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# Increasing Cancer Survivorship Knowledge Through Individualized Cancer Survivorship Packets

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**Increasing Cancer Survivorship Knowledge Through Individualized Cancer Survivorship Packets**

by

Ashley Atkins

A project submitted to the faculty of  
Gardner-Webb University Hunt School of Nursing  
in partial fulfillment of the requirements for the degree of  
Doctor of Nursing Practice

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### **Abstract**

This project was developed with the aim of formulating an individualized educational packet that would improve patients' knowledge of their initial cancer diagnosis and provide additional information to facilitate a smooth transition from treatment to remission. Using a pretest and posttest, quantitative data was collected pertaining to 10 different types of patient education. The pretest survey collected eight questions that related to gathering information about their cancer diagnosis, resources, and knowledge level. The DNP Project Leader secured a Cancer Survivorship Guide through the American Society of Clinical Oncology that was added to the initial cancer survivorship education for all patients. The packet included baseline information about the topics. Results found that patients' knowledge increased slightly with regard to nutrition, cancer diagnosis disease process, limitations in daily living, emotional coping with diagnosis, and communication with friends and family about the diagnosis. Furthermore, it is possible that the sample size of six participants was too small to observe any statistically significant differences, thus more research would be needed to better understand the impact that the Cancer Survivorship Guide has on patients' knowledge levels.

*Keywords:* cancer, survivorship, education, initial diagnosis, remission, coping with cancer, nutrition and cancer, communication of diagnosis

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### **Problem Recognition**

Cancer is a leading cause of death in the United States. Every year, approximately 1.8 million new cases are diagnosed, and over 600,000 patients die from this disease (National Cancer Institute, 2020). In men, the most common cancers are prostate, lung, and colorectal. In women, the most common are breast, lung, and colorectal cancers (National Cancer Institute, 2020).

At the point of diagnosis and throughout the treatment process, patients benefit from information and education about their disease. However, many patients may lack adequate knowledge about their diagnosis and treatment options, as well as what to expect after recovery (Fletcher et al., 2017). In addition, the specific information needs of patients may change over time and may vary by culture, background, or socioeconomic status (Fletcher et al., 2017). Adequate education tailored to the specific needs of cancer patients is important in promoting effective coping skills (Walshe et al., 2017) and increasing hope about the future (Stenberg et al., 2016).

### **Identified Need**

Cancer patients may lack adequate knowledge about their cancer diagnosis and care after recovery. In a scoping review of the literature, Fletcher et al. (2017) identified the information needs of cancer patients across the continuum of care from diagnosis to end-of-life care. The most prevalent need identified from over 100 qualitative and quantitative studies included in the review was the need for more information about cancer treatment. Additional information needs included coping, rehabilitation, cancer-specific information, prognosis, end-of-life experiences, and the medical system (Fletcher et al., 2017). The problem of inadequate knowledge about cancer diagnosis and recovery is further complicated by the lack of educational resources available to ensure patients fully understand their diagnosis. Fulfilling

cancer patients' needs for information and education is important. It improves knowledge about the disease, which can in turn reduce fatigue, depression, and perceived stress (Sajjad et al., 2016). In addition, patient education is associated with improved quality of life among cancer patients (Sajjad et al., 2016).

### **Problem Statement**

This DNP project aimed to develop an individualized educational packet that would improve patients' knowledge of their initial diagnosis and provide additional information to facilitate a smooth transition from treatment to remission.

### **Literature Review**

Cancer patients possess a variety of information needs related to their diagnosis and disease progression. Fletcher et al. (2017) conducted a review of literature encompassing studies from August 2003 through June 2015 in order to determine the information needs of cancer patients and how they vary or change from diagnosis to the end of life. Results from 104 studies indicated that the most common patient needs for information were related to their treatment. The most common informational needs reported in the literature included those related to the side effects, severity, and when to report side effects of medication; treatments, treatment options, and information regarding specific treatments; and treatment plans and logistical issues of treatment (Fletcher et al., 2017). The second most common need for information is related to coping skills. Additional types of information cited less frequently included those pertaining to body image and sexuality, rehabilitation, cancer-specific information, information about the medical system, prognosis, and disease-specific information (Fletcher et al., 2017).

The information needs of cancer patients change over time (Fletcher et al., 2017). The most prominent need for information at the point of diagnosis is treatment-related. After



diagnosis, patients still seek treatment-related information but are also interested in information related to rehabilitation and body image issues. For patients whose disease progresses to metastasis, information needs include treatment-related information and information related to prognosis. Finally, for patients who reach the end of life, information needs to center on end-of-life care and the medical system (Fletcher et al., 2017).

