An Intervention to Increase Use and Effectiveness of Self-Care Measures for Breast Cancer Chemotherapy Patients

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ABSTRACT. Outpatient chemotherapy treatment shifts the managing of side effects from health care providers to patients and families. The primary purpose of this quasi-experimental study was to determine whether women who receive an intervention of three telephone calls and oral and written self-care measures for specific side effects will use more self-care measures and have higher effectiveness scores as measured by the Exercise of Self-Care Questionnaire (ESQ) after treatment than women who receive standard care. A second purpose was to determine if women scoring higher on the Exercise of Self-Care Agency (ESCA) Scale before chemotherapy used more and effective self-care measures during chemotherapy than women scoring lower on this scale. Forty-eight women beginning chemotherapy for breast cancer completed the ESCA pretreatment and were interviewed using the ESCA during a sequence of therapy. The experimental group (n = 26) received additional self-care measures. Subjects with higher ESCA scores before chemotherapy treatment used more self-care measures to alleviate chemotherapy side effects. A telephone call and written self-care measures after the second, third, and fourth chemotherapy treatments did not increase use or effectiveness of self-care measures. The implications of assessing patients’ self-care agency before chemotherapy are discussed and a nursing intervention recommended.

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Chemotherapy treatments for cancer patients are now commonly provided in the outpatient setting. Oncology nurses are faced with the challenge of providing an overwhelming amount of basic information on chemotherapy drugs, potential side effects, and measures to alleviate side effects in a limited amount of time.

The change from inpatient to outpatient chemotherapy administration shifts the responsibility of managing side effects from health care providers to patients and families. According to Levine (1), a patient who engages in self-care must be able to observe self, recognize symptoms, determine the severity of symptoms, and choose appropriate methods of treating symptoms.

Literature Review

Earlier studies focused on describing the side effects of chemotherapy and self-care measures initiated by patients and nurses to alleviate the side effects. These studies reported that few self-care measures were used by patients, and that those used varied in their effectiveness in reducing or alleviating the chemotherapy side effects (2–10).

Perhaps the variance found in specific side effects and eliciting the effectiveness of self-care measures was a result of different sample sizes, different patient populations, and different instruments used to measure these variables.

In a study to determine predictors of self-care over time in patients receiving chemotherapy, Dodd and Dibble (11) used Orem’s model of self-care. One instrument used in their study was Kearney and Fleischer’s (12) Exercise of Self-Care Agency (ESCA) Scale. The ESCA Scale was not found to be a predictor of self-care in chemotherapy patients. However, additional work is needed using the ESCA Scale with other chemotherapy patients to determine if this instrument will help chemotherapy nurses to assess patients quickly to determine who will need additional help with chemotherapy side effects while they are receiving treatments.

Only a few nursing researchers have used the same instrument to study use and effectiveness of self-care measures patients initiate to cope with the side effects of chemotherapy (13).

Nail et al. (14) and Foltz, Gaines and Gullate (15) examined the incidence and severity of chemotherapy side effects, self-care measures used to alleviate the side effects, and the effectiveness of the self-care measures, using the Nail Self-Care Diary (SCD). Effectiveness scores for fatigue, sleeping difficulties,
nauca, loss of appetite, taste and smell changes, and
hair loss varied from only some relief to quite a bit of
relief. The SCD was found to be effective in eliciting
specific side effects experienced by the patients. How-
ever, additional research is needed to increase the ef-
ficacy of the self-care measures identified
by the patients.

**Conceptual Framework**

The conceptual framework for this study was based
Orem’s Self-Care Deficit Model (16). Orem viewed
human beings as self-care agents. Self-care is defined
by Orem (16) as “the practice of activities that indi-
viduals personally initiate and perform on their own
behalf for the maintenance, restoration, or promotion of
health” (p. 13). Self-care agency is the ability an individ-
ual possesses to achieve the goal of taking care of
self. Self-care deficits arise when self-care agents can-
not meet therapeutic self-care demands placed on them
by internal and external conditions. Self-care agency is
activated as a result of the need to meet the identified
demand. If the self-care agent does not have the power
or agency to meet therapeutic self-care demands, a self-
care deficit will result. Self-care is achieved when the
self-care agency is adequate in meeting therapeutic
self-care needs.

