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# Testing a Theory of Decision-Making Derived From King's Systems Framework in Women Eligible for a Cancer Clinical Trial

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*The purpose of this study was to test an explanatory theory of decision-making in women eligible for a cancer clinical trial. The theory derived from King's framework proposed that the concepts of uncertainty, role functioning, and social support relate to emotional health (hope and mood state), which in turn relates to the treatment decision. A correlational study design was used to test the theory in a sample of 40 women. Findings provided empirical evidence of the adequacy of King's framework and supported, in part, theorized relationships among the critical factors. However, these factors did not illuminate the treatment decision.*

Optimal cancer treatments can only be devised through patient enrollment in cancer clinical trials. Yet, less than 3% of all persons with cancer enroll in clinical trials (Ho, 1994; National Cancer Institute, 2000; Tejeda et al., 1996). There remains a critical need to increase the number of persons with cancer who participate in clinical trials. Because women have been grossly underrepresented in multiple therapeutic

areas of investigations (Thomas, 1997), it is vital to understand their unique approach to decision-making regarding clinical trial enrollment. Despite efforts by social scientists and physicians to study the phenomenon of cancer clinical trial enrollment, the problem of low and slow enrollment persists (Gotay, 1991). The inadequate specification of the personal and psychological factors of patient refusal, as well as the complexity of the response regarding entry into the clinical trial, are no doubt responsible, to a great extent, for the lack of progress. Clearly, there is an expedient need to improve understanding of the patient factors surrounding the enrollment process (Huizinga, Sleijfer, van de Wiel, & van der Graaf, 1999; Schain, 1994).

Recently, nurse researchers have begun to investigate the psychosocial aspects of the cancer clinical trial enrollment process (Cox & Avis, 1996; Crago, Schaefer, & Gyaunch, 1997; Yoder, O'Rourke, Etnyre, Spears, & Brown, 1997). Previous findings from Dwyer's (1993) research on decision-making maintained that the cancer patient's decision relies primarily on human emotion and less on the cognition of decision analysis, expected utility theory, or judgment heuristics. Additionally, Dwyer (1993) found that the actual decision is dependent on how the patient sees the self as able to pursue and psychologically manage a given

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treatment. Dwyer not only emphasized the role of human emotions but also the role of emotional wellness or health in the decision-making process. These findings by Dwyer are congruent with the theoretical perspective offered by King (1981). Both King and Dwyer emphasized the individual's perception of the situation and the nature of subjectivity in the decision-making process. To date, studies that examine the psychosocial influences on women's emotional health in relation to the treatment decision have been absent from the literature. This article describes the testing of a theory of decision-making in women eligible for a cancer clinical trial.

## Background

Identifying barriers to optimal clinical trial accrual and subsequently developing strategies to overcome them are of critical importance (Gotay, 1991). Despite the urgent need for effective strategies, there are only a few systematic studies of patients in cancer clinical trials, and the findings rarely go beyond demographics and exclusion criteria (Gotay, 1991; Swanson & Ward, 1995). Patient demographic characteristics such as age and sociodemographic status are fairly well understood in the enrollment process; however, they are not readily changeable or amenable to interventions to increase accrual (Morrow, Hickock, & Burish, 1994). Additionally, these characteristics are inadequate by themselves in explaining the patient's emotional health. Gotay (1991) recommended that additional research should focus on the perspectives of patients who accept and decline trial participation and on subsequent interventions designed to affect enrollment. Yet rarely have the perspectives of patients been assessed. Given the complexity of the patient's response regarding entry into or avoidance of a clinical trial, Schain (1994) maintains that researchers must try and isolate a few of the major variables to learn more about this phenomenon. Cox and Avis (1996) and Yoder et al. (1997) clearly identified the significance of hope in the enrollment process, whereas Crago et al.

(1997) identified the significance of uncertainty and social support. Therefore, the present nursing study extends the previous patient-focused research on demographics and exclusion criteria. It builds on the previous studies by Cox and Avis (1996), Crago et al. (1997), Dwyer (1993), and Yoder et al. (1997), but goes beyond those studies by assessing the indicators of emotional health and the relationship between emotional health and enrollment. This research was designed to begin addressing the critical issues raised by Dwyer (1993), Gotay (1991), and Schain (1994).