In addition to the type of information delivered, the mode of delivery may also be important. Cancer information may be delivered through individual patient education or through group education. Sajjad et al. (2016) conducted a quasi-experimental study with a pretest/posttest design to determine the effects of individual patient education and emotional support by nurses on the quality of life of breast cancer patients. In this study of 50 adult female breast cancer patients undergoing chemotherapy, researchers assigned participants to an intervention or a control group, the latter of which involved care as usual. The intervention group received verbal and written patient education, contact with the nurse during chemotherapy, and phone follow-up appointments with a nurse. The written educational information consisted of a 10-page booklet that discussed chemotherapeutic drugs and their side effects, diet, and infection prevention strategies (Sajjad et al., 2016).

Results from this study indicated that the intervention group demonstrated improved quality of life when compared to the control group (Sajjad et al., 2016). These improvements were observed in 6 weeks rather than the expected 12 weeks, and centered on not only quality of life but also functional well-being. It is important to note that since the intervention included not only patient education but also nurse support, it is difficult to know the specific contribution of the educational component on the study outcomes (Sajjad et al., 2016).

In contrast to an individualized education program, Stenberg et al. (2016) conducted a scoping review of the literature in order to identify the benefits and challenges associated with

group-based patient education to promote self-management in patients living with chronic illnesses, including cancer. Results from the 47 articles included in this review suggested that the benefits of group patient education outweigh the challenges (Stenberg et al., 2016). Benefits identified in the literature were numerous and included a shared understanding among patients with similar problems, new ways for patients to perceive their situations, finding meaning in illness, increased social support, increased awareness of one's condition and needs, an understanding of how to make lifestyle changes, and increased hopefulness about the future (Stenberg et al., 2016). Challenges associated with group education included feelings of loss after leaving the program, unmet expectations, and the need for additional help to deal with underlying issues that were not adequately addressed in the group setting (Stenberg et al., 2016). Based on these findings, the authors concluded that group-based education programs aimed at promoting disease self-management can be beneficial to patients, particularly with respect to reduced symptom distress and increased self-management (Stenberg et al., 2016).

As noted by Fletcher et al. (2017), one of the information needs identified by cancer patients is related to coping skills. Walshe et al. (2017) conducted a qualitative study in order to better understand the types of effective coping strategies used by people living with advanced cancer. Based upon an analysis of interviews and focus groups involving cancer patients and their caregivers, the authors reported that coping is a continual and evolving process that fluctuates according to changing perceptions of illness, responses to life events, and personal psychological characteristics (Walshe et al., 2017). Both positive and negative changes in coping can occur as the disease progresses. In addition, patients in the study reported different types of strategies used immediately after their diagnosis and later in time (Walshe et al., 2017).

Results from a study by Walshe et al. (2017) also identified coping strategies used by cancer patients. These included an attitude of everyday pragmatism, which involved being

realistic, changing one's priorities as needed, and focusing on the present moment. Patients also used self-awareness to cope with their disease, which included focusing on feeling good and developing an awareness of when good days may be possible. A third type of coping strategy was reliance upon others for emotional, practical, and social support. Finally, communication served as an important type of coping strategy. Patients reported communicating with professionals, obtaining information about their disease, and learning from others as key aspects of coping with their disease (Walshe et al., 2017). An interesting finding from this study was that patients reported the health literature they were provided by healthcare professionals or on the Internet was often perceived as useless, unhelpful, and even frightening (Walshe et al., 2017). Findings from this study suggest that patients desire more than just clinical information about their illness. Patients may benefit from information regarding effective coping strategies, which are associated with decreased stress and distress in cancer patients (Walshe et al., 2017).

While these studies provided important insights into the informational needs of patients, they contain a few limitations. Three of the four studies in this section contained a lower quality of evidence as they were either qualitative studies or literature reviews that include qualitative studies (Fletcher et al., 2017; Stenberg et al., 2016; Walshe et al., 2017). Although Sajjad et al. (2016) was a quasi-experimental study, thus presenting a higher level of evidence than the other three studies, it lacked randomization. In addition, the two studies involving actual participants used a small sample size, which limited the generalizability of the findings to other groups (Sajjad et al., 2016; Walshe et al., 2017).

These studies highlighted several of the gaps which exist in the literature pertaining to the information needs and coping skills of cancer patients. For example, a gap exists in the literature related to the needs of people from different demographic backgrounds, such as socioeconomic status, cultural, linguistic, and geographic locations. In addition, the literature

does not adequately address the informational needs of long-term cancer survivors (Fletcher et al., 2017). Sajjad et al. (2016) addressed one of these gaps by examining the information needs of patients from a specific cultural background, Pakistani cancer patients. Additional gaps in the literature involved the impact of a layperson when compared to a healthcare professional in leading self-management educational programs for cancer patients (Stenberg et al., 2016) and how patients operationalize coping strategies, how coping strategies evolve over time, and how to best support their development (Walshe et al., 2017).