Women with breast cancer were the self-care agents
in this study. The therapeutic self-care demand placed
on them was a direct result of chemotherapy’s side
effects. For this study, self-care agency is the power a
person possesses to achieve the goal of taking care of
oneself. It is activated in response to the identified need
to alleviate or prevent side effects of chemotherapy.

It is theorized that women who exhibit a high de-
gree of self-care agency as measured by the ESCA
Scale will both use more self-care behaviors and find
them to be more effective than those who score lower
on the ESCA Scale. It is also theorized that the nursing
intervention of a telephone call and oral and written
self-care measures for specific side effects will enhance
the use and effectiveness of self-care measures for those
who have self-care limitations (Fig. 1).

**Purpose**

The primary purpose of this quasi-experimental
study was to determine if women who receive an inter-
vention of three telephone calls and oral and written
self-care measures for specific side effects from chem-
otherapy for breast cancer will use more self-care
measures and have higher effectiveness scores as
measured by the Effectiveness of Self-Care Question-
naire (ESCAQ) after treatment 4 than women who re-
ceive standard care. Other purposes were to determine:
(a) the incidence and severity of chemotherapy side
effects after treatments 2, 3, and 4 and (b) whether
women scoring higher on Kearney and Fleischer’s
ESCA Scale (12) before starting chemotherapy for
breast cancer will use more self-care measures and find
them to be more effective after treatment 4.

**Sample and Setting**

Forty-eight subjects were recruited from the office
of private practice medical oncologists located in a
metropolitan area of the southeastern United States.
Twenty-six subjects were assigned to the experimental
group and 22 subjects to the control group. Randomi-
zeation was determined by the toss of a coin, thus the
unequal group sizes.

Eligible patients were 18 years or older, able to per-
form activities of daily living, mentally competent, able
to read and understand English, and scheduled to begin
an initial course of chemotherapy for stage I or II
breast cancer.

**Instruments**

Three instruments were used in the study. Demo-
ographic information included occupation, age, marital
status, education level, family income, living arrange-
ments, and chemotherapy agents administered.

Self-care agency was measured by the Exercise of
Self-Care Agency (ESCA) Scale (12). The ESCA Scale
consists of four subscales that contribute to a person’s
exercise of self-care agency: (a) an active versus pas-
tive response to situations, (b) the person’s motiva-
tions, (c) the knowledge base of the person, and (d) the
individual’s sense of self-worth. The scale has 43 items
rated on a five-point Likert scale ranging from 0 (very
much like me) to 4 (not at all like me). Because 11 of
the items are worded negatively, a reverse-scoring
method was assigned to the responses. The responses
for the four subscales were summed to obtain a total
ESCA score. The maximum score of 172 indicates a
high degree of exercise of self-care agency.

Reliability and validity for the ESCA Scale were
determined by Kearney and Fleischer (12) using a
sample of nursing and psychology students, by Lucas
et al. (17) using adult medical-surgical patients, by
McBride (18) using adult diabetic patients, and by Ri-
esch (19) using childbearing families. Examples of ESCA items include the following:

I often feel that I lack the energy to care for my health needs the way I would like to.

I take pride in doing the things I need to do in order to remain healthy.

When I have a problem, I usually want an expert to tell me what to do.

The Effectiveness of Self-Care Questionnaire (ESCA), a modification of the Self-Care Diary developed by Nail et al. (14), measured the effectiveness of self-care measures used by the subjects in the study. Content validity for the ESCA was established by eliciting responses from seven oncology nurses and medical oncologists working in an outpatient chemotherapy clinic. The instrument lists 16 of the most frequently experienced side effects from chemotherapy (i.e., fatigue, loss of hair, decreased appetite) and directs subjects to indicate if in the past 3 days they experienced any of the 16 listed side effects or other side effects not listed. If the subjects answer in the affirmative, they rate the severity of the side effect on a four-point scale ranging from 1 (a little) to 4 (extremely). Reliability of the side effect severity component was determined by Nail et al. (14).

