, which was between religion and age (Table 4.12). Therefore, there was no evidence of multicollinearity among the independent variables of person factors. Regular multiple regression analysis was performed.

Table 4.12
The Summary of Correlation Matrix of Age, Marital Status, Religion, and Employment Status as Person Factors and Psychological States (N = 108)

Variables	1.	2.	3.	4.	5.
1. Age					
2. Marital Status	-.128				
3. Religion	.332	.017			
4. Employment	-.309	-.043	-.178		
5. Psychological States	-.008	-.126	-.128	-.007	

Of the subjects (N = 108), the results of regular multiple regression analysis showed there was not significance ($R = .1817$; $R^2 = .0330$; $F = .8793$; $p = .4791$). The hypothesis was not supported.

Hypothesis f: Social support predicts psychological states among Japanese women with breast cancer.

To address the hypothesis, regular multiple regression analysis was employed. The independent variables were social support variables; the dependent variable was psychological states.

The bivariate correlations among the independent variables were presented in Table 4.13. According to Stevens' (1992) criterion, there was evidence of multicollinearity, high bivariate correlations (> .80) among the subscales and variables in the JNSSQ: Affect, Affirmation, Aid, Total Functional, and Total Network.

Table 4.13

The Summary of Correlation Matrix of Social Support Variables and Psychological States (N = 104)

Variables	1.	2.	3.	4.	5.	6.	7.	8.
1. Affect								
2. Affirmation	.963							
3. Aid	.785	.810						
4. Total Functional	.974	.981	.889					
5. Total Network	.887	.883	.766	.898				
6. Reciprocity	.342	.354	.211	.329	.322			
7. Conflict	-.102	-.148	-.168	-.144	-.128	.000		
8. Psychological States	-.072	-.098	-.172	-.107	-.072	-.134	.309	

Referring to Stevens' (1992) procedure for multicollinearity, these high correlated independent variables were combined, and the combined variable was named as Total Support.

After combining these variables with multicollinearity, the bivariate correlations of the variables of Total Support, Reciprocity, and Conflict were reassessed (Table 4.14). The highest correlation was $r = .323$ between Total Support and Reciprocity. Thus, the independent variables were Total Support, Reciprocity, and Conflict; the dependent variable was psychological states. Regular multiple regression analysis was performed.

Table 4.14

The Summary of Correlation Matrix of Combined and Selected Social Support Variables and Psychological States (N = 104)

Variables	1.	2.	3.	4.
1. Total Support				
2. Reciprocity		.323		
3. Conflict		-.129	.000	
4. Psychological states		-.073	-.134	.309

The results of regular multiple regression analysis for the hypothesis were displayed in Table 4.15. The social support variables explained 11.37 percent of the variance in psychological states that was statistically significant ($R = .3372$; $R^2 = .1137$; $F = 4.2768$; $p = .0069$). Each variable was assessed, and conflict was a significant variable ($Beta = .3107$; $t = 3.270$; $p = .0015$). Independent of other variables in the model, decreases in conflict were associated with better psychological states. The hypothesis was supported.

Table 4.15

Regular Multiple Regression of Social Support Variables of Total Support, Reciprocity, and Conflict on Psychological States (N = 104)

Variable	Beta	t	P
Total Support	.0110	.110	.9128
Reciprocity	-.1376	-1.382	.1701
Conflict	.3107	3.270	.0015

$$R = .3372$$

$$R^2 = .1137$$

$$F = 4.2768$$

$$p = .0069$$

Hypothesis g: Social support predicts physical states among Japanese women with breast cancer.

To address the hypothesis, regular multiple regression analysis was employed. The independent variables were social support variables; the dependent variable was physical states.

By using Stevens' (1992) criterion for multicollinearity, evidence of multicollinearity was

assessed. The bivariate correlations among the independent variables were displayed in Table 4.16. There was evidence of high bivariate correlations ($> .80$) among the variables of Affect, Affirmation, Aid, Total Functional, and Total Network in the JNSSQ. These variables were combined, and named as Total Support.

Table 4.16

The Summary of Correlation Matrix of Social Support Variables and Physical States (N = 108)

Variables	1.	2.	3.	4.	5.	6.	7.	8.
1. Affect								
2. Affirmation	.963							
3. Aid	.783	.806						
4. Total Functional	.974	.980	.887					
5. Total Network	.888	.884	.762	.897				
6. Reciprocity	.335	.344	.211	.324	.319			
7. Conflict	-.101	-.149	-.167	-.143	-.123	.012		
8. Physical States	-.006	-.011	-.000	-.005	-.003	.118	.060	

After combining these variables with multicollinearity, the bivariate correlations of Total Support, Reciprocity, and Conflict were reassessed. The bivariate correlations among the variables were displayed in Table 4.17. The highest correlation was $r = .319$ between Total Support and Reciprocity. Therefore, the independent variables were Total Support, Reciprocity, and Conflict; and the dependent variable was physical states.

Table 4.17

The Summary of Correlation Matrix of Combined and Selected Social Support variables and Physical States (N = 108)

Variables	1.	2.	3.	4.
1. Total Support				
2. Reciprocity	.319			
3. Conflict	-.124	.012		
4. Physical states	.003	.118	.060	—

Regular multiple regression analysis was performed for the three social support independent variables on the dependent variable, physical states. The results showed the set of social support independent variables did not have significant effects on the dependent variable, physical states ($R = .1347$; $R^2 = .0181$; $F = .6405$; $p = .5907$). The hypothesis was not supported.

Hypothesis h: By statistically controlling physical states, person factors and social support predict psychological states among Japanese women with breast cancer.

Person factors were not used in the analysis because these were not correlated with psychological states. Thus, the hypothesis was modified to: by statistically controlling physical states, conflict predicts psychological states. To address the modified hypothesis, a hierarchical multiple regression analysis was performed with the control variable, physical states, entered before the independent variable, conflict, to eliminate the influence before the effects of the independent variable were assessed. Therefore, as the first step, physical states was entered; then, conflict was

forced into the model.

The results of the analysis were displayed in Table 4.18. The two variables explained 17.19 percent of overall variance in psychological states. After considering physical states, the independent variable, conflict, explained 8.06 percent of the variance in psychological states. A comparison of beta coefficients indicated that physical states ($\text{Beta} = .2847$) and conflict ($\text{Beta} = .2843$) had identical independent contributions; decrease in conflict was associated with better psychological states. The modified hypothesis was supported.

Table 4.18
Hierarchical Multiple Regression on Psychological States
Using Conflict with Physical States Controlled (N = 107)

Step	Variables	R	R ²	F	P	R ²	Variables	Change	In Equation	Beta	T	P
1	Physical States	.3022	.0913	10.555	.002	—						
2	Conflict	.4146	.1719	10.791	.0001	.0806	Physical States		Physical States	.2847	3.185	.0019
							Conflict		Conflict	.2843	3.180	.0019

Additional Data Exploration

Three research questions were developed for further exploration.

Research question #3

By controlling marital status, what are the relationships of social support and psychological and

physical states among Japanese women with breast cancer?

This research question was developed because there was a significant correlation between marital status and aid and between aid and psychological states. The research question was addressed by partial correlation procedures. The results can be found in Table L.1 (Appendix L). With marital status held constant, the significant relationship between aid and psychological states was found to be no longer significant ($pr = -.17$; $p = .07$). Controlling marital status, conflict was significantly related to psychological states ($pr = .30$; $p = .01$). This result was the same significant correlation between conflict and psychological states without controlling marital status ($r = .30$; $p < .01$) (Table 4.9). With controlling marital status, no additional significant correlations were found.

Research question #4

What are the relationships of illness-related variables with social support, person factors, psychological and physical states among Japanese women with breast cancer?

This research question was developed to assess correlations of major research variables with illness-related variables. This research question was addressed by the use of Pearson correlation procedures. The results can be found in Tables M.1, M.2, and M.3 (Appendix M). Some low significant correlations were found. The stage of breast cancer (I or II) was significant correlated with affect ($r = .20$; $p = .03$; $r^2 = .04$), affirmation ($r = .19$; $p = .04$; $r^2 =$

.04), total functional as amount of social support ($r = .19$; $p = .04$; $r^2 = .04$), and total network as sources ($r = .24$; $p = .01$; $r^2 = .06$) (Table M.1). These positive correlations of the stage of breast cancer with the social support variables indicated that higher stage was related to more social support. Also, the number of months after breast surgery was significantly correlated with age ($r = .19$; $p = .04$; $r^2 = .04$) (Table M.2). None of these illness-related variables were significantly related to psychological or physical states (Table M.3).

Research question #5

What are the relationships of having contact with other cancer patients with psychological and physical states among Japanese women with breast cancer?

This research question was developed because one of the major characteristics of the study sample was that about one-half of subjects were having contact with other cancer patients, rather than attending a self-help group. The data on the variable were coded as "0" subjects who had no contact with other cancer patients and as "1" those who had contact with other cancer patients. Pearson product-moment correlation coefficients were employed to address the research question. The results can be found in Table N.1 (Appendix N). The results showed a significant positive correlation with physical states ($r = .1972$; $p = .044$): subjects who had contact with other cancer patients were significantly higher in physical signs and symptoms. On the

other hand, there were no significant correlations between having contact with other cancer patients and psychological states ($r = -.0879$; $p = .382$).

Qualitative Data Analysis

The procedures of content analysis, described in Chapter Three, identified common and unique themes and outlined a descriptive structure and consisted of five higher-order categories. These categories were 1) social support information, 2) psychological information, 3) family issues, 4) illness-related information, and 5) others. Content analysis of the social support information was determined to describe social support among the Japanese women with breast cancer. Six categories of social support information were identified: 1) types, 2) amount, 3) sources, 4) reciprocity, 5) conflict, and 6) group activities. The first three categories will be described together because of their interrelatedness, and the remaining categories will be described separately. The women were asked to identify the most helpful types of support they experienced. These will be described collectively as a subcategory of types.

Types, Amount, and Sources of Social Support

The participants identified two major types of social support: aid and emotional support. According to their descriptions of aid, they used Japanese terms-**sewa** (aid or

care) and **tetsudai** (help). They differentiated emotional support from aid by using Japanese terms-**ki zukai** and **ki ni kakeru** (care with concern), **kokoro kubari**, **kokoro zukai** and **ki kubari** (concern with paying attention to others' needs), **yasashii** (gentle or kind), **shinpai** (worry), **omoiyari** (consideration), and **sasae** (support).

Aid

Aid was described as physical assistance primarily with housekeeping activities, such as cooking, doing laundry, carrying heavy things (e.g., garbage bags and futons, the Japanese style bedding), cleaning rooms, and doing grocery shopping as well as carrying heavy things at work. This assistance was performed by family members, relatives, close friends, and co-workers. Most of the aid was provided during hospitalization and right after discharge. For example, one participant, who never married and was employed full time, described how her friends helped her during hospitalization and right after discharge:

My friends also have full time jobs. My family lives far away.... So, my friends, three of them, who live in my neighborhood.... helped me, depending on their working schedule. They made a rotation table (laugh). It was for when and who is going to visit me, who is going to do laundry, who is going to buy some things I need to get.... When none of them could be available for me, my family members, they live far away though, they helped, to fill in the rotation table.

For some participants, however, it was primarily family members who started to help when cancer was found. One participant, a homemaker, stated "My family was more worried

about me than I was.... They usually do not help me with any housekeeping work at all, but they started to help me right after I was diagnosed with the cancer."

Participants stated that they did not need to ask for help, it was offered without asking before and during hospitalization and right after discharge. The providers continued to help until one, three, or six months after discharge, depending on participants. Participants became able to manage almost as much housekeeping work as they did before, except carrying heavy things. They needed to ask their family members for help in this area. One participant observed:

Oh, yes, when I was discharged from the cancer center, my family said to me "Do not do that," "Do not carry this," "Do not move so much here and there." I could not do any housekeeping work, even though I really liked to do it as a part of my rehabilitation. I did not do any housekeeping work for about six months after my discharge.... They did not let me do any, but they do not help me much any more. I need to ask for help carrying heavy things, like futons or garbage bags. If I ask, they help me.

In sum, for the participants, assistance with housekeeping work was the major aid they received. Some participants stated that they started to receive aid at the time of cancer diagnosis, but most of them described they received aid especially during hospitalization and right after discharge. These aids were offered without asking. However, after discharge, they needed to ask for help. Other examples of aid were assisting with child care, assisting the participant with self-care such as washing hair, and

driving a car for her. Sources for aid were family members, relatives, close friends, and co-workers.

Emotional support

The participants' descriptions of their perceptions of emotional support provided the following categories: 1) encouragement through rare verbal expression, 2) physical closeness but nonverbal expression, 3) caring attitudes through indirect verbal expression, and 4) others.

1. Encouragement through rare verbal expression

Most participants frequently described emotional support as encouragement through rare verbal expression as an important aspect of emotional support. At the time of breast cancer diagnosis, this emotional support was noted when participants were informing others about their cancer diagnoses. Participants were selective in whom they told. This included family members who lived with them, all siblings or only those with whom they had most contact, friends whom they could trust, and friends who were also cancer patients or whose family members were diagnosed with cancer. The participants excluded their elderly or ill parents due to consideration for them. Some did not tell friends who were talkative since they were worried that these friends were unable to be trusted to keep the information confidential. Informing employers and co-workers of their diagnosis was done of necessity as they had to take off from work.

After informing others of their diagnosis and

discussing surgery, most participants said that their family members encouraged them simply to go to a hospital and to have surgery. For example, one participant noted that her daughter, a high school student at that time, told her, "Mother, do not worry. I will take care of all housekeeping work. Do not worry. You will be fine." Another participant realized that her spouse seemed shocked by the diagnosis, but he did not verbalize this at all. "I know my husband was shocked, but he did not say anything. He just encouraged me to go to the hospital soon and have breast surgery." Another participant described, after their discussion of breast surgery, how her daughter encouraged her:

My daughter told me, "Mother, have a surgery to remove all, not a part of the breast. You do not have any baby you have to breast feed. Have surgery to remove all...." I thought my daughter was so objective and had not expressed her feelings. I did not think she was going to say something like that. I thought many.... she was married, and she does not live with me any more. But after my surgery, I realized, by saying so, she just tried to encourage me to have the surgery.