## Purpose of the Study

The purpose of this study was to test an explanatory theory of decision-making derived from King's (1981) framework in women who had been given the option to enroll in a cancer treatment trial. The theory proposes that concepts of uncertainty, role functioning, and social support relate to emotional health (hope and mood state), which in turn relates to the treatment decision. The primary research questions formulated to test the proposed theory were: (a) What is the extent of the relationship among personal, interpersonal, and social systems' concepts (uncertainty, role functioning, social support) and emotional health (hope and mood state)? and (b) What is the extent of the relationship between emotional health (hope and mood state) and the treatment decision?

## Conceptual Framework and Theory

King's (1981) framework provides a reference for the domain of nursing. It is based on the overall assumption that the focus of nursing is human beings interacting with their environment leading to a state of health for individuals (King, 1981). This framework consists of three interacting systems: the personal system, the interpersonal system, and the social system. The boundaries of each system are open, such that each system influences the others. In each system there are interrelated concepts such as perception, role, and organization. King (1995) asserted, "This framework dif-

fers from other conceptual schema in that it is concerned not with fragmenting human beings and the environment but with human transactions in different types of environments" (p. 21). The theory derived from King's (1981) framework proposes relationships between the variable of emotional health and several systems concepts: (a) the woman's uncertainty about the illness situation, (b) her ability to function in her roles, and (c) her social support network. A relationship between emotional health and the treatment decision is also proposed. The concepts are linked to King's systems as indicated in Figure 1. These linkages, also supported with the literature pertaining to cancer nursing and cancer clinical trials, are further described here.

King's (1981) personal system contained several key concepts, including perception. According to Mishel (1983), uncertainty is a perceptual variable. When a physician presents a clinical trial as a treatment option to an individual, it introduces into the illness situation the fact that the best answer for treating the illness remains unknown. Stetz (1993) stated that little is known about how patients manage uncertainty with respect to making the decision to enter a clinical trial. Uncertainty occurs when the decision maker (the woman eligible for a cancer clinical trial) is unable to assign definite values to objects and events and/or is unable to accurately predict outcomes (Mishel, 1988). Moreover, perceptions of uncertainty can lead to problems in psychosocial adjustment and a pessimistic view of the future (Mishel, 1983).

King's (1981) description of the interpersonal system contained the concept of role. According to King, several elements give meaning to the concept of role, including the "relationship with one or more individuals interacting in specific situations for a purpose" (p. 93). Whereas the ability or inability to function in roles is certainly related to health, it is not the overall definition of health (Winker, 1995). Role function in the tested theory is clearly viewed as influencing health or, more precisely, emotional health. Accordingly, "role

KING'S SYSTEMS CONCEPTS	Perception	Role	Organization	Health	Decision-Making
THEORY CONCEPTS	Uncertainty	Role Functioning	Social Support	Emotional Health	Treatment Decision
	⋮	⋮	⋮	⋮	⋮
EMPIRICAL INDICATORS	Mishel Uncertainty in Illness Scale (MUIS-C)	Inventory of Functional Status - Cancer (IFS-CA)	Social Support Survey (MOS-SSS)	Herth Hope Index (HHI), Profile of Mood States- Short Form (POMS-SF)	Entry / Non-entry in Clinical Trial

Figure 1. Conceptual-Theoretical-Empirical Structure

functioning refers to the degree to which an individual performs or has the capacity to perform activities typical for a specified age and social responsibility" (Sherbourne, Stewart, & Wells, 1992, p. 205). Unfortunately, the important roles held by women have often not been assessed in the context of role functioning (Sherbourne et al., 1992). During the treatment decision-making process, the person with cancer must rebalance his or her roles within the family and society while attempting to regain and maintain a state of physical and emotional well-being (Dwyer, 1993). Women may have a more difficult time rebalancing the roles because of role multiplicity, which in turn may create distress.