Subjects also were asked to list all the self-care measures they used to alleviate the side effect and to rate the effectiveness of the self-care measure on a five-point scale with responses ranging from 0 (not used) to 5 (used, completely relieved). For the purposes of this study, the researchers defined effectiveness of self-care as the ability of the patient to make self-observations, recognize symptoms, assess their severity, and choose self-care measures that may prevent or minimize the side effects of chemotherapy.

Procedure

Necessary approvals for this study were obtained from the university institutional review board and the appropriate personnel in the oncologists' office. The chemotherapy nurses in the office supported this study.

During the first visit to the oncologists' office, patients were assessed by the nurse manager to determine their eligibility for the study. This nurse explained the purpose of the study and obtained written informed consent from the subjects. Before leaving the office, subjects in both the control and experimental groups completed the demographic questionnaire and the ESCA Scale and were informed that the research associate would telephone them in a few days.

The chemotherapy nurses gave standard care to all subjects, which included a chemotherapy administration schedule, an explanation concerning possible side effects of the chemotherapeutic drugs, and common interventions to use in alleviating side effect symptoms. The subjects also were given a copy of Chemotherapy and You: A Guide to Self-Help During Treat-

ment published by the National Institutes of Health (20), and a copy of the ESCQ instrument to use during the telephone interviews.

The research associate, a registered nurse with a master's degree in education, was trained to conduct the telephone interviews for both the experimental and control groups. Using the ESCQ, the research associate greeted the subject; verified a specific time to call between days 3 and 5 after their second, third, and fourth chemotherapy treatments; identified any side effects experienced after treatments; assessed the severity of the side effects; discussed self-care measures the subject used to alleviate side effects and their effectiveness; and identified the source of the subject's information. The research investigators met periodically with the research associate to discuss any difficulties experienced. In addition, one of the research investigators interviewed every fifth subject to compare findings on the ESCQ. The individuals' response to the items remained the same.

When subjects in the experimental group stated that their self-care measures were not effective in relieving a side effect, the research associate discussed very specific self-care measures for the side effect and sent them a written copy of the suggested measures. These self-care measures were taken from Dodd's (21) Managing Side Effects of Chemotherapy and Radiation Treatment: A Guide for Nurses and Patients, and from Craddock (8).

Subjects in the control group were asked the same questions from the ESCQ, but were not given specific self-care measures to alleviate a side effect, nor were they sent a written copy of any measures. The chemotherapy nurses in the oncologists' office did not know which subjects were assigned to the experimental and control groups, nor did they know the specific self-care measures given to the experimental group.

Results

Forty-eight women with stage I or stage II breast cancer participated in the study. They were well educated and generally of higher socioeconomic status. Eighty percent lived with their families, and 65% were married (Table 1). Sixty-seven percent were receiving cyclophosphamide, methotrexate, and fluorouracil. The experimental and control groups were similar in demographic characteristics.