Only one participant described her perception of a family member's directly expressed feelings about the cancer. This woman described her brother's positive outlook and his view of her cancer as an opportunity to reevaluate what was important to her. This brother had also been a cancer patient.

When I was told the diagnosis at the Out Patient Department (OPD), my brother was with me. He told me.... He is also a cancer patient. He said to me, "Even though you may think you were diagnosed with a very serious disease, it is not that bad. I think it was a reward from God, to take off from your work. It was given, as a chance, to let you think what is really

important for you in your life."

During hospitalization, most of the participants recalled they were simply encouraged by family member but with no specific verbal expressions that directly related to their disease. They just asked how treatments were going and waited for her to be discharged soon. Only one participant described how she was encouraged verbally. "My aunt said to me, 'You are always worried about others. At this time, let them be worried about you. You just get treatment without any worry about others.'"

Also, right after discharge, only family members offered a few verbal expressions that directly related to their disease. One child, an elementary school student, came back from school, and he commented that he noticed his mother was home and not at the hospital. Also, when she took a bath with him, he said, "Mother, you really lost your breast." These were recognized as emotional support by the participant. Moreover, some family members saw the incision, and they expressed their feelings and thoughts of it, such as "beautiful." The verbalization about the incision also was perceived as emotional support by the participants.

After discharge, in their daily verbal communication, not talking about the disease among family members was a common theme. Only one participant was able to discuss her cancer and this was because she had brothers with cancer and they had been informed of their own cancer diagnoses as "cancer." She stated that she could talk about cancer with

them openly.

2. Physical closeness but nonverbal expression

As next most common theme of emotional support, participants frequently described physical closeness but nonverbal expression. Several participants were accompanied by their family members or close friends when they were at the OPD in the cancer center. This was described as a great support. For example, one participant stated:

I thought I would be okay just by myself at the OPD. However, I was very.... Very fainthearted.... My brother and my mother were with me at the OPD. They did not say any special words to me. They were with me. They listened to my doctor.... They were very supportive, and I know I was not myself at that time.

During hospitalization, the family's visiting them at the cancer center was identified as the best support. Just being with the women and spending time at the cancer center without doing anything specific were viewed as supportive. One participant stated:

(During hospitalization) for me, I felt secure by just seeing my family's face. My family did not visit me at the cancer center for specific reasons. Simply, they were with me, and I could feel better. Family is the best.

Others also described a similar positive influence of close friends' visiting them at the cancer center.

3. Caring attitudes through indirect verbal expression

The other common theme of emotional support was that the participants perceived support as caring attitudes through indirect verbal expression. One participant explained that she perceived emotional support by offers of

help:

My husband does not say directly how much he cares about me. But, I know he does care about me.... He says "I will take care of the garbage bags. I will do the futons; you do not have to."

Another participant described a similar perception:

My husband? He does not say much, but I know he cares about me. He says, "If you are tired, take a nap," something like that. I know he does not say in words, but he **ki zukau** (cares with concern) for me in his mind. He is not a type of person to express in words how much he is kind to me or thinks of me.... He has never directly expressed so (laugh). He is just that type of person, but I know....

Another participant experienced emotional support through indirect verbal expression of her husband. She stated, "I can see my husband cares about me. He says to my sons, 'Do clean rooms; your mother is tired.'"

4. Others

Health care professionals were included in women's descriptions of emotional support. Participants described how medical doctors explained the disease, types of breast surgery, and adjuvant treatments, agreed with their decisions about the types of surgery they chose, and listened to the participants complains. Participants also talked about nurses and how the nurses provided nursing care, particularly during hospitalization. These were revealed as general positive cares from health care professionals.

There were some descriptions of **bonne** (true intentions/feelings) and **amae** (psychological dependency),

which were reviewed as characteristics of Japanese culture in the literature. **Honne** (true intentions/feelings) and **amae** (psychological dependency) were described in only intimate relationships. For example, one participant shared her conversation with her daughter describing **honne** (true intentions/feelings) :

With my daughter, well, sometimes, my daughter and I do argue, by saying **honne** (true intentions/feelings) . . . about really tiny things, nothing so important. Even when we argue, we are fine soon. Of course, we are mother and daughter. It is to express emotions in our relationship, mother and daughter.

Another participant described her **amae** (psychological dependency) as:

I try not to . . . yea, **amae nai** (not being psychologically dependent), I mean I try not to be too much, yes, I think I should show my children as my discipline by not being **amae** (psychological dependent) much. I think I am **amae** some though but just desired degrees (laugh) . . . My mother may think . . . (laugh) . . . I do not know how she thinks (laugh) . . . she may think I am **amae** very much.

Summary

Participants described emotional support as 1) encouragement through rare verbal expression, 2) physical closeness but nonverbal expression, 3) caring attitudes through indirect verbal expression, and 4) others. Encouragement through rare verbal expression and physical closeness but nonverbal expression were frequently described as the most important emotional support, particularly at the time of diagnosis and before and during hospitalization. Caring attitudes through indirect verbal expression were

also described immediately after discharge and again at later post-discharge times. These were emotional support through rare verbal, nonverbal, and indirect verbal expressions, rather than emotional support through directly offered verbal expression. The providers were family members, relatives, close friends, and health care professionals. Emotional support from health care professionals was also included. In addition, **bonne** (true intentions/feelings) and **amae** (psychological dependency) were reported among intimate relationships such as a mother-daughter relationship.

The most helpful support

1. The most helpful aid

As the most helpful aid, one participant stated that her neighbor friends brought side dishes for her family members everyday during her hospitalization. Another participant noted that she did not need to cook for a while.

Uh, the most helpful?.... Cooking! I did not need to cook. My sister and niece stayed at my home for a while, and they helped me. They cooked. I could not use my arm because I did not have enough muscle strength to hold a frying pan by my left arm (the affected arm) or to make rice balls.... It sounds very silly, but I just did not have enough muscle strength. I could not cook for about one month after discharge.

Similarly, another participant identified her two sisters as most helpful sources. Although they both lived far away, they came and stayed at her home to help her by taking over housekeeping responsibilities and by having contact with neighbors.

2. The most helpful emotional support

As the most helpful emotional support, spouses were identified as sources. Some participants described their spouses' understanding and co-operation, and *kokoro zukai* (concern with paying attention to others' needs), as most helpful emotional support. For example, one participant stated:

With my husband, we do not talk much about the disease. But he said, "we should have long lives,,, be alive for a long time...." Then, I said the same thing to him. We had that kind of conversation.... It was the time when we talked about the type of breast surgery.... He takes care of our children, even before I was diagnosed with the cancer. Now, of course, he does. He is very co-operative.

One participant reported that time alone with her spouse on a trip was emotionally supportive:

After my discharge, my husband and I, only the two of us, went on a trip. Although it was just one day trip, my husband had never taken off from his work before. Well, of course he did take off from work for the day of my surgery. So, it was the second time for him. Any way, he did so. He drove for me, and we went on the trip. Previously, I was telling him, "I want to go Anzu no Sato (the name of the place)" several times. He remembered what I said before. He took me to see the place.... I saw apricot flower blossoms. It was so beautiful! I felt "I am still alive!" It was a wonderful trip.

For some participants, the most helpful emotional support was provided by friends who were also cancer patients, or whose family members were cancer patients, especially before hospitalization. For example, one participant described the support she received from a friend whose sister was diagnosed with breast cancer. This friend encouraged the participant by sharing that her sister was

doing fine.

I have a friend whose sister was diagnosed with breast cancer. I told her about my cancer. She said her sister was diagnosed with the cancer 10 years ago. A doctor told them "No chance, 99 percent sure" [that she would die]." She said, "My sister is still doing fine. So, you will be fine." She was a great adviser for me.... She checked my lump, and she was with me at the OPD.... She listened to me a lot. She was very supportive.

Another participant described that her observations of other cancer patients' positively fighting their cancers as helping her to be positive about her own cancer and to be healthy again.

Summary

The most helpful aid was characterized as taking over the housekeeping work for the patient and her family members, particularly when provided during hospitalization and immediately after discharge. The most helpful emotional support was described as deep emotional concern, and it was provided by the spouse, friends with cancer, and friends whose family members were diagnosed with cancer. The support was provided at the time of diagnosis of the cancer, before and during hospitalization, and right after discharge.

Reciprocity

Reciprocity, as reviewed in Chapter One, is one of the Japanese cultural characteristics and described as maintaining harmonious relationships by trying not to sense guilt and shame. In this section, participants' descriptions of how they helped others as a reciprocal support will be presented. Participants described two types of reciprocity:

1) a one-way direction (from her to others) and 2) a two-way direction (from her to others and from others to her).

1. A one-way direction of reciprocity

A one-way direction of reciprocity will be described in different terms. Before hospitalization, only a few participants described their providing support to others. The participants described how they provided emotional support to their teenage children, especially telling them about the diagnosis. The children were preparing for high school entrance examinations or studying for school examinations. They added that it was to prevent upsetting them.

During hospitalization, there were only a few descriptions of this reciprocity. For example, in the morning, a participant called home to wake up her daughter who was a junior high school student. It was to help her daughter be on time for school.

After discharge, women felt they were most helpful to others by sharing their experiences and explaining the importance of early detection of cancers.

I would say I am doing things for just myself, it is just enough.... But well, I say to my friends early detection is very important, not only early detection of cancer but also any other disease. So, I say to them, my friends, they should get medical check-ups.

Another participant encouraged a person who was recently diagnosed with cancer:

My acquaintance's brother was diagnosed with a cancer, and then.... He was upset.. worried about what he should do.... I have some information that I collected

for myself before. About cancer treatments, and my experiences, prognosis, rehabilitation.... I provided these to him.

Most participants stated that they talked about these aspects only to family members, close friends, and/or neighbors who were dealing with some type of health problems.

Only one participant described her feelings that her explanations about her experiences to others were not only for them but also for herself:

I do not hide my experiences. When I am talking about my health with someone, I say, "I, in fact, had a major disease." Then, I start to talk about my experiences. If I do so, others also start to talk.... Talking about my experiences is also for myself. By doing so, I think I can be better. So, not only my close friends know about my disease, others, like acquaintances who are in my neighborhood, they also know my disease.... Even I needed time, six months to one year, to think in this way....

Some participants also described their providing support to others who needed help due to some difficulty, dependency, and/or disability. For example, one woman described how she helped her co-workers who were mentally retarded. Another participant described dealing with her children who were having difficulty with the cancer. Another woman explained her support to others as concern about family members who were sick or aged.

As a one-way direction of reciprocity, other themes were giving contributions of books and clothes to public use, doing routine care for family members, providing advice for family members, being worried about a family member's

health, and having a healthy and active daily life. One participant stated, "From me to others? No, not specific. I am having my regular daily life with my family as I did before. I think it is one thing I can provide to my family, be healthy and be active...."

2. A two-way direction of reciprocity

In addition to the theme of a one-way direction of providing care from her to others, some participants described a two-way direction of reciprocal providing care from her to others and from others to her, such as trusting and helping each other with family members, relatives, close friends, and other cancer patients.

For instance, a two-way direction of reciprocity was evident in caring about other cancer patients. The participants who had contacts with other cancer patients indicated that they had contact with each other by seeing them in the cancer center, making telephone calls, and/or sending letters. Some participants went on trips together. They shared their feelings, encouraged each other, and exchanged treatment and rehabilitation information during hospitalization and after discharge. Some participants stated that they did all of these, or some exchanged information but did not share their feelings. Having contact with other cancer patients was described as necessary for some participants because of the shared experience of having cancer. They emphasized that this was different from communication with family members, friends, and relatives

who were healthy. One participant described this difference.

There was a big difference between conversations with my family members and with other cancer patients. My family thinks about my cancer negatively, while cancer patients, we think of cancer positively. Of course, we know that we have fear (of recurrence) in some degree. At the same time, we know we have some confidence we could come through a difficult time. So, we are positive about being people who have had a cancer experience. We know that.

One participant stated that she had contact with other cancer patients whom she met at the cancer center during hospitalization, and she was satisfied. She stated that she knew of the existing self-help group for breast cancer patients, but she was not interested in it at all.

Although some participants still continued to have contact with other cancer patients, some participants no longer had contact with them. The reasons were that some had moved away, they could not share feelings due to generation gaps, they felt sorry for the women who were receiving adjuvant treatments due to more advanced cancer, or they could not appreciate others due to personality differences.

Summary

Reciprocity was described in two major types: one-way and two-way directions. A one-way direction of reciprocity was described as having a healthy and active life, doing routine care for family members, being worried about family members' health, and sharing their cancer experiences and explaining the importance of early detection of cancers to family members, close friends, and neighbors with health problems. These were mostly described after discharge rather

than at the time of diagnosis of breast cancer or before hospitalization. Moreover, a two-way direction of reciprocity was described as sharing their feelings, encouraging each other, and exchanging treatment and rehabilitation information with other cancer patients during hospitalization and after discharge, as well as trusting and helping each other with family members, relatives, and close friends.

Several participants did self-evaluation as care providers. One stated that doing care herself was more than enough so that she had no energy left to help others, even if she had wanted to do so. Another stated that she wanted to return care to close friends from whom she received care, but she has not done so yet. These descriptions may be related to their value of maintaining harmonious relationships by receiving care from others and returning care to others from whom they received care as a reciprocal support. Moreover, a few participants evaluated themselves as care providers rather than care receivers. Other participants stated that they increased the degree of providing care to others more than before they were diagnosed with cancer, such as being aware of others' needs and sharing their cancer experiences. These revealed that participants were support providers as well as support receivers.

Conflict

Participants stated either having no conflict or some

conflict experiences. First, some participants stated that they did not experience conflict caused by their receiving help or by their perceiving lack of help. Some participants, who were in their 60s and 70s, stated that they did not expect any help from others because of their generation, described as the generation that does not rely on others:

Basically, I am not a type of person to rely on others. It is just my generation. Therefore, there was no difficult time because no one helped me. I mean, at the beginning, I do not ask for any, and I do not expect any. It is not just only for this time, but I have been this way all of my life. I do not expect anything.