King (1981) characterized social systems as the family, religious systems, work systems, educational systems, and peer groups. King identified the organization as a major concept of the social system, noting an "organization as a system exhibits patterns of individual and group behavior, patterns of communication, and patterns of interaction" (p. 121). Thus, an organization can represent a social support system. Family support can be a significant factor in the patient's decision-making pro-

cess as members provide emotional support throughout the process (Johansen, Mayer, & Hoover, 1991). Conversely, the absence of informal and formal networks can pose major problems to patients with cancer who are seeking care (Guidry et al., 1996). Morrow et al. (1994) went so far as to say that "support groups may improve the likelihood of study entry of patients with inadequate social networks" (p. 2681). The presence or absence of an adequate social support system or network may influence how the individual emotionally pursues the decision to participate in a complex clinical trial.

King (1971) stated that health "encompasses the whole man [*sic*—physical, emotional, and social . . . within the cultural pattern in which he [*sic*] was born and to which he [*sic*] attempts to conform" (p. 67). King (1981) also stated that the goal of nursing "is to help individuals maintain their health so they can function in their roles" (pp. 3-4). In examining King's (1971, 1981) various definitions of health, Winker (1995) noted, "Limiting the definition of health to role function does not comprehend the interaction of people and the universe and the teleological nature of humanity" (p. 42). Therefore, a new defi-

nition of health is created by Winker (1995), who stated that "health is the ability of the individual to create meaningful symbols based on either biological or human values within his or her cultural and individual value systems" (p. 42). Furthermore, Dwyer (1993) believed that there is a relationship between the process of making the treatment decision and emotional well-being. In the proposed theory, health is viewed as emotional health that takes into account King's (1971) and Winker's (1995) definitions of health. A state of emotional health is desired prior to engaging in an active course of cancer therapy, although it is not always present in optimal form due to factors such as grief or denial (Dwyer, 1993). Within the theory, the indicators of emotional health are hope and mood state.

King (1981) stated, "Decisions are individual, personal, and subjective" (p. 132). Dwyer (1993) contended that for the person with cancer, the treatment decision stems from human emotion, which the proposed theory conceptualizes as emotional health. The action of decision-making manifests itself in the treatment decision. Therefore, the treatment decision is consenting to enter or not to enter the clinical trial.

## Methodology

### Design

A descriptive, correlational study design was used. The primary measurements of all variables were made at entry into this study using self-report, paper-and-pencil scales that were conceptually linked with empirical indicators of the concepts in the theory (see Figure 1). This approach yielded reports about emotional health in close relation to the precise day of finalizing the treatment decision. The design avoided placing high demands on the participant, which could lead to refusal to participate in the proposed nursing study (Hinds, Quargnenti, & Madison, 1995).

### Sample and Setting

A sample of women newly diagnosed with cancer was drawn from four cancer care facilities. A woman was eligible for participation if she: (a) was at least 18 years old, (b) could communicate in English verbally and in writing, (c) had a cancer diagnosis  $\leq 6$  months, (d) had a Karnofsky Performance Status (KPS) score of  $\geq 60$ , (e) had no history of psychiatric illness, (f) had been given the option to enroll in a treatment trial by her physician, and (g) reported the personal treatment decision had been made 28 days prior. The sample was one of convenience according to the availability of participants. Power analysis using SamplePower© 1.0 software indicated that with a sample size of 40 and alpha set at .05, the study would have a power of 0.92.

### Instruments

The Mishel Uncertainty in Illness Scale–Community Form (MUIS-C) is used to measure the uncertainty perceived in illness by those persons who are not hospitalized (Mishel, 1997). The MUIS-C is a 23-item scale with a 5-point Likert-format response set ranging from *strongly disagree* to *strongly agree*. The verb tense has been modified in three items in consultation with the author (M. Mishel, personal communication, September 17, 1997). A score is obtained for the total scale, which repre-

sents the one-factor. To calculate the one-factor/total score, all items are summed. The total uncertainty score ranges from 23 to 115. Higher scores indicate more uncertainty. The MUIS-C has been used in samples of participants with breast cancer and other illnesses (Mishel, 1997). The reliabilities for the MUIS-C were reported to be in the moderate-to-high range ( $\alpha = .74$  to  $.92$ ). Evidence of content and construct validity has also been provided (Mishel, 1997).

