Patient Preference for Instructional Reinforcement Regarding Prevention of Radiation Dermatitis

Pamela Laszewski, BSN, RN, OCN®, Cynthia Zelko, RN, OCN®, Lena Andriths, RN, OCN®, Eva Vera Cruz, BSN, RN, OCN®, Carole Bauer, MSN, RN, ANP-BC, OCN®, CWOCN®, and Morris A. Magnan, PhD, RN

**Background:** Although patient preference is a core value within the context of patient-centered models of care, little attention has been paid to determining patient preference for instructional media. Nurses have traditionally used verbal face-to-face instruction as the mainstay of patient education, with written materials being used extensively as teaching guides to supplement verbal instruction or for instructional reinforcement. However, advances in technology have made possible the adding of video instruction to nurses’ repertoire of instructional media.

**Objectives:** The purpose of this study was to determine patients’ media preferences (verbal, video, written) when receiving instructional reinforcement about self-care needed to prevent radiation dermatitis.

**Methods:** The current study was conducted as a secondary analysis of data from a process improvement initiative. In the parent study, patients received multimedia education related to skin care to prevent radiation dermatitis. This secondary analysis examined patient preference for verbal, video, or written education reinforcement at treatment weeks 1 and 3.

**Findings:** Results suggest that, when given a choice, verbal and video reinforcement are preferred over written reinforcement.

Patient preference is a core value within the context of patient-centered models of care (Institute of Medicine [IOM], 2001; Mead & Bower, 2000; Stewart et al., 1995). A model of relationship-based, patient-centered care (Koloroutis, 2004; Maklebust, 2011) was implemented at the Barbara Ann Karmanos Cancer Institute in Detroit, Michigan, a National Cancer Institute (NCI)–designated comprehensive cancer center, in 2006. Relationship-based, patient-centered care is designed to meet the needs of patients with cancer and their caregivers. However, adopting the principles of relationship-based, patient-centered care often requires a shift in nursing philosophies of care, which may take time to initiate and stabilize. Helping nurses understand the value of patient-centered care and the benefit to patients can lead to a positive shift in nursing philosophies of care, as well as to positive clinical outcomes.

In 2013, nurses in the institute’s radiation oncology department introduced a patient-centered multimedia educational program to promote better adherence to skin care protocols among patients undergoing radiation oncology treatment. This program was conceptualized and conducted as a process improvement initiative that was funded, in part, by the ONS Foundation and is referred to in this article as the parent study. Care was taken to ensure adequate training of staff, as well as careful monitoring of processes (e.g., instruction of patients, patient adherence to skin care protocol) and outcomes (e.g., skin toxicities).

The multimedia education program introduced in the parent study was based on recognition of the importance of optimizing patients’ participation in their own care, focusing services around patients’ needs and preferences, and allowing patients to make choices about their health education based on personal preference—all of which are critical components of relationship-based, patient-centered care (Koloroutis, 2004; Ormandy, 2011). Specifically, participants in the parent study were able to exercise choice about the instructional method used to reinforce...
skin care instructions. Program evaluation showed that implementation of the multimedia program was associated with high levels of adherence to the prescribed skin care protocol, as well as high levels of patient satisfaction with the instructional approaches (Bauer, Laszewski, & Magnan, 2015). Examining patient preferences for specific methods of instruction (verbal, video, written) was not a specific aim of the parent study. To extend this work and develop insight into patient preferences for instructional media, a secondary analysis of the data from the parent study was conducted. The purpose of this secondary analysis was to determine patients’ media preferences when receiving instructional reinforcement about self-care needed to prevent radiation dermatitis.

Literature Review

Patient education, particularly education about self-care that promotes health and well-being, is a well-recognized nursing responsibility (American Nurses Association, 2010; Brant & Wickham, 2013; Orem, 2001). Nurses have traditionally used verbal face-to-face instruction as the mainstay for patient education, with written materials being used extensively as teaching guides as a supplement to verbal instruction or instructional reinforcement. The benefits of written healthcare instruction cannot be denied. Research has shown that long-term retention of information is enhanced when patients are provided with written material as a resource for later review (Wilson et al., 2010). Similarly, systematic reviews have demonstrated that written materials promote patient satisfaction and recall (Gaston & Mitchell, 2005), and knowledge is significantly improved when written materials are combined with verbal health instruction (Johnson & Sanford, 2005). In contrast, knowledge uptake seems to be less effective when verbal instruction is used alone (Johnson & Sanford, 2005), and some authors (Theis & Johnson, 1995) have reported that verbal instruction is only marginally effective and should not be used alone.