On the other hand, there were some descriptions of conflict experiences: 1) experiences of dissatisfaction due to perceiving lack of support, 2) conflict experiences through verbalizations, and 3) conflict experiences through social behavior.

1. Experiences of dissatisfaction due to perceiving lack of support

Some participants described their experiences of dissatisfaction due to perceiving lack of support. For example, one divorced woman who was living by herself asked her siblings for their opinions about hospitalization, but they did not provide any. For some participants, health care professionals were sources of experiences of dissatisfaction due to perceived lack of support. For instance, one participant wanted to ask some questions that she wrote down, but she could not ask them to her doctor.

Well,,, I would say that before surgery or during

hospitalization, I wished I could have got more explanation. Yes, I had my doctor's explanation, but I needed much more,, as a patient,,, like explanations of disease, or I just needed to have some conversations with my doctor.... So, I prepared and wrote in my memo, my questions that I wanted to ask my doctor. But, I could not ask.... I could not catch any good timing. The doctor was so busy.

2. Conflict experiences through verbalizations

Moreover, evidence of conflict through verbalizations was described by some participants at the time of diagnosis of breast cancer, immediately and late after discharge. For example, one participant expressed her feelings about the words of her spouse. When she told her diagnosis of the cancer to her spouse, he responded in an abrupt manner, "Is that so? Remove it!" Even after her surgery, she thought he knew about her positive personality, so he tried to encourage her by saying the words. However, at the moment, she showed her anger:

I thought he could say in different ways. I was told like that, "Is that so? Remove it!" So, I said to my husband my **honne** (true intentions/feelings), "Don't say it so simply. Don't you have any other ways to say this to me!" I expressed my anger.

In this description, **honnie** (true intentions/feelings) was included, and it was another example of expression of **honnie** among people who have intimate relationships, a husband-wife relationship. Other participants described their conflict experiences through verbalizations from their co-workers, friends, and neighbors. Their descriptions of the conflict experiences were vivid about the situations: when, what, who, where, and how.

3. Conflict experiences through social behavior

Furthermore, they did have conflict experiences through social behavior through valuing maintaining harmonious relationships by performing social obligations. For example, a theme of social obligations was described as a conflict experience by one participant:

If I say one thing, I had stress from other patients during my hospitalization. I was with five other patients in one room, you know it was a room for six patients. Among the patients, they shared confectionery [e.g., cakes or some other sweet foods], which they got from their family or friends. I mean they distributed some to other patients. I could not refuse because I could not find any reasons for it, my hospital diet was regular and not a restricted diet. I accepted them from other patients. Then, I felt I needed to give back by distributing confectionery to the other patients. So, I even asked my daughter to bring some confectionery, and I did distribute them.

This was one example of conflict experiences through performing social obligations by receiving and giving back what she had been given. Also, it was to maintain harmonious relationships without saying "No" to others. In addition, other participants described their family members as sources of conflict. For example, one participant described her mother as a source of conflict because her mother was worried about her too much. The participant could not discuss her own needs and worries because this would increase her mother's worry. She described:

My mother was worried about me very very much, she was worried unnecessarily.... Because of it, my mother was almost sick herself. It was too much.... Of course, if I say some things to my mother at that time, I knew my mother would have had a heavy burden. So, I did not say anything. I listened to her, and I said to her, "Yes," "yes," and "yes."

She was trying not to sense guilt and shame (i.e., not giving heavy burden to her mother) by maintaining harmonious relationships and suppressing her own needs (i.e., expressing what she wanted to say). For others, being provided "unwelcome support" was an additional description of conflict from social behavior. Most women wanted to be visited during hospitalization; however, these feelings did not extend to being visited by their relatives or friends who were not close. As one participant said "I just did not want to see my relatives at the hospital. I did not want to show myself as a patient." In addition, friends were sources of conflict for some participants. Being given unsolicited religious beliefs or healthy diet was described as conflict especially after discharge. One participant said that she did not appreciate her friend's recommendation about a healthy diet. Her friend emphasized how such a healthy diet was good for her health.

My friend said, "Homemade yogurt is good for your health." I did make yogurt, and I did drink it. I could make lots of it, so I gave it to other friends. I was not interested in doing it in the first place.... So, I said to her, "I would like to return,,, some equipment and ingredients I was borrowing from you...." I even said to her, "I do not like to do this any more." She said, "Okay." Later, she again said, "Plum vinegar is good for your health," and she brought it to my house. It was a great amount. After the plum vinegar, she brought sesame seeds... She is keeping it up, without asking me whether or not I want to do.... I do have a problem with what she does for me. There are so many foods she brought to my house because she thinks they are good for my health.

The other description of conflict was trying not to talk about the cancer. Even though it was perceived as being

appreciated by some participants, it was perceived as conflict by some others. One participant stated:

Others' being too concerned, I do not like it when others are too concerned about me. I was diagnosed with breast cancer, so others are trying not to talk particularly about the cancer,,, I think they may be concerned about me, so they express it in that way, but I can sense too much concern from them.... I would appreciate rather to have ordinary conversation.... such as being asked, "How about your cancer?"

Summary

As conflict experiences, dissatisfaction due to a perception of lack of support was described. Also, participants described their experiences of conflict through verbalizations and social behavior. Conflict experiences through social behavior were described as maintaining harmonious relationships by performing social obligations, being concern for others rather than prioritizing her own needs or herself, and being provided "unwelcome support," as well as not having the cancer mentioned. Various sources of conflict were identified and experienced at various times: the time of the cancer diagnosis, before and during hospitalization, and immediately after discharge and later after discharge.

Group Activities

Some participants described their group activities, which were given by three types of groups: "**seikyo**" [**seikatsu kyodou kumiai**] (livelihood co-operative union), **rojinkai** (age-peer grouping), and **shotenkai** (store/shop grouping). "**Seikyo**" was the most commonly identified type of

group activities by the participants. "*Seikyo*" was described as a formal organization that exists as a town or block association controlled by members of residents living in their own homes. Their main group activities were saying greetings, sharing some information for living, and buying food and household utensils. Most of them did not tell their diagnosis of breast cancer to their group members. Some of them stated that they have their activities to help each other in general but not in depth or for anything related to cancer. For example, one participant stated that there were differences in relationships between the members of the union and close friends. Although she told the group members about the cancer, as a necessity for group activities, her relationships with the members were not deep ones.

Only one participant who belonged to "*seikyo*" described receiving support during her hospitalization and taking an active role participating with the group members after discharge. She described, during her hospitalization, how the members of her livelihood co-operative union helped prepare meals for family members. She explained that the group has a care system for its members: a member who needs help can ask for help from the system, and the system can provide some members who then provide care. The members who provide care receive a fee for care. The participant stated that the system makes it easy to ask for help and easy to provide and receive it. She added that providing and

receiving care among group members who are not close are often difficult. After her discharge, she had activities with other members, such as planning for a health seminar and planning to provide medical examinations for women in the group. She commented that she recommended that the group members do breast self-examination and have medical check-ups by professionals. She stated that it was a way of reciprocity to the members.

The participant who belonged to *rojinkai* (age-peer grouping) stated that she told the group members about the cancer, but received no direct support related to her cancer experiences from the group. She stated that her regular attendance at group gatherings was to show them that she was healthy and had no recurrence. She said that it was a way to show that early cancer detection is important. She described the group members as *nakama* (comfortable groups of friends and relatives), and gathering with them was her main purpose, even not directly related to her cancer experiences.

The participant who belonged to *shotenkai* (store/shop grouping) said that she attended the group regularly for their group activities, such as having dinner parties. She told the group members of her diagnosis of breast cancer. If the members asked about the cancer, she explained about her experiences. She stated that she realized their *ki zukai* (care with concern) by how much they asked her questions in

depth. Six months after she had her surgery, one of the group members was diagnosed with breast cancer. She said that they could share their feelings privately, not when they were with other healthy group members. She differentiated group contact with healthy group members, named as **nakama** (comfortable groups of friends and relatives), and private contact with this woman who was newly diagnosed with breast cancer.

Seven out of the 16 participants stated that they had no group activities or contact at all. One participant said that she was a member of "**seikyo**" when her children were small. Now they were grown up, she has started to work, and she has no more contact with the group members. As for other participants, their group activities were started through their children, their children were grown up; then, they still have their contacts without their children. Another participant said that she was involved in the Parent Teacher Association (PTA) activities for her children, and some of the PTA members became close friends. They still have contact with them regularly for over 10 or 20 years.

In sum, group activities were described by some participants, though not by all of them. It meant gathering with group members and attending group activities for one's own situations and purposes in her neighborhood. Only one participant described the group activities as being directly related to her cancer experiences. Although for a few

participants, group activities were an opportunity to meet people and become close friends, for other participants, the group members, named as *nakama* (comfortable groups of friends and relatives), were differentiated from close friends in their relationships.

Comparison of Findings:

Qualitative Interview Content

with Quantitative Data and the Social Support Instruments

The content analysis showed the social support components: types, amount, reciprocity, conflict, and sources, including group activities. To compare the results of quantitative data for convergence and divergence and to critique the social support instruments, the findings of content analysis of social support information were compared with the results of quantitative data analysis (i.e., regarding research question #1: What are the components of social support among Japanese women with breast cancer?) and with the social support instruments, the JNSSQ and the JIPRI. Amount of social support was not included in this comparison because the qualitative data analysis identified only two types, and in the quantitative data, amount of social support was summed scores of the three types of social support in the JNSSQ. Therefore, the content analysis findings of types, reciprocity, conflict, and sources were compared with the results of quantitative data analysis of the components of social support and with the subscales and

items in the social support instruments, the JNSSQ and the JIPRI.

Types

The findings of content analysis showed only two types of social support: aid and emotional support. Aid was described as physical assistance, primarily with housekeeping work. Emotional support was described as 1) encouragement through rare verbal expression, 2) physical closeness but nonverbal expression, and 3) caring attitudes through indirect verbal expression. On the other hand, in the quantitative study, the JNSSQ was used to obtain the data of three types of social support: affect, affirmation, and aid. All three types of social support in this study were higher than Matsuki and others' (1992b) report, but they were significantly lower than the American normative data on female adults (Norbeck et al., 1983).

Regarding affect and affirmation, the subscales in the JNSSQ, were determined since the findings of content analysis showed only the two types (i.e., aid and emotional support), not the three types (i.e., affect, affirmation, and aid). There are two items in the subscale of Affect, love and respect; and there are two items in the subscale of Affirmation, agreement and confiding (Appendix D). In the results of content analysis, there was no clear distinction of affect from affirmation. For example, when one participant and her spouse discussed her breast surgery, he agreed with her decision and they expressed their desire for

long lives and continued health for themselves and for family members. It can be concluded that affect (love) and affirmation (agreement) exist but overlap, and the theme can be categorized as emotional support. In addition, as it was found by the content analysis, in the social support instruments, there are no items to reflect Japanese examples of emotional support, such as 1) encouragement through rare verbal expression, 2) physical closeness but nonverbal expression, or 3) caring attitudes through indirect verbal expression.

Moreover, the items in the subscale in Aid were closely evaluated. There are two items: assisting a person who needs immediate care and helping a sick person in a general way (Appendix D). According to the findings of content analysis of the qualitative data, these areas were described. Thus, the items in the subscale of Aid were concluded as congruent.

Reciprocity

Content analysis showed evidence of reciprocity and the participants' descriptions of reciprocity in two major types: one-way and two-way directions. Some examples of one-way direction of reciprocity included sharing their experiences and explaining the importance of early detection of cancer, having a healthy and active life, providing advice for her family members, doing routine care for family members, and giving contributions of books and clothes to public use. Some examples of two-way direction of

reciprocity were trusting and helping each other with family members, relatives, and close friends, as well as sharing their feelings, encouraging each other, and exchanging treatment and rehabilitation information with other cancer patients. Moreover, the value of maintaining harmonious relationships was described as participants' reciprocal manners. On the other hand, in the quantitative data, the Reciprocity subscale in the JIPRI was used to obtain the data of reciprocity, and the results showed that there were no significant differences in reciprocity between the data on this study subjects and the normative data on American subjects.

The qualitative and quantitative data showed some degrees of reciprocity among Japanese women with breast cancer. The definitions of reciprocity and the findings of content analysis were compared. As documented previously, the definition of reciprocity was "the perceived availability or occurrence of an exchange of emotional or tangible goods or services, or the returning of emotional or tangible goods or services" (Tilden et al., 1990a, p. 338). Because the findings of content analysis of qualitative data identified reciprocity in two major types: a one-way direction (from her to others) and a two-way direction (from her to others and from others to her), these two different types of reciprocity were concluded as congruent with the subscale of the reciprocity: exchanging (a two-way direction of reciprocity) and returning (a one-way direction of

reciprocity).

However, the items of the Reciprocity subscale (Appendix E) were evaluated, and some incongruent items were identified. The item "loaning money" was not described in the qualitative data. The other items were revealed as congruent with qualitative data, although no items stated concrete reciprocal support. For example, there were no items stated for "sharing treatment and rehabilitation information with other cancer patients," but there was an item stated for "sharing helpful information to someone who could use it." Moreover, there are no items, in the Reciprocity subscale, to obtain data of reciprocity by valuing "maintaining harmonious relationships."

Conflict

The findings of content analysis identified evidence of conflict experiences as 1) experiences of dissatisfaction due to perceiving lack of support, 2) conflict experiences through verbalizations, and 3) conflict experiences through social behavior such as maintaining harmonious relationships by performing social obligations, which was also described as a characteristic of reciprocity, and being provided "unwelcome support." The quantitative data of conflict were obtained by the subscale of Conflict in the JIPRI, and the results of quantitative data demonstrated that conflict was significantly lower than the normative data on American subjects.

In the above summary of the findings of qualitative and

quantitative data analyses, evidence of conflict was present; however, the content of conflict was considered as cultural differences between Western and Japanese. First, the definition of conflict was determined. As documented previously, it was defined as "perceived discord or stress in relationships caused by behaviors of others or the absence of behaviors of others, such as the withholding of help" (Tilden et al., 1990a, p. 338). If verbalizations are included as one type of behavior, the qualitative data identified conflict experiences through verbalizations and social behavior, as well as experiences of dissatisfaction due to perceived lack of support. Therefore, in behavioral matters, the concept definition of conflict was congruent with the qualitative data; the causes of conflict experiences such as perceiving lack of support, experiencing conflict through verbalizations and social behavior were consistent and identified in both qualitative data and the definition of conflict.