The Inventory of Functional Status–Cancer (IFS-CA) measures functional status in women who have cancer. Functional status is defined “as a multidimensional concept that encompasses continuation of usual household and family, social and community, personal care, and occupational activities following diagnosis of cancer” (Tulman, Fawcett, & McEvoy, 1991, p. 254). The IFS-CA is conceptually based on the Roy adaptation model role function response mode, which reflects activities associated with a person’s primary, secondary, and tertiary roles (Fawcett & Tulman, 1996). The IFS-CA, a 39-item questionnaire, measures the extent to which the woman continues her usual activities. All items use a 4-point rating scale ranging from 1 (*not at all*) to 4 (*fully*) for household, family, social, and community activities; and 1 (*never*) to 4 (*all of the time*) for personal care and occupational activities. The total IFS-CA score is computed such that the possible range of scores is 1 to 4; the higher the score, the greater the total functional status. The IFS-CA has been used in women diagnosed with different types of cancer (Tulman & Fawcett, 1996; Tulman et al., 1991). Content validity was established at 98.5%. Test-retest reliability coefficient for the total IFS-CA has been reported at 0.91 (Tulman et al., 1991).

The Medical Outcomes Study–Social Support Survey (MOS-SSS) is used to assess the perceived availability, if needed, of various components of functional support in an adult patient population (Sherbourne & Stewart, 1991). The MOS-SSS is a 19-item survey that assesses emotional/informational sup-

port, tangible support, affectionate support, and positive social interaction. All items use a 5-point Likert response format with choices ranging from 1 (*none of the time*) to 5 (*all of the time*). The observed scores range from 1 to 5 for the overall support index. The scores can be transformed to 0 to 100. Higher scores indicate more frequent availability of different types of support, as needed. The transformed score for the overall support index was used in the present study. This tool has been used in various patient populations, including chronically ill women. The reported alpha reliability for the total support index is 0.97. Evidence of validity testing with multitrait scaling has also been reported (Sherbourne & Stewart, 1991).

The Herth Hope Index (HHI) is used to assess hope in adult patients within the clinical setting. Hope is defined as a multidimensional dynamic life force characterized by a confident yet uncertain expectation of achieving good, which to the hoping person is realistically possible and personally significant (Herth, 1992). The HHI is a 12-item instrument adapted from the Herth Hope Scale (HHS); it was designed specifically for clinical application and research. The HHI uses a Likert-type response set ranging from 1 (*strongly disagree*) to 4 (*strongly agree*), with a total range of scores from 12 to 48. The higher the total scale score, the higher the level of hope. This tool has been used in adult men and women diagnosed with various types of cancer (Herth, 1989, 1992). Alpha coefficient is reported to be 0.97 with a 2-week test-retest reliability of 0.91; correlation with the parent HHS is 0.92 (Herth, 1992).

The Profile of Mood States–Short Form (POMS-SF) is used to identify and assess transient, fluctuating affective states. According to McNair, Lorr, and Droppleman (1992), “The understanding of the psychology of emotion requires not only the inclusion of physiological and behavioral data but also the subjective data of feeling, affect and mood” (p. 1). The POMS-SF is a 30-item measure that uses a 5-point adjective rating scale ranging from 0 (*not at*

all) to 4 (*extremely*) for assessing identifiable mood or affective states: tension-anxiety, depression-dejection, anger-hostility, vigor-activity, fatigue-inertia, and confusion-bewilderment. From the POMS-SF, a Total Mood Disturbance (TMD) score is calculated that provides an overall measure of adjustment. The score ranges from -20 to 100; the higher the score, the greater the mood disturbance. The POMS has been used in numerous studies of female cancer patients (McNair et al., 1992). Alpha reliabilities reported for the POMS-SF in a female sample range from .75 to .90 (McNair et al., 1992).

Participants also completed a 10-item demographic data form that ascertained the following: date, approximate date of the treatment decision, actual treatment decision, type and stage of cancer, age, ethnic group, marital status, educational level, number of children, employment status, and financial concern.