### **Needs Assessment**

#### **Population**

The target population for this quality improvement project was patients, ages 18 and older, who enrolled for follow-up services, over 2 months, at the identified cancer resource center.

#### **Available Resources**

For this project, the cancer resource center had several educational resources available for patients. Patients already received a survivorship package; however, these packages did not necessarily include information specific to individual patients' needs. The cancer resource center also had staff that were able to help facilitate this project.

#### **Desired and Expected Outcomes**

The desired outcome for this project was to improve patient education at diagnosis. The expected outcome for this project was that patients would have increased confidence in their knowledge of their cancer diagnosis after receiving customized education.

#### **Team Selection**

The team selected to plan and implement this project consisted of healthcare professionals associated with the cancer resource center. The team included a Wellness

Director, who currently coordinates the distribution of all cancer survivorship packets and is in direct communication with patients; as well as a social worker, who is able to provide information about obtaining financial resources for treatment and worked with health insurance companies to determine treatment coverage.

### **Scope of Problem**

In the Piedmont region of North Carolina, a cancer resource center was identified as an organization that provides valuable resources for newly diagnosed patients and those living in remission. After evaluating the organization's survivorship packets, it was found they lacked adequate information regarding cancer-specific treatment options, what to expect throughout treatment, and how to prepare patients making a transition into remission.

The general goal of this project was to improve the quality of life among cancer patients that have been recently diagnosed with cancer by increasing the knowledge of patients about cancer and treatment. To achieve this goal, the project focused on developing an educational intervention intended to provide accurate information about their disease. Education about cancer increases the sense of empowerment among patients and improves the patient's ability to cope with subsequent treatment for cancer by helping the patient manage anxiety and by encouraging the feeling of hope that the disease is manageable. Knowledge about a medical condition also improves the sense of control of the patient (Harrop et al., 2017). Knowledge about a disease and treatment is also one of many variables that influence an individual's ability to cope with a diagnosis of cancer. The resulting knowledge and empowerment contribute to more effective cancer treatment, thereby improving the quality of life (Korner et al., 2019). The educational content includes areas that commonly concern cancer patients such as the expected course of treatment, potential side effects of treatment, when to report side effects, and how to

maintain routine daily activities during treatment. The ability to engage in routine daily tasks has a direct relationship with the quality of life among cancer patients.

### **Objectives and Timeline**

#### **Objectives**

1. Develop a self-directed patient educational intervention for patients diagnosed with various types of cancer.
2. Assess the effectiveness of the educational intervention by measuring the confidence of patients diagnosed with cancer using a pretest/posttest.
3. Advocate for incorporating the educational intervention into routine care for cancer patients at the end of the project.

#### **Timeline**

Development and implementation of the project took several months:

- May-July 2022: Tool development
- July 2022: Quality Improvement Council approval to implement the project
- July 2022-November 2022: Project Implementation
- November 2022: Data interpretation

### **Theoretical Underpinning**

A cancer diagnosis may bring forth feelings of fear, anxiety, and uncertainty. The ability to cope with these feelings in addition to the many physiological changes that may occur may promote a greater sense of well-being and adaptation. Roy's adaptation model was an appropriate theoretical foundation for the project, as it sought to understand how improved diagnosis education impacted the ability of cancer patients to cope with their illness.

Roy's adaptation model is a grand theory that focuses on the physiological and psychosocial adaptation of the individual to the environment (Russo et al., 2019). This theory is

grounded in a number of philosophical, scientific, and cultural assumptions. Philosophical assumptions are derived from the principles of humanism, creativity, and cosmic unity (Jennings, 2017). These assumptions involve mutual relationships with the world and God, the revealing of God through creation, human's use of creative abilities such as faith and awareness, and the accountability of individuals for sustaining and transforming the universe (Jennings, 2017). Scientific assumptions relate to the complex interactions of living systems and their purpose in existence. These include the ideas that systems of matter and energy move towards higher levels of organization, thinking and feeling are ways to demonstrate self-awareness and mediate action, people and the earth are interrelated, and adaptation results from the integration of humans and the environment (Jennings, 2017). Cultural assumptions focus on cultural needs and experiences and recognize the ability of cultural concepts and practices to influence adaptation and nursing processes (Jennings, 2017).