However, the items in the Conflict subscale (Appendix E) were evaluated, and some incongruent items were found with regard to conflict. For example, the item, "someone gets mad due to different opinions" was not congruent because the participants described their conflict experiences as not providing opinions, not talking about the disease, or not saying "No" to others. In addition, the item stated as "taking advantage" was not described by any of the participants. The other remaining items were found to be

congruent. In addition, in the Conflict subscale, there was no item stated for conflict experiences through "maintaining harmonious relationships by performing social obligations."

Sources

The findings of content analysis of support sources were mainly family members, relatives, and friends, as well as the remaining sources of co-workers, neighbors, and health care professionals. These sources also were listed in the Personal Network in the JNSSQ, so concluded as congruent.

Moreover, the content analysis of the qualitative data also described sources for reciprocity and conflict. In addition, in the qualitative study, the participants did mention group activities, but not group support.

Summary

The findings of content analysis of qualitative data were compared with the results of quantitative data of the components of social support, as well as with the subscales and items in the social support instruments, the JNSSQ and the JIPRI. As dimensions of social support, aid as a type of social support, sources, reciprocity, and conflict were found to be congruent, while affect and affirmation as types of social support were not. A few incongruent items in the subscales of Reciprocity and Conflict were identified. Some items to obtain emotional support should be determined as emotional support through rare verbal, nonverbal, or indirect verbal expression. In addition, it was found that

there were no items to obtain the value of maintaining harmonious relationships for reciprocity and conflict.

Summary

This chapter presented the results of the data analyses: 1) quantitative data analysis, including a description of the major research variables, the answers to the research questions, and additional data exploration; 2) qualitative data analysis, content analysis of social support information of interview data; and 3) comparison of the findings of content analysis with the quantitative data analysis as well as with the social support instruments.

Chapter Five will present a summary and discussion of the findings with conclusions. Reconsiderations for theory and recommendations for clinical practice will be included. Also, recommendations for further research will be identified.

CHAPTER V
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of the study was 1) to test the reliability and validity of instruments developed to measure social support with Western populations when used with Japanese women who are experiencing breast cancer, 2) to describe social support among Japanese women with breast cancer, 3) to investigate how social support affects their psychological and physical states, and 4) to explore appropriateness of the use of instruments of social support developed in Western cultures in measuring the social support of Japanese populations. Data were obtained by self-report paper and pencil instruments, interview, and review of the subject's medical record. Data were analyzed as follows: 1) quantitative data analysis (i.e., a description of the major research variables and the answers to the research questions, including additional research questions) and 2) qualitative data analysis (i.e., content analysis of interview data). Comparison of findings of qualitative data analysis with the results of quantitative data analysis and with the social support instruments followed. In this chapter, a summary and discussion of the findings and conclusions will be presented. Reconsiderations for theory and recommendations for practice and future research will be included.

Summary of the Findings

Quantitative Data Analysis

Major research variables

The analysis of the two major variables, psychological and physical states, will be summarized. The variables of social support instruments will be summarized under the research questions.

1. Psychological states: Psychological states were measured by the JGHQ; they ranged from zero to 47, with a mean of 12.82 ($SD = 10.15$). The levels of psychological states for the study sample were found to be significantly higher than Japanese healthy subjects but lower than Japanese neuroticism subjects (Nakagawa & Daibou, 1985b).

2. Physical states: Physical states were measured through the Physical States Interview Form. The results identified only 10 subjects (8.8%) who reported no signs or symptoms, while over ninety percent ($n = 103$; 91.2%) of the subjects had one or more sign and/or symptom, with a mean of 2.27 ($SD = 1.45$). The most common symptoms were affected arm sensations and breast sensations. Arm swelling and pain in the affected arm and/or in the surgical area were experienced by about one-third of the subjects.

Research questions

Research question #1: What are the components of social support among Japanese women with breast cancer? This research question was addressed by measuring and analyzing each dimension of social support: types, amount,

reciprocity, conflict, and sources. The analysis of each dimension of social support will be summarized.

1.a.: Types and amount: The three types (i.e., affect, affirmation, and aid) of social support were measured by the subscales of Affect, Affirmation, and Aid in the JNSSQ, and amount of social support was measured through the Total Functional variable in the JNSSQ. The three types and amount of social support for the subjects were higher than for Matsuki and others' (1992b) Japanese mastectomy subjects. The results could not be compared as statistically significant in group mean comparisons because Matsuki and others did not report standard deviation. However, comparing results with the normative data on American female subjects (Norbeck et al., 1983), the study sample was significantly lower in all three types and amount of social support than the normative data on American female subjects.

1.b: Reciprocity: Reciprocity was measured by the subscale of Reciprocity in the JIPRI, and its range for the subjects was from 2.77 to 4.85 ($M = 3.75$; $SD = .42$). The results were not significantly different from the normative data on American subjects (Tilden et al., 1990a).

1.c.: Conflict: Conflict was measured through the subscale of Conflict in the JIPRI, and its range for the subjects was from 1.23 to 3.92 ($M = 2.38$; $SD = .52$). The results showed a statistically significant difference from the normative data on American subjects (Tilden et al., 1990a). The study sample indicated lower conflict than the

American normative data.

1.d: Sources: Sources of social support were measured by the Personal Network in the JNSSQ (i.e., the list of the people of their social networks) and the Total Network in the JNSSQ (i.e., the sum of the number in personal network, duration of relationships, and frequency of social contact). The data on the Personal Network showed sources of social support for the subjects were mainly family members, relatives, and friends.

Research question #2: What are the relationships of social support, person factors, and psychological and physical states among Japanese women with breast cancer? This research question was addressed by testing relationships among the dimensions of social support (types, amount, reciprocity, conflict, and sources), person factors (age, marital status, religion, education, employment status, and income), and psychological and physical states.

2.a: Correlation: Person factors and social support: Marital status indicated significant positive correlations with aid and amount of social support; married subjects were higher in aid and amount of social support than nonmarried subjects. Age, religion, education, employment status, and income were not significantly correlated with any dimensions of social support.

2.b: Correlation: Person factors and psychological and physical states: No person factors were significantly correlated with psychological or physical states.

2.c: Correlation: Social support and psychological and physical states: Aid indicated a significant correlation with psychological states: high in aid was related to better psychological states. Conflict also showed a significant correlation with psychological states: low conflict was related to better psychological states. The other variables of social support (i.e., affect, affirmation, amount, reciprocity, and sources) were not significantly correlated with psychological states. No social support variables demonstrated significant correlations with physical states.

2.d: Prediction: Person factors and amount of social support: The set of person factors (i.e., age, marital status, religion, and employment status) significantly predicted amount of social support and accounted for 10.14 percent of the variance in amount of social support. Independent of other variables in the model, age was a significant variable; increased age is associated with decreased amount of social support.

2.e: Prediction: Person factors and psychological states: The set of person factors (i.e., age, marital status, religion, and employment status) did not significantly predict psychological states.

2.f: Prediction: Social support and psychological states: The set of social support variables (i.e., total support, reciprocity, and conflict) significantly predicted psychological states and accounted for 11.37 percent of the variance in psychological states. Independent of other

variables in the model, conflict was a significant variable; decreases in conflict were associated with better psychological states.

2.g: Prediction: Social support and physical states:

The set of social support variables (i.e., total support, reciprocity, and conflict) did not significantly predict physical states.

2.h: Prediction: Conflict and psychological states by controlling physical states: Both the variables of physical states and conflict were found to be significantly influential factors on psychological states and accounted for 17.19 percent of overall variance in psychological states. By controlling physical states, conflict explained 8.06 percent of the variance in psychological states: decrease in conflict improved psychological states.

Additional research questions

Research question #3

By controlling marital status, what are the relationships of social support and psychological and physical states among Japanese women with breast cancer?

3. Partial correlation: Social support, psychological and physical states with controlling marital status: Aid showed a significant positive correlation with psychological states. However, since marital status and aid showed a moderate correlation, by controlling marital status, the correlation between aid and psychological states was examined. The result was no longer significantly related to

psychological states. Moreover, with marital status held constant, conflict was significantly related to psychological states, which was the same significant correlation without controlling marital status: low conflict was significantly related to better psychological states. With controlling marital status, no additional significant correlations of the social support variables with psychological or physical states were found.

Research question #4

What are the relationships of illness-related variables with social support, person factors, psychological and physical states among Japanese women with breast cancer?

4. Correlation: Illness-related variables, social support, person factors, psychological and physical states:
The stage of breast cancer was positively correlated with affect, affirmation, amount, and sources of social support. None of the illness-related variables indicated significant correlations with psychological or physical states.

Research question #5

What are the relationships of having contact with other cancer patients with psychological and physical states among Japanese women with breast cancer?

5. Correlation: Having contact with other cancer patients, psychological and physical states: Having contact with other cancer patients was significantly correlated with physical states. Subjects who had contact with other cancer patients had more physical signs and symptoms than those who

did not. There were no significant correlations with psychological states.

Qualitative Data analysis

The results of content analysis of qualitative data showed two types of social support: aid and emotional support. Aid was described by using Japanese terms-*sewa* (aid or care) and *tetsudai* (help). Aid was summarized as housekeeping work, assisting with child care, assisting her with self-care, and driving a car for her. As sources, these were provided by family members, relatives, close friends, and co-workers, especially during hospitalization and right after discharge.

Emotional support was described by using Japanese terms-*ki zukai* and *ki ni kakeru* (care with concern), *kokoro kubari*, *kokoro zukai* and *ki kubari* (concern with paying attention to others' needs), *yasashii* (gentle or kind), *shinpai* (worry), *omoiyari* (consideration), and *sasae* (support). Emotional support was categorized as: 1) encouragement through rare verbal expression, 2) physical closeness but nonverbal expression, 3) caring attitudes through indirect verbal expression, and 4) others. Encouragement through rare verbal expression was described as simply encouraging her to receive treatment and be healthy again at the time of diagnosis of the cancer, before and during hospitalization, and right after discharge. Physical closeness but nonverbal expression was described as

being with her at the OPD and visiting her at the cancer center before and during hospitalization. Caring attitudes through indirect verbal expression was explained as offers of help and letting other family members help her with housekeeping work immediately and late after discharge. These three categories of emotional support were provided by family members, relatives, and close friends. In addition, **Amae** (psychological dependency) and **honе** (true intentions/feelings) among intimate relationships were included in their descriptions of emotional support, as well as emotional support from health care professionals.

Reciprocity was described as two major types: one-way and two-way directions. Some examples of one-way direction of reciprocity were sharing their experiences and explaining the importance of early detection of cancers, having a healthy and active life, providing advice for family members, doing routine care for family members, and contributing of books and clothes to public use. Recipients were family members, friends, other cancer patients, and neighbors with health problems. Some examples of two-way direction of reciprocity were trusting and helping each other with family members, relatives, and close friends, as well as sharing their feelings, encouraging each other, exchanging treatment and rehabilitation information with other cancer patients. These two types of reciprocity were described mostly during hospitalization and after discharge rather than at the time of diagnosis of breast cancer or

before hospitalization. Reciprocity by valuing maintaining harmonious relationships was also described.

Conflict experiences were described by some participants as 1) experiences of dissatisfaction due to perceiving lack of support, 2) conflict experiences through verbalizations, and 3) conflict experiences through social behavior such as maintaining harmonious relationships by performing social obligations, which is also a characteristic of reciprocity, and being provided "unwelcome support." Various sources of conflict were family members, relatives, friends, neighbors, co-workers, other cancer patients, and health care professionals. Conflict was experienced at various times such as at the time of diagnosis of breast cancer, before and during hospitalization, and after discharge.

Group activities were described in three groups: "*seikyo*" [*seikatsu kyodou kumiai*] (livelihood co-operative union), *rojinkai* (age-peer grouping), and *shotenkai* (store/shop grouping). Some participants described their ongoing group activities, but they differentiated their relationships with group members from their intimate relationships with family members and close friends. Group members were named as *nakama* (comfortable groups of friends and relatives) but not *miuchi* (intimate relationships such as family members and close friends). Most group members had no relation to the participants' cancer experiences. Some

participants had group activities through their children in their past, but they no longer had such group activities; the other participants had no group activities at all. Only one participant described direct involvement in the group related to her breast cancer experience.

Comparison of Findings: Qualitative Interview Content with Quantitative Data and the Social Support Instruments

Types

The qualitative data analysis identified two types of social support: aid and emotional support. These results were compared with the subscales in the JNSSQ, Affect, Affirmation, and Aid since the quantitative data were obtained through these subscales. Among the three types of social support, affect and affirmation were not clearly identified by qualitative data analysis. The items in the subscale of Aid were congruent with the qualitative data.

Reciprocity

In the qualitative data analysis, reciprocity was described as two major types: a one-way direction of reciprocity (from her to others) and a two-way direction of reciprocity (from her to others and from others to her). The results were congruent with Tilden and others' (1990a) definition of reciprocity. However, an incongruent item was identified, the item describing "loaning money." In addition, in the Reciprocity subscale, there were no items that addressed reciprocity as valuing maintaining harmonious relationships.

Conflict

Conflict experiences were identified by qualitative data as 1) experiences of dissatisfaction due to perceiving lack of support, 2) conflict experiences through verbalizations, and 3) conflict experiences through social behavior such as maintaining harmonious relationships by social obligations. Conflict was defined as "perceived discord or stress in relationships caused by behaviors of others or the absence of behaviors of others such as the withholding of help" (Tilden et al., 1990a, p. 338). If verbalizations are included as one type of behavior, the results of the qualitative data were concluded as congruent with Tilden and others' definition of conflict. However, a few incongruent items were identified, such as "someone gets mad due to different opinions" and "taking advantage." In addition, there were no items that addressed conflict experiences through social behavior by maintaining harmonious relationships through social obligations.

Sources

In the qualitative data analysis, sources of social support were identified mainly as family members, relatives, and friends as well as co-workers, neighbors, and health care professionals. These findings were congruent with the Personal Network, which asked women to list people in their social networks. Sources for reciprocity and conflict were also identified. Group activities were described but not group support.