#### Procedures

The appropriate human participants review committees at each of the four cancer care facilities approved the study. Designated clinical trial nurses (CTNs) at each facility were oriented to study procedures. The actual data collection procedure was imbedded in the regular process of clinical trial consideration. The CTN typically saw the patient after the physician discussed treatment options and provided details of the treatment trial. When the patient met the criteria for the present study, the potential participant was given a brief explanation of the nursing study by the CTN at the closure of the initial meeting with the CTN. The patient usually made the enrollment decision within 2 weeks after the physician recommendation. At the point of informing the physician and/or CTN of the therapy decision, the patient was again given an explanation of the nursing study by the CTN. If the patient was interested in participating, the informed consent statement attached to the questionnaire was given in conjunction with verbal instruction for completion. Completion of the questionnaire required approximately 15 to

20 minutes. Data from the questionnaires were analyzed using SPSS 7.5 statistical software.

## Results

### Sample

A convenience sample of 40 women newly diagnosed with cancer and eligible for a treatment trial participated. Select characteristics are presented in Table 1. The average age of the participants was 55.32 years (range = 23 to 76,  $SD = 12.35$ ). The average number of years of education completed by the participants was 13.45 (range = 7 to 17,  $SD = 2.12$ ). All participants completed the questionnaire within 28 days of making their self-reported treatment decision. The mean time to completion was 6.02 days (range = 0 to 28,  $SD = 7.87$ ). Of the participants, 27 (67.5%) decided to enroll in a treatment trial, whereas 13 (32.5%) decided not to enroll. Efforts were made to obtain a more evenly distributed sample; however, each data collection site reported challenges in securing participants who had decided not to enroll in a treatment trial. Hence, the decision was made to use the present sample because it was sufficient for the analysis.

### Main Study Variables

Preliminary data analysis involved examination of the main study variables (uncertainty, role functioning, social support, hope, and mood state) using descriptive statistics and comparisons to the means reported for various samples in the literature. Table 2 includes the means, standard deviations, and ranges of scores for these continuous variables. The level of statistical significance was set at  $\alpha \leq .05$ . Tests for normal distribution were performed on the data. Distributions from the HHI, the POMS-SF, and the MOS-SSS were all negatively skewed. Because the sample did not meet the criteria for normal distribution, nonparametric statistics were used to perform data analysis.

Data analysis to answer the first research question involved examination of the Spearman rank-order correlation

**Table 1**  
**Distribution of Categorical Sociodemographic Variables (N = 40)**

Variable	n	%
Ethnic group		
Caucasian	37	92.5
African American	3	7.5
Marital status		
Married	23	57.5
Widowed	7	17.5
Never married	5	12.5
Other	5	12.5
Children		
Yes	33	82.5
No	7	17.5
Employment status		
Not employed	22	55.0
Employed full time	15	37.5
Employed part time	3	7.5
Diagnosis		
Breast	30	75.0
Colorectal	5	12.5
Other	5	12.5
Stage		
I/II	30	75.0
III/IV	9	22.5
Not reported	1	2.5
Enrollment		
Yes	27	67.5
No	13	32.5

coefficients among the main study variables (see Table 3). The initial part of this question sought to examine the relationship of hope to the three variables of uncertainty, role functioning, and social support. All of the three variables had a statistically significant relationship with the variable of hope. Uncertainty was negatively correlated with hope ( $r_s = -.557, p = .0001$ ), whereas role functioning and social support were positively correlated with hope ( $r_s = .451, p = .004$ ;  $r_s = .434, p = .005$ ). The second part of this question sought to examine the relationship of mood state to the three variables of uncertainty, role functioning, and social support. Two of the three variables had a statistically significant relationship to the variable of mood state. Uncertainty was positively correlated with mood disturbance ( $r_s = .501, p = .001$ ), whereas role functioning was negatively correlated with mood disturbance ( $r_s = -.448, p = .004$ ). There was no statistically significant re-

**Table 2**  
Means, Standard Deviations, and Ranges of Main Variables  
for Sample ( $N = 40$ )

Variable	<i>M</i>	<i>SD</i>	Range
Uncertainty (MUIS-C)	47.92	14.06	26 to 100
Role functioning (IFS-CA)	3.09	0.47	1.77 to 3.94
Social support (MOS-SSS)	87.36	18.77	32 to 100
Hope (HHI)	43.07	4.97	31 to 48
Mood state (POMS-SF)	15.55	20.0	-14 to 58

NOTE: MUIS-C = Mishel Uncertainty in Illness Scale–Community; IFS-CA = Inventory of Functional Status–Cancer; MOS-SSS = Medical Outcomes Study–Social Support Survey; HHI = Herth Hope Index; POMS-SF = Profile of Mood States–Short Form.