Roy's model addresses the four key components of the nursing paradigm. Roy defined "person" as a bio-psycho-social individual that interacts with changing environments and uses strategies to adapt to those changes. "Health" is defined as a state of being integrated and whole. The "environment" represents all "conditions, circumstances, and influences" that affect human development and behavior. The environment consists of three components, including focal (the immediate external or internal environment), contextual (stimuli present in the environment), and residual (factors with an unclear effect). Finally, "nursing" seeks to improve life processes in order to help the individual adapt to the environment (Jennings, 2017).

Internal control processes or coping mechanisms are accessed through two subsystems, the regulator and cognator systems. The regulator subsystem includes input from the nervous, circulatory, and endocrine systems and is thus related to physiological adaptation. The cognator subsystem consists of internal and external input regarding psychological, social, physical, and

physiological factors. Since processes involved in these subsystems cannot be directly observed, behavioral responses occur through one of four modes of adaptation, including physiological, or how the individual responds physically to environmental stimuli; self-concept, or how one defines the physical and personal self; role function, which relates to a person's role in life and social integrity; and interdependence, which involves mutual relationships and perceived social support (Akyil, & Ergüney, 2012; Jennings, 2017).

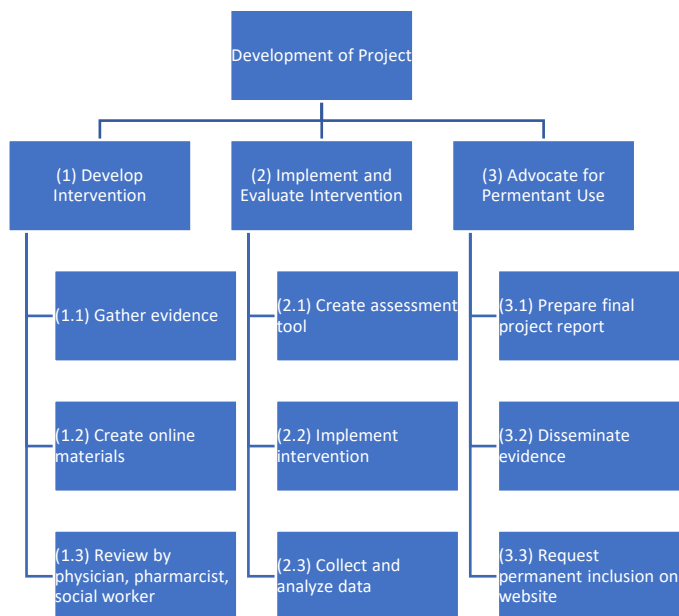
Roy's adaptation model considers how input from the internal and external environments impacts coping strategies and adaptations within four adaptive modes, including physiological, self-concept, role function, and interdependence. This model provided an effective framework for creating patient education materials and assessing patient outcomes in the proposed project. Improved coping skills based on external environmental stimuli such as educational materials may ultimately help to improve cancer patients' quality of life.

### **Work Planning**

#### **Project Management Tool**

Figure 1 shows the Work Breakdown Structure used to design, implement, and evaluate this project.



**Figure 1***Work Breakdown Structure***Cost/Benefit Analysis**

The primary costs associated with this project involved the time of the DNP Project leader to develop and implement the project and the time spent educating the Wellness Director. The DNP Project leader volunteered hours, but the time spent educating the Wellness Director would have been considered time away from her normal responsibilities.

It is difficult to place a financial value on intangible benefits. The benefits of improved patient education at the point of cancer diagnosis include improved quality of life (Sajjad et al., 2016), increased awareness of needs (Stenberg et al., 2016), and improved coping with the diagnosis and disease (Walshe et al., 2017). It is likely that the benefits of an intervention that aims to improve diagnosis education outweigh the financial costs of developing and implementing the program.

## Evaluation Plan

The logic model used in program evaluation planning for the project consists of five components. The first two components, inputs and activities, comprise the planned work portion of the model. Inputs are the program resources and infrastructure, while activities specify the interventions used in the program (McCoy & Castner, 2020). The second portion of the model, intended results, includes outputs/measures, outcomes, and impact. The outputs/measures are the short-term measures or evidence that the activities were conducted as planned. Outcomes are measurable results that occur due to the activities. The impact is the long-term change in the organization or community (McCoy & Castner, 2020). Figure 2 outlines the logic model used for this project.