Discussion of the Findings

In this section, the five dimensions of social support, types, amount, reciprocity, conflict, and sources, will be discussed with integration of the purpose of the study and research findings.

Types

The three types of social support were measured by the subscales of Affect, Affirmation, and Aid in the JNSSQ. To test reliability of types of social support, internal consistency was computed by intercorrelation of each pair of items. The results were Affect .94, Affirmation .93, and Aid .90. These results were acceptable.

The results of each type of social support for the study sample were compared with Matsuki and others' (1992b) reports. All three types of social support for the study sample were higher than Matsuki and others' reports, even though statistically significant differences could not be computed. Demographic and illness-related characteristics were different in these samples, especially age, which showed older age in the study subjects ($M = 54.1$; $SD = 9.8$) than Matsuki and others' subjects ($M = 46.9$; $SD = 10.9$), as well as difference in sample size, $N = 113$ and $N = 19$ respectively.

Among the three types of social support, aid was related to marital status: married subjects were receiving more aid than nonmarried subjects. Feather and Wainstock (1989) reported that affect and aid were higher in married

women with breast cancer than in nonmarried subjects. However, in this study, affect was not correlated with marital status. Moreover, aid was related to psychological states: high aid was related to better psychological states. Affect and affirmation for the subjects did not show significant relationships to psychological or physical states, contrary to findings reported by Primomo and others (1990), conducted in Western culture. In the qualitative data analysis in the present study, affect and affirmation were not clearly described. These may be an influencing factor on quantitative data and correlations with psychological states.

The content analysis of qualitative data identified only two types of social support, aid and emotional support. Ura (1992) reviewed studies of social support conducted in Western cultures and noted two types of social support, emotional support and instrumental aid. His review of findings was similar to findings of qualitative data in this study subjects. However, the content analysis of qualitative data identified the three categories of emotional support: 1) encouragement through rare verbal expression, 2) physical closeness but nonverbal expression, and 3) caring attitudes through indirect verbal expression. The results showed that there were only a few descriptions of direct verbalization as an expression of emotional support. The results confirmed similar reports of Japanese populations documented in the literature (Kagawa-Singer, 1993; Tierney et al., 1994).

Therefore, items that express emotional support as encouragement through rare verbal expression, physical closeness but nonverbal expression, and caring attitudes through indirect verbal expression should be included in future instrument development. Several studies of women with breast cancer in Western cultures indicated that emotional support was a significant factor in psychological adjustment (Funch & Mettlin, 1982; Bloom & Spiegel, 1984; Northouse, 1989a; Primomo et al., 1990; Gotcher, 1992). After reconsidering items and modifying the social support instruments, reexamination of effects of emotional support on psychological states should be done.

Amount

Amount of social support was measured through the Total Functional variable in the JNSSQ. Reliability of amount of social support, internal consistency, was tested by computing the correlations of three subscales, Affect, Affirmation, and Aid since the Total Functional variable was the sum of the three scores. These ranged from .81 to .95. An evaluation of concurrent validity was done by computing the correlations between the Total Functional variable in the JNSSQ and the Support subscale in the JIPRI. The results showed $r = .3032$ ($p < .001$; $r^2 = .092$).

Amount of social support for the study sample was significantly lower than normative data on American female subjects (Norbeck et al., 1983). In addition, amount of social support in this study was higher than Matsuki and

others' (1992b) reports, although statistical significant differences could not be compared. As noted previously, there were some differences in sample size and age in the two samples: women in the study sample were older than Matsuki and others' subjects. Feather and Wainstock (1989) reported that age was positively correlated to receiving social support among breast cancer patients in their work. However, their study was conducted in Western cultures.

Amount of social support was related to marital status, with married subjects having more social support than nonmarried subjects. Roberts and others (1994) reported that married women received more social support than single women in their study on women in Western cultures. In the present study, nonmarried women included single, separated, divorced, and widowed women.

Amount of social support was predicted by the set of person factors, age, marital status, religion, and employment status. Independent of other variables in the model, age was a significant variable; increased age was associated with decreased amount of social support. In terms of age as a factor, Lin and others (1986) stated that the correlation between age and social support should be carefully done due to socioeconomic role, expectations, and requirements of the society. Age may reflect both cohort and aging process. According to the qualitative data analysis, participants who were over 60 years old stated that they did not rely on others nor did they expect support from others.

This age group may have special situation related social support.

The present study showed nonsignificant relationships in amount of social support with psychological or physical states. However, several studies conducted in Western cultures reported significant findings in these variables. For example, Hoskins and others (1996) reported positive correlations between amount of support and emotional adjustment among married women with breast cancer. Northouse (1988) reported positive correlations between amount of social support and psychological states. Vachon (1986) found that lack of social support increased psychological depression. Thus, results for the study sample were different from the results from these studies in Western cultures. The qualitative data analysis identified only two types, aid and emotional support, and the computation of amount of social support in the quantitative study was done as the sum of the three types of social support: affect, affirmation, and aid. Thus, in studies on Japanese women, amount of social support should be reconsidered as the sum of two types of social support; then, amount of social support should be reevaluated for effects on psychological and physical states.

Reciprocity

Reciprocity for the subjects was measured through the subscale of Reciprocity in the JIPRI. Reliability of reciprocity was computed by alpha, and the result was .7042.

A concurrent validity test of reciprocity was determined by correlations between the subscales of Reciprocity and Support in the JIPRI ($r = .7391$; $p < .0001$; $r^2 = .5463$). The results were acceptable.

Group mean comparison of reciprocity for the study sample showed that there were no significant differences between the study sample and the normative data on American subjects (Tilden et al., 1990a). Studies should be conducted to obtain Japanese normative data and to compare with reciprocity data in different populations.

Evidence of reciprocity among women with breast cancer in Western cultures was documented (Northouse, 1988; Primomo et al., 1990; Ferrans, 1994); also, in this study, the content analysis of qualitative data showed evidence of reciprocity among Japanese women with breast cancer. However, some differences were noted. For example, in the quantitative data, reciprocity for the study sample was not correlated with person factors, psychological, or physical states. Ferrans (1994) reported in her qualitative study that among women with breast cancer, helping others helped the subjects to cope; on the other hand, only one participant in the present study stated that helping others improved her psychological states. The differences may be influenced by coping differences in cancer experiences between Americans and Japanese (Ohnuki-Tierney, 1984; Kagawa-Singer, 1993). Studies should be conducted to estimate the relationships of reciprocity with psychological

and physical states.

The results of qualitative data analysis showed reciprocity was described as two major types: a one-way direction (from her to others) and a two-way direction (from her to others and from others to her). A one-way direction of reciprocity was described as having a healthy and active life, doing routine care for family members, worrying about family members' health, sharing participants' experiences and explaining the importance of early detection of cancers for family members, friends, other cancer patients, and neighbors with health problems. A two-way direction of reciprocity was described as trusting and helping each other and included family members, relatives, and close friends. Sharing their feelings, encouraging each other, and exchanging treatment and rehabilitation information with other cancer patients were additional examples of two-way reciprocity. Referring to the concept definition of reciprocity (Tilden et al., 1990a), these two types of reciprocity were congruent, returning (a one-way direction) and exchanging (a two-way direction). However, an incongruent item (i.e., "loaning money") was identified, and it should be considered for modification of the instrument. Also, there were no items that addressed reciprocity as valuing maintaining harmonious relationships. After reconsidering and modifying items in the social support instruments, studies of reciprocity should be conducted on Japanese women with breast cancer.

Conflict

Conflict was measured through the subscale of Conflict in the JIPRI. Reliability of conflict was computed by alpha. The result was .7786, which was acceptable. Conflict was tested by correlations between the subscales of Conflict and Support in the JIPRI ($r = -.0634$) and between the subscales of Conflict and Reciprocity in the JIPRI ($r = .0105$). These nonsignificant correlations revealed that the subscale of Conflict measures a different or a nonrelated domain of support or reciprocity. However, the results were different from reports by Tilden and others (1990a) and the results of the pilot study conducted prior to this study. Further evaluations of psychometric properties were required.

Group mean comparison of conflict for the study sample was statistically significantly lower than the normative data on American subjects (Tilden et al., 1990a). Similar to other dimensions of social support, normative data on Japanese populations should be obtained as well as data on Japanese women with breast cancer.

In this study sample, conflict demonstrated a significant correlation with psychological states: low conflict was related to better psychological states. In addition, the set of social support significantly predicted psychological states. Independent of other variables in the model, conflict was a significant variable; decreases in conflict were correlated with better psychological states. Moreover, variables of physical states and conflict were

found to be significant influential factors on psychological states. Controlling the physical states, conflict explained 8.06 percent of the variance in psychological states; decrease in conflict improved psychological states.

Furthermore, the content analysis of qualitative data identified evidence of conflict for the subjects, and evidence of conflict among women with breast cancer was reported in Western cultures (Smith et al., 1985; Lichtman et al., 1987; Dakof & Taylor, 1990). Conflict for the subjects was described as experiences of dissatisfaction due to perceived lack of support and conflict experiences through verbalizations and social behavior such as maintaining harmonious relationships. The information was evidence of conflict due to no support or due to receiving some support but an inappropriate type or source of social support or received at an inappropriate time. The results concerning conflict experiences were similar to those reported by Dakof and Taylor (1990), particularly those about unhelpful support, and the reports by Lichtman and others (1987) about rejection or withdrawal.

Even though the results of quantitative data analysis showed conflict as a significant factor, and the findings of content analysis identified evidence of conflict as consistent with findings in Western cultures, some considerations were required. First, some incongruent items were identified, such as "someone gets mad due to different opinions," or "taking advantage," which were not described

in the qualitative data. Second, in qualitative data analysis, although the aspect of reciprocity that concerns the value of maintaining harmonious relationships by performing social obligations was described, this trait of Japanese culture eventually may cause some conflict experiences. However, there were no items that addressed this cultural characteristic on the subscale of Conflict. Third, Tilden and others (1990a) reported social desirability problems with the subscale of Conflict in the JIPRI. The JIPRI should also be examined for social desirability as well as further reliability and validity evaluations.

In sum, conflict, in the quantitative data analysis, was a significant dimension of social support on psychological states of the present study subjects. However, some items need to be reconsidered. In addition, maintaining harmonious relationships by performing social obligations also was identified as an example of reciprocity that eventually may cause conflict. Therefore, conflict and reciprocity should be determined simultaneously in Japanese culture. After reconsidering items and evaluating and establishing the psychometric properties of these dimensions of social support, including social desirability, studies should be conducted to reexamine the significant findings of the impact of conflict on psychological states.

Sources

Sources of social support for the subjects were

measured through the Personal Network in the JNSSQ (the list of the people of their social networks) and the Total Network variable in the JNSSQ (i.e., the sum of the number in personal network, duration of relationships, and frequency of social contact). As Norbeck and others (1983) reported, reliability of sources (i.e., internal consistency of the Total Network) was examined by correlations among the three network property items (i.e., number in personal network, duration of relationships, and frequency of social contact). These correlations ranged from .91 to .99. The results were similar to reports by Norbeck and others.

The personal network was identified as mainly family members, relatives, and friends. Matsuki and others (1992b) reported that family members and friends were main sources of social support among Japanese women with breast cancer.

Sources, the data on the Total Network variable, for the study sample were not related to psychological or physical states. The results were different from studies conducted in Western cultures which correlated to psychological and physical states (Northouse, 1981; Waxler-Morrison et al., 1991). Matsuki and others (1992b) also reported a negative correlation between sources (i.e., network size) and anxiety of Japanese women with breast cancer until three months after mastectomy; increases in network size decreased anxiety among Japanese women who have had mastectomy, but only until three months after mastectomy. The time after breast surgery was different

since the present study sample included subjects who were no less than six months and no more than five years after mastectomy. Also, as noted previously, some other demographic and illness-related characteristics were different between this study and Matsuki and others' samples. Studies should be conducted to reexamine the correlations of sources with other variables among Japanese women with breast cancer.

As one of the characteristics for the subjects, having contact with other cancer patients was significantly correlated with physical states but not with psychological states. Subjects who had contact with other cancer patients demonstrated more physical signs and symptoms than those who did not. Content analysis of qualitative data identified some participants who had contact with other cancer patients to exchange treatment and rehabilitation information, to share their feelings, and to encourage each other. The analysis of quantitative data did not demonstrate a significant difference in psychological states. The effects of having contact with other cancer patients on their psychological and physical states should be further examined.

Group activities were described by the study participants in three groups: "*Seikyo*" [*seikatsu kyodou kumiai*] (livelihood co-operative union), *rojinkai* (age-peer grouping), and *shotenkai* (store/shop grouping). These groups

were not specifically identified in relation to their cancer experiences. Group members were named as **nakama** (comfortable groups of friends and relatives) and differentiated in their relationships from intimate relationships. As Long (1979) noted, **nakama** (comfortable groups of friends and relatives) was differentiated from **miuchi** (intimate relationships such as family members and close friends). Most group members, named as **nakama** (comfortable groups of friends and relatives), were not told of the diagnosis and/or their feelings of diagnosis of the cancer.

Different from relationships with group members, **honne** (true intentions/feelings) was described by participants only within intimate relationships, such as mother-daughter and husband-wife relationships. These results have been documented in the literature. For instance, Long (1979) contrasted inner and outer circles of relations, **miuchi** (intimate relationships such as family members and close friends), **nakama** (comfortable groups of friends and relatives), and **tanin** (strangers or outsiders); Lock (1987a) noted the expression of needs between **uchi** (private or inside) and **soto** (public or outside); Lock (1987a) wrote about the expression of **honne** (true intentions/feelings) only in inside or intimate relationships in Japanese culture.

The qualitative data analysis of sources identified aid provided by family members, relatives, close friends, and co-workers, especially during hospitalization and right after discharge; emotional support was provided by family members, relatives, and close friends, especially at the time of cancer diagnosis and before and during hospitalization. However, these were sources for only types of social support, as well as amount of social support since amount was the sum of these types of social support. The participants also described sources for reciprocity and conflict as significant information. In social support instruments, sources not only for types and amount of social support but also for reciprocity and conflict should be included.