Advances in technology have made possible the addition of video instruction to nurses’ repertoire of instructional media. Systematic reviews have reported that video teaching increases patient knowledge (Chelf et al., 2001; Trevena, Davey, Barratt, Butow, & Caldwell, 2006) and satisfaction (Jeste, Dunn, Folsom, & Zisook, 2008). Research involving patients undergoing radiation oncology treatment has shown that video instruction about radiation therapy increased knowledge acquisition and understanding, and high levels of patient satisfaction resulted when videos were used as a supplement to verbal education (Matsuyama, Lyckholm, Molisani, & Maghanaki, 2013). Others have noted that verbal and video instruction may be particularly useful for teaching patients with low health literacy (Doak, Doak, & Root, 1996). In addition, advanced age does not seem to preclude the use of video instruction. Hill et al. (2009) noted that patients aged 60 years or older who received video instruction about fall prevention scored more favorably on critical outcome measures, including engagement in significantly more self-protective strategies, than those who received written instruction via a workbook.

Patient-centered care should revolve around the patient, respect patient preferences, and put the patient in control (IOM, 2001). The IOM (2001) has suggested that measures of patient and family satisfaction may be used as indicators of the adequacy of patient-centered care. In the current authors’ review of the literature, fairly uniform agreement seems to exist regarding supplementing verbal instruction with written or video instruction to improve knowledge acquisition and recall; in addition, doing so is associated with high levels of patient satisfaction (Gaston & Mitchell, 2005). However, no studies were found that looked specifically at patient preference or choice for one media type over another as a source of initial instruction or for reinforcement of health teaching. The suggestion has been made that health care may be improved—in terms of cost, effectiveness, and relevance to patient desires—with the understanding of patient preferences (Brennan & Strombom, 1998). As such, the specific aims of this secondary analysis were to determine (a), when given the opportunity to choose among verbal, video, and written instruction, which option patients choose as their preferred method for receiving reinforcement of health teaching and (b) how satisfied patients are with the selected teaching method.

Methods

This descriptive study sought to describe patient preferences for three different teaching reinforcement methods: verbal, video, and written. This study is part of a larger ongoing process improvement initiative, and a portion of this parent study has been reported elsewhere (Bauer et al., 2015). The parent study was approved by the institutional review board of Wayne State University in Detroit, Michigan, as a process improvement initiative; research consent was not required.

Sample and Setting

The parent study was conducted in the radiation oncology center of the Karmanos Cancer Institute. A convenience sample of patients undergoing radiation therapy for head and neck cancers was obtained. This population was chosen because these patients tend to be highly vulnerable to skin changes during radiation therapy. All adult patients were admitted consecutively to the study even if they were receiving concurrent combination therapy (radiation therapy and chemotherapy). Patients were excluded from the study if their primary language was not English.

Data Collection

In the parent study, all patients received self-care instruction about skin care using all three teaching methods (verbal, video, written) before their first treatment at the time of simulation. Reinforcement was provided at week 1 of treatment and again at week 3 of treatment; patients were permitted to choose the teaching method. All instruction was provided by certified oncology nurses working in the radiation oncology department, all of whom received training on how to provide the self-care instruction and in what order to present materials (verbal, video, written). All nurses had to provide a satisfactory demonstration of their teaching. The teaching was not scripted; however, the nurses were repeatedly observed instructing patients to ensure that they did not stray from the prescribed educational content.
or the order of presentation. At the simulation appointment when the treatment was planned, three methods of instruction were used: verbal, video, and written. For reinforcement of this teaching at treatment weeks 1 and 3, patients were given a choice of the three teaching methods for the reinforcement session. The choice of method was recorded and tabulated for each patient. Reinforcements were incorporated into each patient’s weekly clinic visit.