**Figure 2**

### *Logic Model*

Planned Work		Intended Results		
Inputs	Activities	Outputs/Measures	Short-Term Outcomes	Impact
<ul style="list-style-type: none"> <li>Evidence from scholarly literature</li> <li>Internet and computer</li> <li>Access to social worker for intervention review</li> <li>Questionnaire (demographics and Likert-type questions for physiological adaptation)</li> <li>Project data analysis</li> </ul>	<ul style="list-style-type: none"> <li>Develop intervention (gather evidence, create online materials, review by colleagues)</li> <li>Implement intervention</li> <li>Advocate for permanent use of intervention</li> <li>Write a report of project</li> <li>Dissemination of findings</li> </ul>	<ul style="list-style-type: none"> <li>Number of participants</li> <li>Written document pertaining to project</li> <li>Poster or group discussion to disseminate findings</li> </ul>	<ul style="list-style-type: none"> <li>Increased confidence in knowledge of diagnosis/disease</li> <li>Knowledge of intervention by clinic staff</li> </ul>	<ul style="list-style-type: none"> <li>Permanent inclusion of intervention as part of cancer resource center's current resources</li> <li>Long-term improvements in coping among newly diagnosed cancer patients</li> </ul>

## **Project Implementation**

### **Methodology**

This project utilized a pretest/posttest design. Participants were asked to complete a “Cancer Survivorship Preparedness Survey” pretest (Appendix A), created by the DNP Project Leader and Wellness Director. The survey was reviewed by the DNP Project Chair for face validity. The pretest survey included eight questions that collected information related to gathering information about their cancer diagnosis, resources, and knowledge level. Because this project was in partnership with a cancer resource center, they requested questions 2-6 be included in the survey for their purposes. Information from these questions was not included in the final data analysis of the DNP project. The DNP Project Leader only reported aggregate data from questions 1, 7, and 8. Question 1 was categorized by the types of cancers reported. As part of the pretest, participants were asked to provide their names and email address so that the additional requested information could be mailed to them.

The “Cancer Survivorship Preparedness Survey” posttest survey (Appendix B) only included questions 1, 7, and 8 from the pretest. The posttest survey was distributed via email by the Wellness Director 2 weeks after the survivorship packet was distributed.

### **Procedure**

The DNP Project Leader worked with the Wellness Director at the cancer resource center to identify gaps in their cancer survivorship education. At the time, patients received educational materials based on their specific cancer diagnosis; however, there was no individualization of materials for patients that may have wanted additional information on certain topics.

The DNP Project Leader secured a Cancer Survivorship Guide through the American Society of Clinical Oncology that was added to the initial cancer survivorship education for

all patients. The packet included baseline information about the topics listed in questions 6 and 8 on the pretest. Permission to use the guide was obtained and permission to include the guide as part of the information in the current cancer survivorship packets was also obtained.

The Wellness Director sent a recruitment email (Appendix C) to all patients to see who would be willing to participate in the project. The recruitment email included the informed consent and a link to the Cancer Survivorship Preparedness Survey pretest. The survey was opened to participants for 14 days from the day the recruitment email is sent. A reminder email was sent out on day 7 to participants (Appendix D). The Wellness Director coordinated the distribution of all cancer survivorship packets. All survivorship packets, with the addition of the Cancer Survivorship Guide through the American Society of Clinical Oncology, were mailed to the cancer resource center patients as usual, regardless of interest in participating in the project. Patients who consented to participate and completed the survey received additional information (additional to what was presented in the Cancer Survivorship Guide) regarding items they have selected in question #6. The information related to this item was specific to the education materials being provided by the cancer resource center and was not provided by the DNP Project Leader.

If the participant did not wish to complete the survey, the participant was instructed to close their browser. Surveys were submitted to the DNP Project Leader via Qualtrics. The DNP Project Leader shared the results with the Wellness Director so that more detailed information can be sent about the topics the participants selected in question #6. The Wellness Director reviewed individual survey results and provided the additional educational resources participants requested via email. After 2 weeks, participants received an email with the Cancer Survivorship Preparedness Survey posttest.

### Threats and Barriers

Throughout the project, two threats to success were evident. The first threat involved the use of a web-based survey and a 7-day participation reminder. The use of a web-based survey in this project was not only convenient; however, web-based surveys typically garner a 15% lower response rate than other survey methods, such as postal mail (Van Mol, 2017). Thus, the concern arose that the project may have a low number of participants. In addition, the Wellness Director sent a reminder to potential participants 7 days after the initial invitation to participate. Research suggests that sending reminders 2 days after the initial invitation is more effective at eliciting participation than 1 week later (Van Mol, 2017). Thus, the use of a web-based survey and a participation reminder sent after 1 week served as a threat to adequate levels of participation in the project.

A second threat was the inability to determine if the information provided to participants aligned with their level of literacy. While this factor did not necessarily impact project implementation, it could affect results. For example, the posttest survey asks respondents to indicate their level of confidence in their knowledge base related to the cancer diagnosis, both on a general level and specific to 10 different topics. If participants were unable to understand the information, this could negatively impact the confidence they have in their knowledge.