Conclusions

Five dimensions of social support were determined as components of social support; they were examined as relationships with person factors and psychological and physical states (Figure 2). Psychometric properties of each dimension of social support were evaluated. Based on these results, appropriateness of use of social support instruments developed in Western cultures in measuring the social support of Japanese populations was explored.

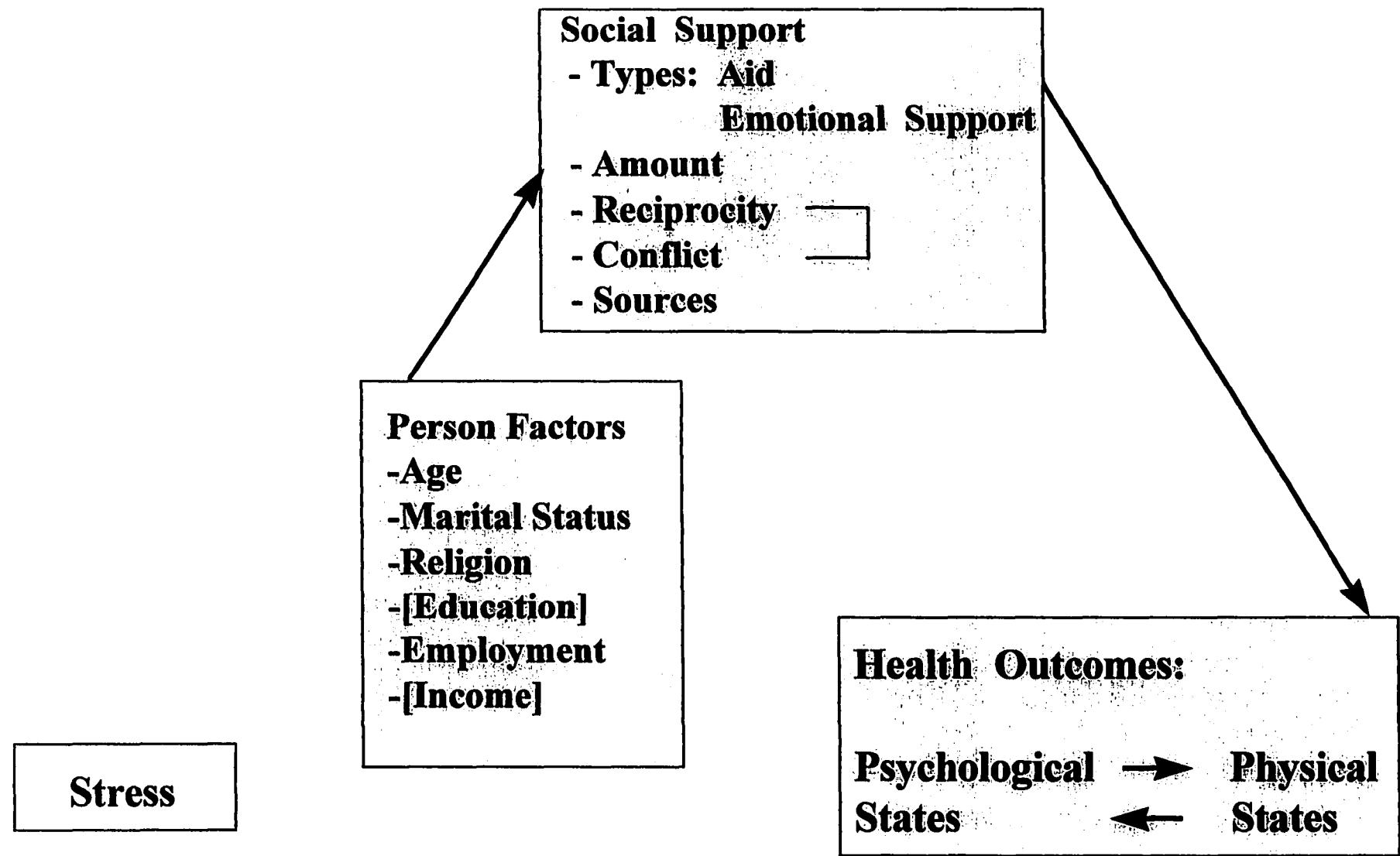


Figure 2: The Findings: The Relationship of Stress, Social Support, Person Factors, and Health Outcomes: Psychological and Physical States

Note. [] was not included in multiple regression analyses

Types

As types of social support, aid in the quantitative study was correlated with marital status: married women received more aid than nonmarried women. Aid was also related to psychological states: high aid was related to better psychological states. In the qualitative data, only two types of social support, aid and emotional support, were identified. The two types of social support should be considered, especially emotional support, since emotional support were described as encouragement through rare verbal expression, physical closeness but nonverbal expression, and caring attitudes through indirect verbal expression, rather than direct offered verbal expression.

Amount

Amount of social support was identified as higher for married women than for nonmarried women. Amount of social support was predicted by person factors (i.e., age, marital status, religion, and employment status). Amount of social support was not correlated with psychological or physical states. Since amount of social support was the sum of types of social support, the two types of social support should be considered for amount of social support and reevaluated in relationships with other factors.

Reciprocity

Reciprocity, in quantitative data analysis, did not show correlations with person factors, psychological or physical states. Reciprocity, in the qualitative data

analysis, was identified in two major types: one-way and two-way directions of reciprocity. These findings were consistent with Tilden and others' (1990a) concept of reciprocity as returning (a one-way direction of reciprocity) and exchanging (a two-way direction of reciprocity). However, the item, "loaning money," was found to be incongruent and should be reconsidered. In addition, items that addressed reciprocity as valuing maintaining harmonious relationships should be included.

Conflict

Conflict, in the quantitative data analysis, demonstrated significant correlations with and prediction of psychological states. The qualitative data analysis of conflict identified the evidence of experiencing conflict through dissatisfaction due to perceiving lack of support, through verbalizations and social behavior. The findings were congruent with the definition of conflict by Tilden and others (1990a). However, a few items (i.e., "someone gets mad due to different opinions" and "taking advantage") were found to be incongruent. In addition, items to obtain conflict experiences through social behavior such as maintaining harmonious relationships should be included. Moreover, maintaining harmonious relationships was identified as a trait of Japanese culture, which describes reciprocity, and this characteristic eventually may cause conflict. Thus, reciprocity and conflict need to be determined simultaneously. As Tilden and others (1990a)

noted, testings of social desirability were required as well as further evaluations of reliability and validity of conflict.

Sources

Sources, personal network, for the subjects were mainly family members, relatives, and close friends. Sources, total network, were not related to psychological or physical states. Subjects who had contact with other cancer patients showed significant relationships with physical states, but not with psychological states. Group activities were identified, but they were not for the majority of subjects or not related to subjects' experiences with breast cancer. Moreover, sources for receiving support for types and amount were congruent. However, sources for reciprocity and conflict also were described in qualitative data analysis as significant information. Thus, sources for reciprocity and conflict should also be included in further development of social support instruments.

In sum, studies of the dimensions of social support, types, amount, reciprocity, conflict, and sources, should be continued in Japanese women with breast cancer. Normative data for Japanese women should be established as well. Conflict, in the quantitative data analysis, was found to be a significant factor, but some considerations of conflict were required, as well as the other dimensions of social support. Moreover, this study was on a nonrandomized sample and obtained data at only one point of time. Therefore, the

generalization of study findings was limited, and further studies should be conducted, including a longitudinal study. Appropriateness, especially cultural sensitiveness, to use the social support instruments developed in Western cultures when used on a populations of Japanese women with breast cancer was explored. Psychometric properties of the social support instruments should be further evaluated.

Reconsiderations for Theory

The conceptual framework for this study was the description of the relationship of stress, social support, person factors, and health outcomes: psychological and physical states. It was derived from two models: 1) Lazarus and Folkman's (1984) stress, appraisal, and adaptation model, and 2) the stress, social support, and health model (Cobb, 1976; House, 1981; Cohen & Syme, 1985; House & Kahn, 1985; Lin et al., 1986; Norbeck, 1988; Vaux, 1988).

The study findings supported the five dimensions of social support and partially supported the relationships in the conceptual framework: the relationships between person factors and social support and the relationships between social support and psychological states. To enhance the conceptual framework, studies are needed to reexamine the relationships between person factors and health outcomes. In addition, obtaining the data on stress, the relationships between social support and stress, and between stress and health outcomes should be examined as well as the buffering

effects of social support.

Moreover, the study findings emphasized the need to integrate cultural characteristics into the five dimensions of social support: types, amount, reciprocity, conflict, and sources. Types of social support were identified, but they were only two types (i.e., aid and emotional support). Emotional support included encouragement through rare verbal expression, physical closeness but nonverbal expression, and caring attitudes through indirect verbal expression. In the qualitative data, the participants described types of social support by using Japanese terms-**sewa** (aid or care) and **tetsudai** (help) for aid, and **ki zukai** and **ki ni kakeru** (care with concern), **kokoro kubari**, **kokoro zukai** and **ki kubari** (concern with paying attention to others' needs), **yasashii** (gentle or kind), **shinpai** (worry), **omoiyari** (consideration), and **sasae** (support) for emotional support. Reciprocity and conflict proved to be simultaneous because the cultural characteristic of maintaining a harmonious relationship by performing social obligations describes reciprocity, and it eventually may cause conflict. As sources, **miuchi** (intimate relationships such as family members and close friends) was differentiated from **nakama** (comfortable groups of friends and relatives).

Even though the five dimensions of social support among Japanese women with breast cancer were identified as

characteristics of social support in Japanese culture, assessment of social support over a period of time needs to be done for further conceptual development. In addition, normative data of the dimensions of social support are unknown. By obtaining normative data of Japanese and Western populations and comparing the dimensions of social support with data on Japanese women with breast cancer over a period of time, additional characteristics of social support among Japanese women with breast cancer will be identified.

For further development of this theoretical approach to social support among Japanese women with breast cancer, some different cultural characteristics should be reconsidered, and additional social support dimensions among Japanese women with breast cancer should receive focus.

Recommendations for Practice

The importance of social support for women with breast cancer has been documented based on research findings in Western cultures. The present study described the components of social support, types, amount, reciprocity, conflict, and sources; the relationships between person factors and social support and between social support and psychological states among Japanese women with breast cancer were found. Although the study findings showed some limitations due to appropriateness and cultural sensitiveness, and the study findings suggested the social support instruments should be reconsidered and modified in order to use them on Japanese

women with breast cancer, social support was demonstrated to be a significant factor.

Aid and amount of social support were found to be significantly related with marital status, one of the person factors. Also, amount of social support was predicted by a set of the person factors. Based on the findings, health care professionals may assess the levels of social support and the relationships with person factors among Japanese women with breast cancer. Emotional support was described as encouragement through rare verbal expression, physical closeness but nonverbal expression, and caring attitudes through indirect verbal expression. These may be explained as culturally determined emotional support and may be useful information to assess their emotional support. Moreover, since family members, relatives, and close friends were identified as major sources for social support among these Japanese women with breast cancer, these sources in the women's personal networks should also be assessed.

The study demonstrated that aid was significantly correlated with psychological states; the set of social support variables significantly predicted psychological states. Therefore, assessing these levels of social support may address understanding about their psychological states among Japanese women with breast cancer. In addition, health care professionals may intervene to provide support guidance and to improve the women's psychological states.

Conflict was significantly related with and did predict

psychological states. By assessing particularly levels of conflict among Japanese women with breast cancer, health care professionals can assess their psychological states and can intervene to improve their psychological states.

Moreover, education about importance of social support is essential. For example, education to health care professionals about understanding the importance of assessing social support among Japanese women with breast cancer is crucial. Also, education to health care professionals about intervening to encourage women to receive social support and to provide social support to family members, relatives, and close friends with appropriate types and sources at certain times is also important.

Furthermore, education about the importance of social support to personal networks is necessary, especially to family members, relatives, and close friends who are identified as having intimate relationships by each woman. Being aware of the importance of social support may emphasize understanding of potential conflict experiences among Japanese women with breast cancer; it may reduce the woman's level of conflict or improve her psychological states.

Moreover, Northouse (1988) mentioned that family members were also adjusting to their love one's breast cancer and having little contact with health care professionals. This was documented in Western cultures.

However, a similar phenomenon is assumed as occurring in Japanese culture because even when the women in this study were hospitalized, they described having difficulty in communicating with health care professionals. Health care professionals' having contact with the woman's family members, relatives, and close friends may facilitate their adjustment and prepare them for a support role; eventually, they may be able to provide adequate amount of support with appropriate types and sources at certain times.

Furthermore, education of the importance of social support to persons in the woman's personal networks who are identified as *nakama* (comfortable groups of friends and relatives) may not be effective because they may not be informed of the woman's diagnosis of breast cancer. If they know the woman is experiencing breast cancer, education about social support to them should be emphasized potential conflict through maintaining harmonious relationships due to performing social obligations, as well as being provided "unwelcome support."

In sum, it is important that health care professionals assess social support of Japanese women with breast cancer and intervene with social support guidance to improve patients' psychological states. Education about importance of social support among Japanese women with breast cancer to health care professionals is essential as well as to family members, relatives, close friends, and even persons in their networks.

Recommendations for Future Research

Future research considerations will be discussed in the following three areas: 1) continued evaluation of reliability and validity of the social support instruments, 2) methodological issues, and 3) conceptual development of social support.

First, after reconsidering and modifying the social support instruments, the evaluation of reliability and validity of the translated social support instruments should be continued:

1. For reliability testing, not only internal consistency but also stability by test-retest evaluation needs to be examined.
2. For content validity testing, a prospective qualitative study should be conducted to consider the definitions of social support specific to Japanese culture. Content validity testings by computing the Content Validity Index should be determined with the cultural consideration of social support definitions.
3. By increasing sample size, a factor analysis approach for construct validity testings should be conducted.
4. By obtaining data on two groups, of theoretically proved high and low social support, construct validity testings through group contrasted approach should be performed.
5. Normative data of the translated social support instruments should be obtained on populations who are in Japanese culture.

6. Social desirability testings should be done.

Next, with regard to methodological considerations, some improvements need to be made.