**Table 3**  
Correlation Matrix for Main Variables

Variable	MUIS-C	IFS-CA	MOS-SSS	HHI	POMS-SF
Uncertainty (MUIS-C)	—				
Role functioning (IFS-CA)	-.476*	—			
Social support (MOS-SSS)	-.303*	.007	—		
Hope (HHI)	-.557*	.451*	.434*	—	
Mood state (POMS-SF)	.501*	-.448*	-.170	-.598*	—

NOTE: MUIS-C = Mishel Uncertainty in Illness Scale–Community; IFS-CA = Inventory of Functional Status–Cancer; MOS-SSS = Medical Outcomes Study–Social Support Survey; HHI = Herth Hope Index; and POMS-SF = Profile of Mood States–Short Form.

\*Spearman rank-order correlation is significant at the .01 level (two-tailed).

relationship between social support and mood state ( $r_s = -.170, p = .294$ ).

For the second research question, a point biserial correlation was to be undertaken to examine the strength of the association between emotional health (hope and mood state) and the treatment decision. However, the critical assumptions for the statistic could not be met. Thus, the Mann-Whitney U Test was used to examine hope and mood state among women who enrolled in a treatment trial and those who did not. There was no significant difference in the level of hope among women who enrolled in a treatment trial and those who did not ( $z = -.102, p = .919$ ). There was also no significant difference in the level of mood disturbance among women who enrolled in the trial and those who did not ( $z = -.766, p = .444$ ).

## Discussion

### *Systems Concepts and Emotional Health*

The first research question examined the extent of the relationships among

personal, interpersonal, and social systems concepts and emotional health. Uncertainty, role functioning, and social support were all significantly correlated with hope, whereas uncertainty and role functioning were also significantly correlated with mood state. The magnitude of all of these associations was either interpreted as moderate or strong. Surprisingly, there was no statistically significant relationship between social support and mood state. In terms of the theory, these findings suggest sufficient empirical evidence for how select concepts from the personal, interpersonal, and social systems relate to emotional health, an aspect of health as a whole, reflecting an organismic view of the individual. King (1995) maintained that the goal of her nursing system, as a whole, is health for individuals. Nonetheless, the specific finding that social support was not significantly related to mood state was not as the theory predicted. Because social support was significantly related to hope, it raises questions about the relationship between social support and the indica-

tors of emotional health. It may be that hope is a mediating variable and that mood state is the outcome variable. It may also be that the two indicators of emotional health interact differently with the systems variable of social support. Path analytic research is indicated to answer this question.

In nursing practice, CTNs are frequently involved in alleviating uncertainty in the illness situation, assisting women with role functioning issues, and providing professional support. Clinical trial nurses engaging in these professional activities may have an effect on emotional health among women eligible for a cancer clinical trial. In mediating uncertainty, Ruckdeschel, Albrecht, Blanchard, and Hemmick (1996) suggested that nurses and physicians need to frame the accrual process as a prime opportunity for meeting patient information needs and, importantly, providing an explanation of complex, ambiguous elements of the disease and disease experience. Furthermore, CTNs should be more keenly aware of the support they provide to women either eligible for a cancer clinical trial during the decision-making process or already enrolled in a clinical trial. A recent study by Skrutkowska and Weijer (1997) found that women with breast cancer enrolled in clinical trials had more phone interactions with nursing staff ( $p = .003$ ) and received teaching ( $p < .001$ ) and reassurance ( $p = .005$ ) from nursing staff more often than women not enrolled in clinical trials.