Health literacy plays an important role in the ability of patients to make informed decisions and participate in self-management of health conditions. Health literacy refers to, “the ability of an individual to obtain and translate knowledge and information in order to maintain and improve health in a way that is appropriate to the individual and system contexts” (Liu et al., 2020, para. 1). This ability includes knowledge of health, using information presented in various formats, and the ability to self-manage in collaboration with healthcare providers (Liu et

al., 2020). Since health literacy involves the use of information, general literacy skills are important. According to the National Center for Education Statistics (2019), 21% of American adults possess low literacy skills. Since there is no information regarding the literacy levels of patients or the reading levels of the information materials provided to them, it is unknown if literacy served as a barrier to patients and thus a threat to this project.

Despite these threats, at least one unanticipated and positive event occurred. Several participants contacted the resource center with positive feedback regarding the project. In general, these emails expressed gratitude for the additional information and the consideration of individual needs.

### **Monitoring of Implementation**

Key elements of project implementation included participant recruitment, completion of pretest and posttest surveys, and the distribution of educational materials tailored to the specific needs and interests of each participant. The Wellness Director assumed the primary responsibility for recruiting participants and monitoring the recruitment process. Recruitment occurred over a 14-day window, in which the Wellness Director sent emails to all clinic patients inviting participation in the project. A reminder email was sent 7 days after the initial email. Throughout these 2 weeks, the Wellness Director monitored the number of responses and shared that information with the DNP Project Leader.

After agreeing to participate, clinic patients completed pretest and posttest surveys using Qualtrics. This online platform provided the ability to view data from the surveys upon participant submission. The Qualtrics user dashboard allowed for the monitoring of survey submissions, which helped the DNP Project Leader determine how many individuals participated and whether they completed the posttest survey after receiving the educational materials.

After completing the pretest survey, the Wellness Director assembled and distributed educational materials tailored to the expressed interests of each participant. These materials included baseline information about all of the topics represented in the survey, a Cancer Survivorship Guide provided by the American Society of Clinical Oncology, and additional information created by the cancer resource center pertaining to topics selected by participants. A spreadsheet was used to monitor the dissemination of materials to participants, as well as their completion of the posttest survey after reviewing the materials.

### **Interpretation of Data**

Six of the seven participants listed breast cancer as their diagnosis, while a seventh individual declined to answer this question.

Using a pretest and posttest, quantitative data was collected pertaining to 10 different types of patient education. Means and standard deviations were calculated for each of the categories. A one-tailed paired-sample t-test was performed to determine if any statistically significant differences existed between the two conditions. The results for each of the 10 categories are presented.

1. The results of the pretest ( $M = 3.83$ ,  $SD = 0.69$ ) and posttest ( $M = 4.00$ ,  $SD = 0.71$ ) for the category of Nutrition indicate that no statistically significant increase in knowledge occurred between the pretest and posttest conditions,  $t(5) = -0.54$ ,  $p = .31$ .
2. The results of the pretest ( $M = 4.17$ ,  $SD = 0.69$ ) and posttest ( $M = 4.50$ ,  $SD = 0.50$ ) for the category of Cancer Diagnosis Disease Process indicate that no statistically significant increase in knowledge occurred between the pretest and posttest conditions,  $t(5) = -1.0$ ,  $p = .18$ .
3. The results of the pretest ( $M = 3.17$ ,  $SD = 1.07$ ) and posttest ( $M = 3.00$ ,  $SD = 1.22$ ) for the category of Lingering Signs and Symptoms indicate that no statistically significant

increase in knowledge occurred between the pretest and posttest conditions,  $t(5) = 0.54, p = .31$ .