1. In this study, a nonrandomized sample was used, and the data were obtained only one point of time, so that the generalization of study findings was limited. A longitudinal quantitative study should be conducted to understand components of social support and relationships of social support with other factors over periods of times.
2. In this study, as one of the inclusion criteria, time since diagnosis with breast cancer was no less than six months and no more than five years after mastectomy. A longitudinal study with data collection started before having breast surgery should be conducted to identify early social support, psychological and physical state factors related to predictors of later health outcomes among Japanese women with breast cancer.
3. The number of subjects was 113 for the quantitative portion of study and 16 for the qualitative portion of study, and some characteristics of the 16 participants were nonrepresentative of the 113 subjects. Thus, comparison of the results in both portions of study was limited. By considering sampling techniques, comparison should be explored.

Finally, to enhance conceptual development of social support among Japanese women with breast cancer, the

following studies should be conducted:

1. Reconsidering cultural characteristics of social support instruments (i.e., the convergence and divergence findings in this study), the relationships of social support with other factors among Japanese women with breast cancer should be reexamined.
2. By measuring stress, examining the buffering effects of social support on stress on health outcomes in a longitudinal study is needed (House, 1981).
3. Simultaneous triangulation study to confirm and complete the findings in both quantitative and qualitative study is needed (Morse, 1991).
4. Finally, social support was identified as a significant aspect among these Japanese women with breast cancer; therefore, intervention studies should be designed to empirically evaluate the concept of social support in Japanese culture.

Future studies of social support by using translated social support instruments and comparing with study findings conducted in Western cultures would help to understand this concept for diverse cultures.

Summary

The summary and discussion of the findings with conclusions have been presented. Reconsiderations for theory and recommendations for practice have been addressed. Recommendations for further research have been proposed.

Social support instruments developed in Western cultures should be used with careful determinations of cultural characteristics. Future research is needed to continue to evaluate reliability and validity of the social support instruments specific to populations who are in Japanese culture. Comparing study findings of social support conducted in different cultures will generate knowledge for understanding of the concept of social support for diverse cultures.

APPENDIX A
THE INCLUSION CRITERIA FORM

The Inclusion Criteria Form

1. Age _____ [over 20 years old]
2. Place of birth _____
3. Place of residence
 - In Japan: for _____ Years
 - Abroad: Country _____ for _____ Years
4. No psychiatric disorder diagnosis or no treatments
5. Informed diagnosis: _____
6. Breast cancer stages at the time of diagnosis
 [Only Stage I & II]
 - Stage _____ (Date: _____)
7. Date and types of breast surgery
 Mastectomy: Radical/Modified
 - (Date: _____) [no less than 6 months]
 - [no more than 5 years]
8. Adjuvant treatment:
 [No chemotherapy or radiation therapy at the time of data collection; No less than 6 months after completion of chemotherapy and/or radiation therapy]
 - *Chemotherapy: Types _____ Length _____ Completion Date _____
 - *Radiation: Types _____ Length _____ Completion Date _____
 - Immunotherapy: Types _____ Length _____ Completion Date _____
 - Hormone therapy: Types _____ Length _____ Completion Date _____
 - Others, including Chinese medication:
 Types _____ Length _____ Completion Date _____
9. Breast reconstruction: Yes/No [no breast reconstruction]
10. Palliative care
 Yes/No [no palliative care]
11. Other cancer diagnosis: _____
 Other medical problems: _____

APPENDIX B

HUMAN VOLUNTEERS RESEARCH COMMITTEE APPROVAL



**UNIVERSITY OF MARYLAND
SCHOOL OF MEDICINE**

OFFICE OF THE DEAN
Office for Research Subjects

655 West Baltimore Street, Room 1+016, BRB
Baltimore, Maryland 21201-1559
Voice: 410 706-5037
Fax: 410 706-4189
Email: ORS@SCHMED01.AB.UMD.EDU

MEMORANDUM

TO: Anne Belcher, Principal Investigator
Reiko Makabo, Doctoral Candidate

FROM: UMAB Institutional Review Board (IRB)
Assurance Number M1174-01NR

RE: "Social Support, Psychological & Physical States among Japanese Woman with Breast Cancer"
(Doctoral Thesis Proposal)

DATE: April 14, 1996

The above-referenced project has been reviewed and determined to be exempt from the IRB approval process according to the Department of Health and Human Services Office for Protection from Research Risks Code of Federal Regulations 45 CFR 46.101.b (2).

If the protocol is altered in any way, it must be reviewed by the IRB.

Please keep a copy of this letter for future reference. If you have any questions, please do not hesitate to contact the IRB Office at (410) 706-5037.

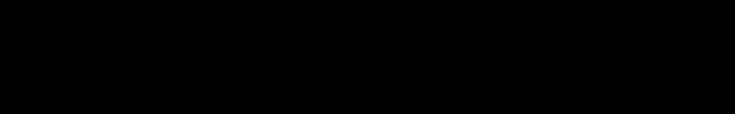
[Redacted]
Robert R. Conley, MD, Chairman
Institutional Review Board

CC: IRB Exemption File
Exemption No. AB-049601

APPENDIX C
APPROVAL FOR INSTRUMENTATION

Request Form

I request permission to copy the Norbeck Social Support Questionnaire (NSSQ) for use in research in a study entitled: The Relationship of Social Support and Psychological and Physical States among Japanese Women with Breast Cancer.


(Signature)March 26, 1996
(Date)

Position and

Doctoral CandidateFull Address
of Investigator:


Permission is hereby granted to copy the NSSQ for use in the research described above.


Jane S. NorbeckMarch 29, 1996
(Date)

Please send two signed copies of this form to:

Jane S. Norbeck, D.N.Sc.
Department of Mental Health and Community Nursing
University of California, San Francisco
NSOS-Y
San Francisco, California 94143

PERMISSION FORM

I plan to use the Interpersonal Relationships Inventory (IPRI) in the following research study entitled:

Social support, Psychological and Physical States
among Japanese Women with Breast Cancer

At the conclusion of the study, I agree to submit to Virginia Tilden a brief summary of study findings and a summary of reliability and validity data pertaining to the IPRI.



Signature

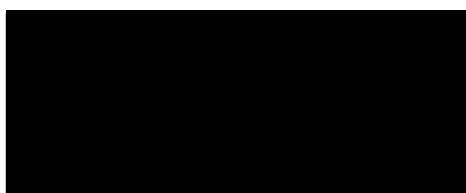
Reiko Makabe

Print name

Doctoral Candidate

Position

Telephone #()



Permission is granted to the above investigator to copy the IPRI for use in the above research.

Virginia Tilden4/23/96
Date

Please send two signed copies of this page to:



Virginia Tilden, DNSc, RN, FAAN
Associate Dean for Research, SN-ORD
Oregon Health Sciences University
3181 SW Sam Jackson Park Road
Portland, Oregon 97201-3098

1st April 1996

Reiko Makabe

Baltimore
MD
USA

DARVILLE HOUSE
2 OXFORD ROAD EAST
WINDSOR
BERKSHIRE SL4 1DF
[REDACTED]
FAX: +44 (0)1753 636530

Dear Reiko Makabe

GENERAL HEALTH QUESTIONNAIRE

Many thanks for your letter of 25th March. I can confirm that it is in order for you to use the GHQ-60 in the Japanese version you hold as part of your research into the relationship between social support and psychological and physical state amongst Japanese breast cancer patients.

The fee for the 100 administrations you intend to make will be £50.00 and an invoice is enclosed. Please ensure that your version carries the following copyright acknowledgement:

GHQ-60 © David Goldberg and The Institute of Psychiatry, 1978. Japanese version used by permission of the Publishers, NFER-NELSON, Darville House, 2 Oxford Road East, Windsor SL4 1DF, England. All rights reserved.

I enclose a pro-forma invoice for a copy of the GHQ User's Guide: once this is paid it will be despatched to you. You can pay with Access or Visa. I also enclose a list of references which you may find useful as they update those in the User's Guide.

Please let me have a copy of the GHQ-60 when you return to Japan.

With best wishes.

Yours sincerely
NFER-NELSON

SUSAN THOMPSON
Rights and Royalties Coordinator

e-mail address: [REDACTED]

APPENDIX D

THE NORBECK SOCIAL SUPPORT QUESTIONNAIRE

The Norbeck Social Support Questionnaire

**PLEASE READ ALL DIRECTIONS
ON THIS PAGE BEFORE STARTING**

Please list each significant person in your life on the right. Consider all the persons who provide personal support for you or who are important to you.

Use only first name or initials, and then indicate the relationship, as in the following example.

Example:

	First Name or Initials	Relationship
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
	etc.	

Use the following list to help you think of the people important to you, and list as many as apply in your case.

- spouse or partner
- family members or relatives
- friends (close friends as like best friends)
- senpai [older fellows]
- work or school associates
- neighbors
- health care providers
- counselor or therapist
- Shinto priest, Buddhist monk, or minister
- other

When you have finished your list, please turn to page 2.

(C) 1980 by Jane S. Norbeck, D.N.Sc.
University of California, San Francisco
Revised 1982

(Only 8 items were included in the JNSSQ)

Ratings for question 1 through 6:

- 1 = not at all
- 2 = a little
- 3 = moderately
- 4 = quite a bit
- 5 = a great deal

Question 1:

How much does this person make you feel liked or loved?

Question 2:

How much does this person make you feel respected or admired?

Question 3:

How much can you confide in this person?

Question 4:

How much does this person agree with or support your actions or thoughts?

Question 5:

If you needed to borrow \$ 10, a ride to the doctor, or some other immediate help, how much could this person usually help?

Question 6:

If you were confined to bed for several weeks, how much could this person help you?

Question 7:

How long have you known this person?

- 1 = less than 6 months
- 2 = 6 to 12 months
- 3 = 1 to 2 years
- 4 = 2 to 5 years
- 5 = more than 5 years

Question 8:

How frequently do you usually have contact with this person? (Phone calls, visits, or letters, etc.)

- 5 = daily
- 4 = weekly
- 3 = monthly
- 2 = a few times a year
- 1 = once a year or less

Source: Norbeck, J. S. (1980). Social Support Questionnaire. San Francisco, CA: University of California San Francisco

APPENDIX E

THE INTERPERSONAL RELATIONSHIP INVENTORY

The Interpersonal Relationship Inventory

Copyright: Virginia P. Tilden, DNSc, RN, FAAN
Oregon Health Sciences University
Portland, Oregon

Most relationships with people we feel close to are both helpful and stressful. Below are statements that describe close personal relationships. Please read each statement and mark an X in the box that best fits your situation. There are no right or wrong answers.

These first statements ask you to disagree or agree.

Ratings for items 1 through 22

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly agree

1. I know someone who makes me feel confident in myself.
2. Within my circle of friends, I get just as much as I give.
3. Some people I care about share similar views with me.
4. I'm available to my friends when they need to talk.
5. When I have helpful information, I try to pass it on to someone who could use it.
6. I think I put more effort into my friends than they put into me.
7. There is someone I can turn to for helpful advice about a problem.
8. I don't mind loaning money if a person I care about needs it.
9. I can talk openly about anything with at least one person I care about.
10. I'm satisfied with the give and take between me and people I care about.
11. There is someone I could go to for anything.
12. Some people in my life are too pushy.
13. I'm happy with the balance of how much I do for others and how much they do for me.

14. I can count on a friend to make me feel better when I need it.
15. When I need help, I get it from my friends, and when they need help, I gave it back.
16. There is someone in my life who gets mad if we have different opinions.
17. It's safe for me to reveal my weaknesses to someone I know.
18. Someone I care about stands by me through good times and bad times.
19. I have the kind of neighbors who really help out in an emergency.
20. There is someone I care about that I can't count on.
21. If I need help, all I have to do is ask.
22. I have enough opportunity to talk things over with people I care about.

These next statements ask you how often something happens.
Ratings for items 23 through 39.

- 1 = Never
- 2 = Almost never
- 3 = Sometimes
- 4 = Fairly often
- 5 = Very often

23. I have enjoyable times with people I care about.
24. I spend time doing things for others when I'd really rather not.
25. Some people I care about invade my privacy.
26. I let people I care about know that I appreciate them.
27. I am embarrassed by what someone I care about does.
28. Some people come to me for a boost in their spirits.
29. Someone I care about tends to take advantage of me.
30. Some people I care about are a burden to me.

31. I tell others when I think they're great.
32. I wish some people I care about were more sensitive to my needs.
33. People I care about make me do things I don't want to do.
34. Some people I care about come to me for advice.
35. There is tension between me and someone I care about.
36. I have trouble pleasing some people I care about.
37. At least one person I care about lets me know they believe in me.
38. Some people I feel close to expect too much of me.
39. I let others know I care about them.

APPENDIX F

THE RESULTS:

THE EQUIVALENCE TEST BETWEEN THE IPRI AND THE JIPRI

The Results: The Equivalence Test between the IPRI and the JIPRI

Table F.1
Minutes to Complete the JIPRI

Minutes	n	%	
5	5	31.3	
6	1	6.3	
10	5	31.3	
15	2	12.5	
20	3	18.8	
			M = 10.69
TOTAL	16	100.2*	SD = 5.68
			Range 5-20

* Percent does not add up to 100% due to rounding.

Table F.2
Alpha Reliability on the IPRI and the JIPRI

Subscales	IPRI (N)	JIPRI (N)
Support	.8875 (16)	.8820 (16)
Reciprocity	.5922 (14)	.5405 (16)
Conflict	.8877 (16)	.8920 (16)

Table F.3
Subscale Level Correlations between the IPRI and the JIPRI

Subscales	r	p	(N)
Support	.9341	.000	(16)
Reciprocity	.7591	.001	(14)
Conflict	.7754	.000	(16)

APPENDIX G
THE RESULTS:
THE PILOT STUDY

The Results: The Pilot Study

Table G.1

Alpha Reliability on Each Subscale of the JIPRI
(N = 10)

Subscale	Alpha
Support	.8434
Reciprocity	.8660
Conflict	.7659

Table G.2

The Correlations among the Subscales in the JIPRI (N = 10)

	1.	2.	3.
1. Support			
2. Reciprocity	.781***		
3. Conflict	-.594*	-.689**	

Note. All significant levels were based on a two-tailed test.