Patient satisfaction with teaching was measured using an author-developed four-point faces scale ranging from 1 (not satisfied, represented by a frowning face) to 4 (extremely satisfied, represented by a smiling face). Patients provided confidential self-reports of their satisfaction with teaching after each teaching session, at simulation, at treatment week 1, and at treatment week 3.

Data Analysis

Data were analyzed using SPSS®*, version 22.0. Descriptive statistics were used to describe the percentage distribution for patient preference of teaching method at reinforcement times 1 (treatment week 1) and 2 (treatment week 3).

Results

In total, 61 patients were started on the instructional reinforcement about self-care needed to prevent radiation dermatitis. Two patients died before completing treatment, and one patient was taken off the protocol because of complaints of skin irritation after first use of skin wipes. Data for 58 patients were available for analysis. Patient ages ranged from 37–87 years (\(\bar{X} = 61.29, \text{ SD} = 11.32\)). The majority of patients were men (n = 39) and self-identified as Caucasian non-Hispanic (n = 40). Sixteen patients self-identified as African American, one self-identified as Hispanic, and one self-identified as Asian.

As shown in Table 1, patients consistently chose verbal and video instructional methods over written instruction for reinforcements at times 1 and 2. Of the 56 patients who had reinforcement data recorded for both occasions, 39 patients chose the same method of reinforcement at times 1 and 2. The remaining 17 patients switched to a different method of reinforcement at time 2.

Mean scores for patient satisfaction were relatively high. As scored on a four-point scale, the mean level of satisfaction with the initial instruction was 3.79 (SD = 0.41). The mean levels of satisfaction for self-selected method of reinforcement at times 1 and 2 are shown in Table 2. Using a paired sample t test, no statistically significant difference was noted in the mean scores at time 1 and time 2 (\(t_{54} = 1.53, p = 0.13\)). The full range of the four-point scale was not used; no one chose the lowest rating on the scale. The mean level of patient satisfaction was lowest at time 2.

Discussion

Surprisingly, written instruction was consistently the least preferred method of instructional reinforcement at time 1 (n = 5) and again at time 2 (n = 6). Although others have noted that written materials promote recall and satisfaction (Johnson & Sanford, 2005), the issue of patient preference for instructional media has not been addressed. Why patients chose video and verbal reinforcement over written reinforcement is difficult to explain, but it may be attributable to unmeasured population-based factors (e.g., education level, low health literacy) or the nature of the information being presented. Doak et al. (1996) suggested that video and verbal instructional methods should be used to teach patients with low health literacy. The inner-city population of patients in this study may have preferentially selected verbal and video instruction over written instruction to circumvent an undetected problem of low health literacy, which was not captured in data collection.

Alternatively, given the nature of the information being presented, patients may have found that mastering the needed procedural skills was easier when observing the behavior (by watching the nurse or the video) than by reading about it. To capably perform preventive skin care, patients undergoing radiation oncology treatment need declarative knowledge (to understand why something should be done) and procedural knowledge (to understand how to perform the activity) (Bruning, Schraw, & Ronning, 1999). In a training environment, learners need to assimilate declarative and procedural knowledge, usually in that order (Clark, 2011). The multimethod (verbal, video, written) approach to teaching during the initial encounter may have been sufficient for patients to assimilate the needed declarative knowledge, whereas the reinforcement sessions may have been used to assimilate the procedural steps of skin care.

| TABLE 1. Number of Patients Choosing Specific Instructional Method for Reinforcement at Time 1 and Time 2 (N = 58) |
|---|---|---|---|---|---|
| Instructional Method | Time 1 | Time 2 |
| Verbal | 22 | 27 |
| Video | 30 | 24 |
| Written | 5 | 6 |

*Data missing for one patient
Note: Time 1 is treatment week 1, and time 2 is treatment week 3.

| TABLE 2. Patient Satisfaction With Initial Teaching and Reinforcement at T1 and T2 |
|---|---|---|---|---|---|
| Variable | Min | Max | \(\bar{X}\) | SD | n |
| Satisfaction with initial teaching | 3 | 4 | 3.79 | 0.41 | 58 |
| Satisfaction with reinforcement at T1 | 3 | 4 | 3.85 | 0.35 | 57 |
| Satisfaction with reinforcement at T2 | 2 | 4 | 3.75 | 0.48 | 56 |