4. The results of the pretest ( $M = 4.17, SD = 0.69$ ) and posttest ( $M = 4.00, SD = 0.71$ ) for the category of Treatment Plan Moving Forward indicate that no statistically significant increase in knowledge occurred between the pretest and posttest conditions,  $t(5) = 0.54, p = .31$ .
5. The results of the pretest ( $M = 4.33, SD = 0.47$ ) and posttest ( $M = 4.25, SD = 0.23$ ) for the category of Follow-Up Visits indicate that no statistically significant increase in knowledge occurred between the pretest and posttest conditions,  $t(5) = 0.32, p = .38$ .
6. The results of the pretest ( $M = 4.50, SD = 0.50$ ) and posttest ( $M = 4.50, SD = 0.50$ ) for the category of Exercise after Diagnosis indicate that no statistically significant increase in knowledge occurred between the pretest and posttest conditions,  $t(5) = 0.00, p = .50$ .
7. The results of the pretest ( $M = 4.17, SD = 0.69$ ) and posttest ( $M = 4.25, SD = 0.83$ ) for the category of Limitations in Daily Living indicate that no statistically significant increase in knowledge occurred between the pretest and posttest conditions,  $t(5) = -0.26, p = .40$ .
8. The results of the pretest ( $M = 4.50, SD = 0.50$ ) and posttest ( $M = 4.50, SD = 0.50$ ) for the category of Sexual Activity with Diagnosis indicate that no statistically significant increase in knowledge occurred between the pretest and posttest conditions,  $t(5) = 0.00, p = .50$ .
9. The results of the pretest ( $M = 4.33, SD = 0.47$ ) and posttest ( $M = 4.50, SD = 0.50$ ) for the category of Emotional Coping with Diagnosis indicate that no statistically significant increase in knowledge occurred between the pretest and posttest conditions,  $t(5) = -0.54, p = .31$ .



10. The results of the pretest ( $M = 4.17$ ,  $SD = 0.69$ ) and posttest ( $M = 4.25$ ,  $SD = 0.53$ ) for the category of Communication with Friends and Family about Diagnosis indicate that no statistically significant increase in knowledge occurred between the pretest and posttest conditions,  $t(5) = -0.26$ ,  $p = .40$ .

While none of the variables demonstrated statistically significant changes between pretest and posttest conditions, several increases were noted. Patient knowledge increased slightly with regard to nutrition, cancer diagnosis disease process, limitations in daily living, emotional coping with diagnosis, and communication with friends and family about the diagnosis. It is possible that the sample size of six participants was too small to observe any statistically significant differences.

#### **Process Improvement Plan**

The results from this project suggested that providing cancer patients with individualized information related to their cancer diagnosis may improve their knowledge about the diagnosis and outcomes. Although no statistically significant differences in knowledge were observed for any of the 10 categories of information, slight increases in knowledge pertaining to Nutrition, Cancer Diagnosis Disease Process, Limitations in Daily Living, Emotional Coping with Diagnosis, and Communication with Friends and Family about Diagnosis were reported. Thus, as a result of this project, an improvement in patient knowledge concerning topics related to a cancer diagnosis may have occurred.

These five variables and the remainder of the 10 project variables were measured using a 5-point Likert scale in which patients indicated their level of confidence with each topic before and after receiving information. Although results suggested that the impact of the project was minimal, this may be more a function of the small sample size than the effectiveness of the patient information. In addition, five of the six participants were diagnosed with breast cancer.

The results from this project may not be generalizable to patients diagnosed with other types of cancers. Similar measurements should be collected in the future to determine the impact of individualized patient education materials on patient knowledge. In addition to assessing confidence in patient knowledge, measurements could directly assess patient knowledge as well as satisfaction with patient educational materials. It should be noted that confidence in one's knowledge does not necessarily correlate with actual knowledge.

The project will be sustained by continuing to provide cancer patients with individualized educational materials. In addition to receiving a packet of general information, the cancer resource center will present each patient with a brief survey asking them to indicate in which areas they would like additional information. This information will then be mailed to patients. The cancer resource center will continue to update existing patient education information and add new categories as requested by patients.

### **Conclusion**

The purpose of the project was to determine how an individualized cancer diagnosis education packet affected the level of patient's knowledge about their cancer diagnosis. Patient confidence in knowledge was used as a proxy for actual knowledge. Study participants completed pretest and posttest surveys, the results of which indicated that knowledge pertaining to Nutrition, Cancer Diagnosis Disease Process, Limitations in Daily Living, Emotional Coping with Diagnosis, and Communication with Friends and Family about Diagnosis increased in a non-statistically significant manner. As this project continues at the resource center, larger and more diverse groups of cancer patients should be surveyed to continue to assess the effectiveness of individualized patient education.

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## Appendix A

### Cancer Survivorship Preparedness Survey Pretest

[https://gardnerwebb.az1.qualtrics.com/jfe/form/SV\\_d5zhSz4Hr2XrAlm](https://gardnerwebb.az1.qualtrics.com/jfe/form/SV_d5zhSz4Hr2XrAlm)

Name: \_\_\_\_\_

Email Address: \_\_\_\_\_

1. What is the primary type of cancer you have been diagnosed with? (Type only)
  - \_\_\_\_\_
  
2. How long have you been diagnosed with cancer (indicate in years and/or months)?
  - \_\_\_\_\_
  
3. How satisfied do you feel up to this point with the education you received surrounding your initial diagnosis? (Select one)
  - Extremely dissatisfied
  - Somewhat dissatisfied
  - Neither satisfied or dissatisfied
  - Somewhat satisfied
  - Extremely satisfied
  