Incidence and Severity of Side Effects

The incidence and severity of the five most frequently occurring side effects for the experimental and control groups were similar. These side effects are reported for the total group in Table 2. The symptoms of fatigue, hair loss, and taste and smell changes had the highest incidence ratings for each of the three chemotherapy treatments. Fatigue increased from 90% after the second treatment to 96% after the fourth treatment.
Table 1
Patient Demographics (n = 48)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median (M) = 49</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Deviation (SD) = 11.0</td>
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<td></td>
</tr>
<tr>
<td>Range = 27 to 77</td>
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<td></td>
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<tr>
<td><strong>Marital status</strong></td>
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<td></td>
</tr>
<tr>
<td>Married</td>
<td>31</td>
<td>65</td>
</tr>
<tr>
<td>Never married</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Divorced</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>Widowed</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>Education level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7–11 years</td>
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<td>8</td>
</tr>
<tr>
<td>High school graduate</td>
<td>13</td>
<td>27</td>
</tr>
<tr>
<td>Some college: baccalaureate degree</td>
<td>25</td>
<td>54</td>
</tr>
<tr>
<td>Graduate level</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td><strong>Family income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $10,000</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>$10,000–$30,000</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td>$30,000–$50,000</td>
<td>14</td>
<td>29</td>
</tr>
<tr>
<td>$50,000+</td>
<td>14</td>
<td>29</td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td></td>
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<tr>
<td>Live alone</td>
<td>5</td>
<td>10</td>
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<tr>
<td>Live with family</td>
<td>40</td>
<td>84</td>
</tr>
<tr>
<td>Live with nonrelatives</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Change in living arrangements since the</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>diagnosis of breast cancer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>No</td>
<td>44</td>
<td>88</td>
</tr>
<tr>
<td><strong>Chemotherapy agents being administered</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclophosphamide, methotrexate, and</td>
<td>32</td>
<td>66.7</td>
</tr>
<tr>
<td>fluorouracil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclophosphamide and Adriamycin</td>
<td>10</td>
<td>20.8</td>
</tr>
<tr>
<td>Cyclophosphamide, methotrexate,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fluorouracil, and tamoxifen or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adriamycin</td>
<td>2</td>
<td>4.2</td>
</tr>
<tr>
<td>Other combinations</td>
<td>4</td>
<td>8.3</td>
</tr>
</tbody>
</table>

Self-Care Measures Used for Chemotherapy

Side Effects

Table 3 shows the most frequently occurring side effects and the self-care measures used by the subjects to alleviate them after treatment 4. The three most commonly used self-care measures by the experimental group for fatigue were: took naps and rested, slept longer, and used caffeine. For the control group, self-care measures used for fatigue were as follows: took naps and rested, paced self, and exercised. Only 4% of the experimental group did nothing for fatigue symptoms, whereas 56.5% of the control group did nothing.

Most of the subjects in both the experimental and control groups wore a wig and avoided heat, rollers, permanents, and alcohol-containing hair products to minimize hair loss. The self-care measure used most often by the experimental group for changes in food taste and smell was as reported, “cleaned mouth and teeth.” The control group used gum, candy, or mints. It is interesting to note that 50% of the experimental group and 60% of the control group did nothing about their decreased appetite. The self-care measure used most frequently to deal with nausea by the control group was taking the prescribed medication, whereas the subjects in the experimental group changed their diets, took prescribed medication, or did both.

Effectiveness of Self-Care Measures

Effectiveness scores for the self-care measures for the experimental and control groups after treatments 2, 3, and 4 are shown in Table 4. There were no statistically significant differences between the two groups in treatment 2 (t = 0.38, p = 0.701); treatment 3 (t = 0.34, p = 0.737); and treatment 4 (t = 0.39, p = 0.699) for the effectiveness of the self-care measures used to relieve chemotherapy side effects.

Self-Care Agency

The self-care agency scores were assessed before the subjects started chemotherapy. For purposes of this study, the total score from the ESCA Scale was used as the measure of self-care agency. The scores ranged from 77 to 160, with a total possible score of 172, showing a relatively high degree of self-care agency among the subjects. The internal consistency reliability (Cronbach’s alpha) for the ESCA Scale was 0.90. The mean score of 130 for the experimental group was slightly higher than that for the control group (M = 128). However, there was no statistically significant difference between the ESCA scores for the two groups (t = 0.37; p = 0.713).

Relationship Between ESCA Scores and Use and Effectiveness of Self-Care Measures

Pearson product-moment correlation coefficients were calculated to determine the relationship between the scores on the ESCA Scale and the effectiveness scores for self-care measures used for side effects after chemotherapy treatments 2, 3, and 4. No statistically significant relationships were found between the ESCA scores and effectiveness of self-care measures scores after chemotherapy treatment 2 (r = -0.030; p = 0.85), treatment 3 (r = 0.153; p = 0.32), and treatment 4 (r = 0.069; p = 0.677).