* p < .10

** p < .05

*** p < .01

Table G.3

The Correlations among the Subscales and Variables in the JNSSQ
(N = 10)

	1.	2.	3.	4.	5.	6.	7.
1. Affect							
2. Affirmation	.980						
3. Aid	.965	.973					
4. Total Functional	.990	.973	.990				
5. Duration	.979	.970	.926	.965			
6. Frequency	.943	.979	.943	.963	.993		
7. Total Network	.980	.990	.949	.980	.987	.978	

Note. All significant levels were based on a two-tailed test.

All correlations were significant at p < .0001.

APPENDIX H

THE GENERAL HEALTH QUESTIONNAIRE

The General Health Questionnaire

Copyright: David Goldberlg and The Institute of Psychiatry, 1978

Permissions to use Japanese Version:

The publishers, NFER-Nelson, Windsor, England

The publishers, Nihon Bunka Kagakusha, Tokyo, Japan

Please read this carefully:

We should like to know if you have had any medical complaints, and how your health has been in general, over the past weeks.

Please answer ALL the questions on the following pages simply by underlining the answer which you think most nearly applies to you. Remember that we want to know about present and recent complaints, not those that you had in the past.

It is important that you try to answer ALL the questions.

Thank you very much for your co-operation.

HAVE YOU RECENTLY:

	Better than usual	Same as usual	Worse than usual	Much worse than usual
1.-been feeling perfectly well and in good health?				
2.-been feeling in need of a good tonic?	Not at all	No more than usual	Rather more than usual	Much more than usual
3.-been feeling run-down and out of sort?	Not at all	No more than usual	Rather more than usual	Much more than usual
4.-felt that you are ill?	Not at all	No more than usual	Rather more than usual	Much more than usual
5.-been getting any pains in your head?	Not at all	No more than usual	Rather more than usual	Much more than usual

6.-been getting a feeling of tightness or pressure in your head?	Not at all	No more than usual	Rather more than usual	Much more than usual
7.-been able to concentrate on whatever you're doing?	Better than usual	Same as usual	Less than usual	Much less than usual
8.-been afraid that you were going to collapse in a public place?	Not at all	No more than usual	Rather more than usual	Much more than usual
9.-been having hot or cold spells?	Not at all	No more than usual	Rather more than usual	Much more than usual
10.-been perspiring (sweating) a lot?	Not at all	No more than usual	Rather more than usual	Much more than usual
11.-found yourself waking early and unable to get back to sleep?	Not at all	No more than usual	Rather more than usual	Much more than usual
12.-been getting up feeling your sleep hasn't refreshed you?	Not at all	No more than usual	Rather more than usual	Much more than usual
13.-been feeling too tired and exhausted even to eat?	Not at all	No more than usual	Rather more than usual	Much more than usual
14.-lost much sleep over worry?	Not at all	No more than usual	Rather more than usual	Much more than usual
15.-been feeling mentally alert and wide awake?	Better than usual	Same as usual	Less alert than usual	Much less alert

16.-been feeling full of energy?	Better than usual	Same as usual	Less energy than usual	Much less anergic
17.-had difficulty in getting off to sleep?	Not at all	No more than usual	Rather more than usual	Much more than usual
18.-had difficulty in staying asleep once you are off?	Not at all	No more than usual	Rather more than usual	Much more than usual
19.-been having frightening or unpleasant dreams?	Not at all usual	No more than than	Rather more than usual	Much more than usual
20.-been having restless, disturbed nights?	Not at all	No more than usual	Rather more than usual	Much more than usual
21.-been managing to keep yourself busy and occupied?	More so than usual	Same as usual	Rather less than usual	Much less than usual
22.-been taking longer over the things you do?	Quicker than usual	Same as usual	Longer than usual	Much longer than usual
23.-tended to lose interest in your ordinary activities?	Not at all	No more than usual	Rather more than usual	Much more than usual
24.-been losing interest in your personal appearance?	Not at all	No more than usual	Rather more than usual	Much more than usual
25.-been taking less trouble with your clothes?	More trouble than usual	About same as usual	Less trouble than usual	Much less trouble

26.-been getting out of the house as much as usual?	More than usual	Same as usual	Less than usual	Much less than usual
27.-been managing as well as most people would in your shoes?	Better than most	About the same	Rather less well	Much less well
28.-felt on the whole you were doing things well?	Better than usual	About the same	Less well than usual	Much less well
29.-been late getting to work, or getting started on your housework?	Not at all	No later than usual	Rather later than usual	Much later than usual
30.-been satisfied with the way you've carried out your task?	More satisfied	About same as usual	Less satisfied than usual	Much less satisfied
31.-been able to feel warmth and affection for those near to you?	Better than usual	About same as usual	Less well than usual	Much less well
32.-been finding it easy to get on with other people?	Better than usual	About same as usual	Less well than usual	Much less well
33.-spent much time chatting with people?	More time than usual	About same as usual	Less than usual	Much less than usual
34.-kept feeling afraid to say anything to people in case you made a fool of yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
35.-felt that you are playing a useful part in things?	More so than usual	Same as usual	Less useful than usual	Much less than useful

36.-felt capable of making decisions about things?	More so than usual	Same as usual	Less so than usual	Much less capable
37.-felt you're just not able to make a start on anything?	Not at all	No more than usual	Rather more than usual	Much more than usual
38.-felt yourself dreading everything that you have to do?	Not at all	No more than usual	Rather more than usual	Much more than usual
39.-felt constantly under strain? hasn't refreshed you?	Not at all	No more than usual	Rather more than usual	Much more than usual
40.-felt you couldn't overcome your difficulties?	Not at all	No more than usual	Rather more than usual	Much more than usual
41.-been finding life a struggle all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual
42.-been able to enjoy your normal day-to-day activities?	More so than usual	Same as usual	Less so than usual	Much less than usual
43.-been taking things hard?	Not at all	No more than usual	Rather more than usual	Much more than usual
44.-been getting edgy and bad-tempered?	Not at all	No more than usual	Rather more than usual	Much more than usual
45.-been getting scared or panicky for no good reason?	Not at all	No more than usual	Rather more than usual	Much more than usual

46.-been able to face up to your problems?	More so than usual	Same as usual	Less able than usual	Much less able
47.-found everything getting on top of you?	Not at all	No more than usual	Rather more than usual	Much more than usual
48.-had the feeling that people were looking at you?	Not at all	No more than usual	Rather more than usual	Much more than usual
49.-been feeling unhappy and depressed?	Not at all	No more than usual	Rather more than usual	Much more than usual
50.-been losing confident in yourself?	Not at all	No more than usual	Rather more than usual	Much more than usual
51.-been thinking of yourself as a worthless person?	Not at all	No more than usual	Rather more than usual	Much more than usual
52.-felt that life is entirely hopeless?	Not at all	No more than usual	Rather more than usual	Much more than usual
53.-been feeling hopeful about your own future?	More so than usual	About same as usual	Less so than usual	Much less hopeful
54.-been feeling reasonably happy, all things considered?	More so than usual	About same as usual	Less so than usual	Much less than usual
55.-been feeling nervous and strung-up all the time?	Not at all	No more than usual	Rather more than usual	Much more than usual

56.-felt that life isn't worth living?	Not at all	No more than usual	Rather more than usual	Much more than usual
57.-thought of the possibility that you might make away with yourself?	Definitely not	I don't think so	Has crossed my mind	Definitely have
58.-found at times you couldn't do anything because your nerves were too bad?	Not at all	No more than usual	Rather more than usual	Much more than usual
59.-found yourself wishing you were dead and away from it all?	Not at all	No more than usual	Rather more than usual	Much more than usual
60.-found that the idea of taking your own life kept coming into your mind?	Definitely not	I don't think so	Has crossed my mind	Definitely has

Source: Goldberg, D. P. (1972). The detection of psychiatric illness by questionnaire: A technique for the identification and assessment of non-psychotic psychiatric illness. London: Oxford University Press.

APPENDIX I
THE PHYSICAL STATES INTERVIEW FORM

The Physical States Interview Form

1. Signs:

- a. Poor wound healing Yes/No, If yes, describe _____
- b. Arm swelling Yes/No, If yes, describe _____
- c. Other(s) _____ Yes/No, If yes, describe _____

2. Symptoms:

- a. Pain in the affected arm and/or surgical area Yes/No, If yes, describe _____
- b. Impaired range-of-motion of the arm Yes/No, If yes, describe _____
- c. Arm sensation (e.g., Numbness
Burning
Stiffness
Tingling
Heaviness
Weakness) Yes/No, If yes, describe _____
- d. Breast sensation (e.g., Numbness
Itching) Yes/No, If yes, describe _____
- e. Breast phantom sensation Yes/No, If yes, describe _____
- f. Other(s) _____ Yes/No, If yes, describe _____

TOTAL SCORE (# of Yes) _____

3. Others

- a. Breast prosthesis Yes/No, If yes, describe _____
If no, why no _____
- b. Menopausal status (Pre, Peri, Post)
- c. Other medical problems (e.g., Arthritis
DM
HTN) Yes/No, If yes, identify _____

APPENDIX J
THE PERSON FACTOR SURVEY FORM

The Person Factor Survey Form

1. Age: _____

2. Place of Birth: _____

3. Experiences in living abroad: Yes/No
If yes, how long _____
where _____

4. Level of education completed:

- a. Elementary school
- b. Junior high
- c. High school
- d. Junior college
- e. College
- f. Graduate school
- g. Any types of school
(technical/professional school) _____
- h. Others _____

5. Employment status:

- a. Employed
 - 1) Full-time _____
 - 2) Part-time _____
- b. Self-employed _____
- c. Homemaker
- d. Unemployed
- e. Retired
- f. Student
- g. Others _____

6. Marital status:

- a. Never married
- b. Married (How many years? _____)
 - 1) Live together
 - 2) Live separate homes due to your own or
your spouse's work reasons
- c. Live together without marriage (How many years? _____)
- d. Separated
- e. Divorced
- f. Widowed

7. Income per year household _____ Yen

8. How many people live with you in your household?

(Total number **not including** you _____)

9. How many of your close relatives live within 80 km of you?

(Total number **including** those living with you _____)

10. Religion

- a. Buddhism and Shinto
- b. Buddhism
- c. Shinto
- d. Christianity
- e. Others _____
- f. None

If you selected a to e in the above, how often do you participate in religious activities?

- a. No activities
- b. Not so often (1/year)
- c. Sometimes (1/month)
- d. Often (1/week)
- e. Very often (1/day)

11. Do you have any contact with other cancer patients?

Yes/No

If yes,

a. Self-help group, such as *Akebono kai* or *Soreiyu kai*?

Yes/No

b. Others: please explain _____

APPENDIX K
THE SEMI-STRUCTURED INTERVIEW QUESTIONS

The Semi-Structured Interview Questions

1. Tell me your story about help; how has it affected your life since you were diagnosed with breast cancer?
2. What kinds/how many things did people do to help you after you were diagnosed with breast cancer?
Verbal/nonverbal? Directly/indirectly offered?
3. Who/what was the most helpful to you and in what ways?
Individuals? Groups?
4. Who/what was the most stressful to you in what ways?
Individuals? Groups?
5. In what ways, if any, did you provide help to others?
How would you describe how you provided help to others?

APPENDIX L

PARTIAL CORRELATIONS FOR SOCIAL SUPPORT, AND PSYCHOLOGICAL AND
PHYSICAL STATES CONTROLLED BY MARITAL STATUS

Table L.1
Partial Correlations for Social Support, and Psychological and Physical States Controlled by Marital Status

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	N
1. Affect	—									113
2. Affirmation	.981**	—								113
3. Aid		.788**	.809**	—						113
4. Total Functional		.975**	.981**	.888**	—					113
5. Total Network		.885**	.881**	.758**	.894**	—				112
6. Reciprocity		.337**	.346**	.214*	.327**	.317**	—			110
7. Conflict	-.107	-.152	-.165	-.146	-.122	.013	—			112
8. Psychological states	-.088	-.111	-.174	-.119	-.059	-.134	.296**	—		108
9. Physical States	-.031	-.037	-.032	-.034	-.013	.116	.065	.305**	—	113

Note. All significant levels were based on a two-tailed test.

* p < .05

** p < .01

APPENDIX M

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS FOR
ILLNESS-RELATED VARIABLES WITH SOCIAL SUPPORT, PERSON FACTORS,
AND PSYCHOLOGICAL AND PHYSICAL STATES

Table M.1
Pearson Product-Moment Correlation Coefficients for
Illness-Related Variables and Social Support

Variables	Cancer Stage		Months after Surgery		N
	r	p	r	p	
1. Affect	.202	.032	-.042	.662	113
2. Affirmation	.194	.039	-.041	.669	113
3. Aid	.158	.096	-.080	.402	113
4. Total Functional	.191	.043	-.049	.608	113
5. Total Network	.240	.011	.017	.858	112
6. Reciprocity	-.013	.895	.005	.955	110
7. Conflict	-.100	.296	.168	.076	112

All significant levels were based on a two-tailed test.

Table M.2
Pearson Product-Moment Correlation Coefficients for
Illness-Related Variables and Person Factors

Variables	Cancer Stage		Months after Surgery		N
	r	p	r	p	
1. Age	-.064	.503	.193	.041	113
2. Marital Status	-.018	.847	-.089	.349	113
3. Education	.108	.293	-.057	.578	97
4. Employment Status	-.096	.314	-.002	.981	113
5. Religion	.128	.178	.013	.892	112
6. Income	.173	.156	.176	.149	69

All significant levels were based on a two-tailed test.

Table M.3
Pearson Product-Moment Correlation Coefficients for
Illness-Related Variables and Psychological and Physical States

Variables	Cancer Stage		Months after Surgery		N
	r	p	r	p	
1. Psychological States	.058	.553	-.014	.885	108
2. Physical States	.039	.680	-.086	.363	113

All significant levels were based on a two-tailed test.

APPENDIX N

PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS FOR HAVING
CONTACT WITH OTHER CANCER PATIENTS AND PSYCHOLOGICAL AND
PHYSICAL STATES

Table N.1

Pearson Product-Moment Correlation Coefficients for Having Contact with Other Cancer Patients and Psychological and Physical States

Variables	r	p	N
Psychological States	-.0879	.382	101
Physical States	.1972	.044	105

All significant levels were based on a two-tailed test.

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