4. Did your medical team give you a packet of information from Cancer Services? (Select one)
  - No
  - Yes
  
5. Please list any programs you have participated in within Cancer Services up to this point. (Type Only)
  - \_\_\_\_\_
  
6. Cancer Services would like to individualize the educational materials you receive. Which topics would you like to know more about? (Select all that apply)
  - \_\_\_ Nutrition
  - \_\_\_ My cancer diagnosis disease process
  - \_\_\_ Lingering signs and symptoms
  - \_\_\_ My treatment plan moving forward
  - \_\_\_ Follow up visits
  - \_\_\_ Exercise after diagnosis
  - \_\_\_ Limitations in daily living
  - \_\_\_ Sexual activity with diagnosis
  - \_\_\_ Emotional coping with diagnosis
  - \_\_\_ Communication with friends and family about diagnosis

7. How confident do you feel about your knowledge base regarding your cancer diagnosis?

- Not at all confident  
 Slightly confident  
 Somewhat confident  
 Quite confident  
 Extremely confident

8. How confident do you feel about your knowledge base regarding the following topics?

	<b>Not at all confident</b>	<b>Slightly confident</b>	<b>Somewhat confident</b>	<b>Quite confident</b>	<b>Extremely confident</b>
<b>Nutrition</b>					
<b>My cancer diagnosis disease process</b>					
<b>Lingering signs and symptoms</b>					
<b>My treatment plan moving forward</b>					
<b>Follow up visits</b>					
<b>Exercise after diagnosis</b>					
<b>Limitation in daily living</b>					
<b>Sexual activity with diagnosis</b>					
<b>Emotional coping with diagnosis</b>					
<b>Communication with friends and family about diagnosis</b>					

## Appendix B

### Cancer Survivorship Preparedness Survey Posttest

[https://gardnerwebb.az1.qualtrics.com/jfe/form/SV\\_eDxaZrk6uHEoRuK](https://gardnerwebb.az1.qualtrics.com/jfe/form/SV_eDxaZrk6uHEoRuK)

1. What is the primary type of cancer you have been diagnosed with? (Type only)
  - \_\_\_\_\_
  
2. How confident do you feel about your knowledge base regarding your cancer diagnosis?
  - \_\_\_ Not at all confident
  - \_\_\_ Slightly confident
  - \_\_\_ Somewhat confident
  - \_\_\_ Quite confident
  - \_\_\_ Extremely confident
  
3. How confident do you feel about your knowledge base regarding the following topics?

	Not at all confident	Slightly confident	Somewhat confident	Quite confident	Extremely confident
<b>Nutrition</b>					
<b>My cancer diagnosis disease process</b>					
<b>Lingering signs and symptoms</b>					
<b>My treatment plan moving forward</b>					
<b>Follow up visits</b>					
<b>Exercise after diagnosis</b>					
<b>Limitation in daily living</b>					
<b>Sexual activity with diagnosis</b>					
<b>Emotional coping with diagnosis</b>					
<b>Communication with friends and family about diagnosis</b>					

**Appendix C**  
**Recruitment Email**

Hello,

I hope this email finds you well. Here at Cancer Services, we have partnered with Ashley Atkins, a Doctor of Nursing Practice student at Gardner-Webb University to improve our member experiences. We are seeking your feedback about our current programs. We would appreciate it if you could take a few minutes to complete a short survey. We hope to use this information to provide a more individualized set of resource materials for your cancer survivorship journey.

Thank you so much for your time,

(Signature)

[https://gardnerwebb.az1.qualtrics.com/jfe/form/SV\\_d5zhSz4Hr2XrAlm](https://gardnerwebb.az1.qualtrics.com/jfe/form/SV_d5zhSz4Hr2XrAlm)



## Appendix D

### Reminder Email to all Participants

Hello,

This is a friendly email reminder to consider participating in a survey to better improve your preparedness as you enter this next phase of healing. Here at Cancer Services, we have partnered with Ashley Atkins, a Doctor of Nursing Practice student at Gardner-Webb University to improve our member experiences. We are seeking your feedback about our current programs. We would appreciate it if you could take a few minutes to complete a short survey. We hope to use this information to provide a more individualized set of resource materials for your cancer survivorship journey.

Thank you so much for your time,

(Signature)

[https://gardnerwebb.az1.qualtrics.com/jfe/form/SV\\_d5zhSz4Hr2XrAlm](https://gardnerwebb.az1.qualtrics.com/jfe/form/SV_d5zhSz4Hr2XrAlm)