There was, however, a statistically significant relationship between ESCA scores and use of self-care measures after chemotherapy treatment 2 (r = 0.436; p = 0.002) and treatment 4 (r = 0.398; p = 0.006). Women who had higher ESCA scores before starting chemotherapy used more self-care measures for chemotherapy side effects.

Intervention to Increase Use and Effectiveness of Self-Care Measures

No statistically significant difference was found between the number of self-care measures used by the experimental and control groups after treatment 4 (t = 0.88; p = 0.385), nor was there any significant difference in the number of side effects experienced by the experimental and control groups (t = -0.94; p = 0.354).
Repeated measures analysis of variance (ANOVA) showed that there were no statistically significant differences between the experimental and control groups' perceived effectiveness scores for self-care measures after chemotherapy treatments 2, 3, and 4 ($F = 1.04; p = 0.314$).

**Discussion**

The findings from this study must be interpreted with caution because of the small sample size. However, it is important to note that self-care agency before chemotherapy was positively related to the use of self-care measures during chemotherapy. This finding differed from that of Dodd and Dibble (11), who found that self-care agency was not a predictor of self-care behaviors in a group of cancer patients. Further testing of the ESCA Scale with cancer patients is needed.

The telephone intervention merits continued evaluation because study results showed that a larger percentage of patients in the experimental group initiated self-care measures for their side effects than did patients in the control group. However, subjects tended to use only a few of the specific self-care measures mailed to them. Perhaps subjects were so overwhelmed with their diagnosis of breast cancer and current treatment that they did not have the energy to recognize symptoms and initiate more self-care measures.

In addition, the suggested self-care measures provided some to quite a bit of relief for the chemotherapy side effects and added support to the findings of Craddock (8), Foltz et al. (15), and Nail et al. (14). It is imperative that researchers identify more effective self-care measures that provide relief of chemotherapy side effects because many of the suggested self-care measures were not effective.

No significant difference was found between the effectiveness of self-care measures used by the experimental and control groups. This could be a result of the small sample size, the sensitivity of the instrument in measuring effectiveness, or the fact that both the experimental and control groups received a telephone call after chemotherapy treatments 2, 3, and 4. The phone call, which asked about side effects, could have stimulated the control group to take additional self-care measures.

The results of this study provide partial support for the study's conceptual framework: the association between the ESCA scores and the use of self-care measures. This may indicate that subjects who take charge of self-care needs before chemotherapy are more likely to attempt meeting their self-care needs during chemotherapy.

**Limitations of Study**

One limitation of this study was the small sample size. The researchers had difficulty obtaining subjects for the study. Perhaps one reason for nonparticipation was the fact that the diagnosis of breast cancer and resulting chemotherapy was so overwhelming to the patients that they did not want the additional burden of receiving phone calls and answering questions about treatment side effects.

Another study limitation was that prospective participants were approached in the physician’s office by the nurse manager, who explained the study and asked subjects to participate. During busy office hours, the nurse manager may not have had sufficient time to talk with potential subjects. Therefore, some never heard about the study. In future studies, the research associate rather than the nurse manager could approach the subjects and ask for their participation.

Another limiting factor in this study was that the researchers did not keep a record of the patients who refused to participate in the study. Future studies should record this information and try to elicit from the patients why they choose not to participate.

**Nursing Implications**

Nurses need to encourage patients, family members, and friends to learn self-care measures so they can offer support to patients when they experience the side effects of chemotherapy (8). Nurses must assess what self-care measures patients are using for their side effects. Many subjects in this study did nothing.