Max—maximum; Min—minimum; T1—time 1; T2—time 2
Note. T1 is treatment week 1, and T2 is treatment week 3.
Note. Patient satisfaction with teaching was measured using an author-developed four-point faces scale ranging from 1 (not satisfied, represented by a frowning face) to 4 (extremely satisfied, represented by a smiling face).
The finding that a majority (n = 39) of patients chose the same method for instructional reinforcement at time 1 and again at time 2 clearly suggests that they were demonstrating some, perhaps stable, preference for the medium they chose. However, the finding that 17 patients chose different methods for instructional reinforcement should not be interpreted as a failure to demonstrate preference. Preference is a complex concept that may be influenced by a number of factors, such as personal values and age (Brennan & Strombom, 1998) or education level. Unfortunately, information about personal values and education level was not captured, making difficult the examination of the relationships between choice of teaching method and various factors. Anecdotally, the nurses reported that some patients made clear they wanted written material for reinforcement because they were in a hurry on that particular day.

Patient satisfaction with teaching was relatively high on all three occasions. Notably, the mean level of satisfaction at time 1 (X = 3.85) was slightly higher than the mean level of satisfaction with the initial teaching at simulation (X = 3.79). This difference suggests that patients are more satisfied when given a choice about the teaching method used. The finding that the mean satisfaction level was lowest at time 2 raises questions about whether patients were becoming less satisfied because of the repetitive nature of teaching the same content on three different occasions. Offering an alternative method of instruction (e.g., teach-back) may have been less repetitive and more satisfying for patients at time 2. Using a paired sample t test, no statistically significant difference was observed between the mean satisfaction scores from initial evaluation and time 1 (t90 = −0.903, p = 0.37). A statistically significant difference was also not noted between the mean satisfaction scores from initial evaluation and time 2 (t89 = 0.47, p = 0.64).

Limitations

Results of this secondary analysis need to be interpreted with caution. Of particular concern is the construct validity of the measure of preference. Patient choice was used as a proxy measure for preference. The range of preferences for teaching methods may not have been adequately represented. For example, a patient may have preferred instruction with the teach-back method, a choice that was not available. In addition, including only patients with head and neck cancers who were treated at an NCI-designated comprehensive cancer center limits the generalizability of the results to patients with other cancer diagnoses and in other settings. Unmeasured population-based factors may have contributed to preference of video or verbal instructions over written materials; this could also have been affected by the nature of the material presented.

Implications for Practice

Teaching patients is a complex process that requires careful evaluation of each patient’s readiness to learn, barriers to learning, and learning style, as well as the nature of the knowledge to be assimilated (i.e., declarative or procedural knowledge). Within the context of relationship-based, patient-centered care, nurses must meet the added challenge of attending to patient preference for instructional media. To achieve truly patient-centered care, a single nurse-preferred method of instruction must not be imposed on patients. Offering patients a choice about instructional media will increase the likelihood of meeting patient preference and may increase patient satisfaction with the teaching–learning interaction.

Conclusion

Healthcare institutions providing patient-centered care should be aware of the variability in patient and family preferences for multimedia healthcare instruction and must be ready to respond to this variability (Wiljer & Catton, 2003). This secondary analysis represents a first step in examining patient preference as an aspect of patient-centered care at the institute discussed in this article. Additional intellectual and empirical work is needed to identify and develop reliable measures of patient preference. Similarly, research is needed to determine to what extent patient preference for use of diverse instructional media influences important outcomes, such as knowledge retention and adherence to prescribed healthcare regimens and patient satisfaction. Patients have preferences regarding the manner in which they are taught. The current authors were surprised to find that patients in this study consistently preferred video or verbal instruction, even though the content was the same. Written instruction was clearly not the preferred method of instruction. Although the method of instruction cannot be linked to the outcome, the instruction method led to improved adherence, as reported elsewhere. This may then lead to a better outcome.

References