### *Emotional Health and the Treatment Decision*

The second question sought to examine the relationship between emotional health and the treatment decision. There was no significant difference in the presentation of emotional health between the two groups of women. Although this finding was unexpected, the sample was not as evenly distributed as desired between women who chose to enroll and those who did not.

An additional explanation for the lack of significant findings may be related to the instruments themselves and

their reference to time. The HHI is a trait-like instrument that asks the participant to respond based on how much they agree with the statement right now. In contrast, the POMS-SF is transient-like instrument that asks the participant to respond based on how they have been feeling during the past week. From a theoretical stance, King (1981) identified the concept of time as a significant concept that helps nurses understand persons as personal systems. King (1981) defined time "as the duration between the occurrence of one event and the occurrence of another event. It is a change from one state to another state" (p. 44). In the present study, participants were asked to respond to the HHI based on "right now" and to the POMS-SF based on "during the past week." King (1981) stated, "Either lengthening or shortening the order and duration of time determines how one perceives the succession of events in the environment" (p. 43). Perhaps the response to the questions on these two instruments by the participant would have been different than reported had they been similarly oriented to time.

Conceivably, the issue of timing is more significant than one would have expected. Hinds (P. Hinds, personal communication, August 17, 1998) noted in an ongoing study of decision-making examining the process parents, patients, and physicians experience when making end-of-life decisions that the highest rate of refusal was within the first 72 hours, when individuals were highly emotional. Agreement to participate in a study about their decision-making was notably higher 4 to 6 weeks after making the actual end-of-life decision. These initial findings suggest the significant influence of time on the decision-making process (P. Hinds, personal communication, August 17, 1998).

Whereas all participants completed the questionnaire within 28 days of making their self-reported treatment decision, it may very well be that differences would have been seen in the responses had the duration of time been significantly less. This would have cap-

tured the woman's perception of the treatment decision even closer to the actual time of decision-making. Surely, the timing of the administration of the questionnaire factors into the present study results, although only through additional studies could one confirm this. Unfortunately, most other studies that have been done in the area have extended the time to questionnaire or interview completion (3 to 6 months) by the participant instead of shortening it, thus making it difficult to compare findings.

It was proposed in this study that the treatment decision stems from human emotion, conceptualized as emotional health, with the action of decision-making manifesting itself in the treatment decision. Evidently, most of the women reported hope without significant differences in mood disturbance in spite of the two different decisions (to enter or not to enter a clinical trial). The exact reason for this finding remains unclear, and additional theoretical and design limitations may exist, necessitating theory revision. Finally, whereas the findings from this research question are probably related to the decision-making process as a whole, factors differentiating those women who did enter a clinical trial and those who did not were not captured by the present study.

## Conclusion

King (1981) clearly stated that the focus of nursing is the care of human beings with the premise that human beings are open systems interacting with the environment. The conceptual framework represents personal, interpersonal, and social systems as the domain of nursing. In the present study, findings provided empirical evidence of the adequacy of King's systems framework and supported, in part, theorized relationships among the critical factors. However, these factors did not illuminate the treatment decision.

This study expanded nursing science as it relates to women eligible for a cancer clinical trial by providing a clearer perspective of the interrelationships

among systems concepts and emotional health. As Fawcett and Whall (1995) stated, "The credibility of the general systems framework requires continuous investigation by means of systematic tests of conceptual-theoretical-empirical structures derived from the framework" (pp. 332-333). Although the tested theory advances King's (1981) systems framework, future research should focus on theory revision. It is only with further understanding of the theoretical concepts underlying enrollment that the appropriate interventions can be systematically developed, tested, and incorporated into nursing practice.

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**The Correct Sequence of Epithets** — According to Bartholomew (1948, p. 80) the following order should be used in placing epithets after one's name. Abbreviations for licensure in an area are the first to follow immediately after the name. A semicolon follows to separate these abbreviations from those of the educational degrees. Educational degrees appear in order of their issue. Abbreviations for professional societies are always the last of the epithets and are separated from the educational degrees with a semicolon. Example: Helen Doe, RN; BSN, MSN, PhD; FAAN.

Bartholomew, C. A. (1948). *Epithetology*. Red Bank, NJ: Commercial Press.