Teaching strategies may include the use of symptom-specific teaching sheets, specific information entered on the Internet by the doctor’s office or outpatient clinics, and audiotapes and videotapes of teaching sessions with the nurse. Patients could use many of these modalities at home. Attention should be given to the reading level of the materials. Perhaps seeing or hearing the teaching materials rather than having to read them would be more helpful to the patients as their fatigue and other symptoms increase.
**Table 3**  
Self-Care Measures Used for Side Effects After Treatment 4

<table>
<thead>
<tr>
<th>Side effect and self-care measure</th>
<th>% Using measure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experimental group</td>
</tr>
<tr>
<td>Fatigue</td>
<td></td>
</tr>
<tr>
<td>Took naps/rested</td>
<td>72.0</td>
</tr>
<tr>
<td>Slept longer</td>
<td>24.0</td>
</tr>
<tr>
<td>Used caffeine</td>
<td>20.0</td>
</tr>
<tr>
<td>Exercised</td>
<td>12.0</td>
</tr>
<tr>
<td>Paced self</td>
<td>8.0</td>
</tr>
<tr>
<td>Nothing</td>
<td>4.0</td>
</tr>
<tr>
<td>Hair loss</td>
<td></td>
</tr>
<tr>
<td>Wore wig/scarf/turban</td>
<td>31.8</td>
</tr>
<tr>
<td>Did not wash hair a lot</td>
<td>13.6</td>
</tr>
<tr>
<td>Used mild shampoo</td>
<td>13.6</td>
</tr>
<tr>
<td>Avoided heat/rollers/perms, alcohol in hair products</td>
<td>27.3</td>
</tr>
<tr>
<td>Changes in food taste/smell</td>
<td></td>
</tr>
<tr>
<td>Used gum/candy/mints</td>
<td>31.3</td>
</tr>
<tr>
<td>Cleaned mouth/teeth more</td>
<td>50.0</td>
</tr>
<tr>
<td>Used cold or sour foods</td>
<td>12.5</td>
</tr>
<tr>
<td>Avoided greasy/spicy foods</td>
<td>0.0</td>
</tr>
<tr>
<td>Nothing</td>
<td>31.3</td>
</tr>
<tr>
<td>Decreased appetite</td>
<td></td>
</tr>
<tr>
<td>Avoided spicy/greasy/citrus foods</td>
<td>10.0</td>
</tr>
<tr>
<td>Ate small, frequent meals</td>
<td>30.0</td>
</tr>
<tr>
<td>Drank water</td>
<td>0.0</td>
</tr>
<tr>
<td>Changed diet</td>
<td>20.0</td>
</tr>
<tr>
<td>Exercised</td>
<td>20.0</td>
</tr>
<tr>
<td>Nothing</td>
<td>50.0</td>
</tr>
<tr>
<td>Nausea</td>
<td></td>
</tr>
<tr>
<td>Took prescribed antinausea medication</td>
<td>62.5</td>
</tr>
<tr>
<td>Changed diet</td>
<td>100.0</td>
</tr>
<tr>
<td>Ate small meals</td>
<td>25.0</td>
</tr>
<tr>
<td>Nothing</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Note: Other self-care measures reported by subjects include the following: fatigue (went to bed earlier, music; kept busy, nutrition, warm bath, deep concentration, drank fluids); hair loss (did not brush or comb hair often, ice packs); taste/smell changes (drank water, ate small meals, took antacids, did not eat, ate foods liked); decreased appetite (ate cold foods, ate lightly before treatment, forced self to eat, ate foods liked, liquid diet, sour lemon, exercise); nausea (avoid smell of foods, ate small meals, ate before treatment, hard candy, breathing exercises, ran cold water over hands, Coke and crackers, diversion, increased portions, liquid diet, drank with straw, slept a lot, kept stomach full, gum, cold foods).

Figures will add to more than 100% because subjects could select all that applied.

Nurses also need to determine why patients do not implement the self-care measures suggested for their specific side effects. Many patients in the current study did nothing for the side effect after the interventions of three telephone calls and specific self-care measures mailed to them.

Nurses in outpatient chemotherapy clinics could administer the ESCA Scale to patients when they come for an initial visit. This Scale, which can be administered in about 15 minutes or less, would identify the patients who have a high degree of self-care agency. Thus, individual programs could be planned based on the knowledge gained from this instrument.

This study found that there was a relationship between scores on the ESCA Scale and the use of self-care measures. Nurses therefore will need to spend more time and effort to help patients who score lower on the ESCA Scale to implement specific self-care measures for their side effects. Reinforcement and encouragement in the use of self-care measures are important. As the study showed, patients are not using the information currently being offered to them.

As nurses plan preventive programs for cancer patients, general self-care measures should be a part of the program. Showing that self-care measures are part of a healthy lifestyle could influence the use of self-care measures by patients when they become ill.

**Additional Research**

Replication of this study is needed using a larger sample size and three groups of subjects: a group that receives an informational phone call and written self-care measures for specific side effects, a group of patients who receive a phone call inquiring about side effects of their chemotherapy, and a control group that receives standard care from the oncologists’ office. Additional work is needed on the ESCO to measure more accurately the use and effectiveness of self-care measures. A qualitative study that explores the meaning of the term “effectiveness” should be done.
**Table 4**

<table>
<thead>
<tr>
<th>Treatment 2</th>
<th>Treatment 3</th>
<th>Treatment 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>SD</td>
<td>Range</td>
</tr>
<tr>
<td>Experimental group</td>
<td>2.70</td>
<td>0.617</td>
</tr>
<tr>
<td>Control group</td>
<td>2.63</td>
<td>0.734</td>
</tr>
</tbody>
</table>

Based on a scale of 0, not used; 1, used but no relief; 2, used, some relief; 3, used, quite a bit of relief; 4, used, completely relieved.

At various times in the study, subjects rating the same self-care measures used for relief gave answers ranging from no relief to quite a bit of relief. This raises a question of whether the varied ratings resulted from different personal perceptions of effectiveness or an increase in the severity of the side effect. Studies need to be conducted that specifically look at barriers experienced by patients when they attempt to implement self-care measures for their chemotherapy side effects.

**References**


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**Exercise for Article 7**

**Factual Questions**

1. How did Orem define "self-care"?
2. How was randomization determined?
3. How was content validity for the ESCA established?
4. What did the research associate do when subjects in the experimental group stated that their self-care measures were not effective in relieving a side effect?
5. What percentage of the women in this study was married?
6. Was the difference between the groups on the ESCA statistically significant?
7. What reason do the researchers give for stating that "the findings of this study must be interpreted with caution"?

**Questions for Discussion**

8. The researchers provide examples of the items on the ESCA in lines 141–146. How useful are these in helping you understand what the ESCA measures?
9. Speculate on why the chemotherapy nurses in the oncologists’ office did not know which subjects were assigned to the experimental and control groups. Also, why were they not told the specific self-care measures given to the experimental group? (See lines 226–230.)
10. The researchers note that a limiting factor in this study was that they did not keep a record of the patients who refused to participate in the study. In your opinion, is this a serious limitation? Explain.

11. Beginning in line 431, the researchers make suggestions for additional research. Do you agree with these suggestions? Explain.

12. If you were to conduct another study on the same topic, what changes in the research methodology, if any, would you make?

Quality Ratings

Directions: Indicate your level of agreement with each of the following statements by circling a number from 5 for strongly agree (SA) to 1 for strongly disagree (SD). If you believe an item is not applicable to this research article, leave it blank. Be prepared to explain your ratings.

A. The introduction establishes the importance of the study.
   SA 5 4 3 2 1 SD

B. The literature review establishes the context for the study.
   SA 5 4 3 2 1 SD

C. The research purpose, question, or hypothesis is clearly stated.
   SA 5 4 3 2 1 SD

D. The method of sampling is sound.
   SA 5 4 3 2 1 SD

E. Relevant demographics (for example, age, gender, and ethnicity) are described.
   SA 5 4 3 2 1 SD

F. Measurement procedures are adequate.
   SA 5 4 3 2 1 SD

G. All procedures have been described in sufficient detail to permit a replication of the study.
   SA 5 4 3 2 1 SD

H. The participants have been adequately protected from potential harm.
   SA 5 4 3 2 1 SD

I. The results are clearly described.
   SA 5 4 3 2 1 SD

J. The discussion/conclusion is appropriate.
   SA 5 4 3 2 1 SD

K. Despite any flaws, the report is worthy of publication.
   SA 5 4 3 2 1 SD