Feasibility of an Animated Video Combined With Standard Education: Breast Radiotherapy Video Education (BRAVE)

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Purpose:
Breast cancer is one of the most common cancers diagnosed annually in the United States, with over 270,000 new cases estimated to be diagnosed in 2019 (1-3). Radiation treatment for breast cancer is recommended as part of multi-modality therapy and most often occurs at the end of a long course of treatment (6-18 months) (4). Previous studies have demonstrated a high prevalence of anxiety for patients with breast cancer prior to undergoing radiation therapy (5-8). Contributing to this anxiety is a lack of knowledge or understanding of the benefits and side effects of radiotherapy, as well as fear of the radiation treatment planning process and delivery of radiation treatment (6-9). Previous educational efforts were limited regarding modality (written, verbal, video) and timing of delivery, mostly delivered after the first radiation oncology visit, which may prolong time in which anxiety may exist unabated.

The aims of this study were to assess the feasibility and preliminary impact of an animated video intervention combined with written and oral standard of care patient education delivered by the radiation oncology nurse during the initial radiation therapy clinic visit.

Methods:
This single arm, pre- and post-test feasibility study aimed to assess (1) feasibility based on recruitment and retention benchmarks, 80% and 95% respectively, and as measured by Acceptability of Intervention Measure, Intervention Appropriateness Measure, Feasibility of Intervention Measure (score range on each 5-20; benchmark set at 85%); and (2) preliminary outcomes of patient reported anxiety, distress, and radiation concerns using the RT Concerns Needs Scale (score range 0-81), PROMIS Emotional Distress-Anxiety (score range 6-30), and Distress Thermometer (score range 0-10).
A sequential sampling method was used to recruit participants referred to an academic radiation therapy program. Exclusion criteria included previous treatment with radiation, recurrent or metastatic breast cancer, and inability to understand and sign the informed consent.
The animated video lasted 7.5 minutes, with content developed at the 7th grade reading level. The script was framed around 5 questions informed by findings from a previous qualitative study conducted with patients with breast cancer at the current study site (9) and the professional experiences of the radiation oncologist and certified oncology nurse leading the breast cancer program at the study site.

Results:
All twenty participants approached were enrolled in the study. The video intervention demonstrated feasibility as evidenced by exceeding benchmarks set for recruitment (100% vs 80%), retention (100% vs 95%) and feasibility measured scores (100% vs 85%).

The difference in means of total patient reported scores comparing post to pre intervention decreased for the RT Concerns Needs Scale by 36.2 ± 23.5 (95% CI 25.2; 47), the PROMIS Emotional Distress-Anxiety by 4.8 (SD±5.8, 95% CI 2.0; 7.5), and for the Distress Thermometer by 3.3 ± 3.3 (95% CI 1.7; 4.8).

Conclusion:
The intervention proved feasible. In addition, the decrease in total mean scores suggests the video may have a positive effect on reducing patient distress, anxiety, and radiation treatment concerns. Next steps include a randomized controlled trial to adequately determine video effectiveness.

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Keywords:
breast cancer, patient education and radiation therapy

Abstract Summary:
This interventional study explored the feasibility and preliminary impact of combining an animated educational video with standard of care education for patients with breast cancer referred for radiation therapy. Feasibility was determined and preliminary data showed a change in scores for patient reported anxiety, distress, and radiotherapy treatment concerns.

References:
• Halkett G, Kristjanson LJ, Lobb E, O'Driscoll C, Taylor M, Spry N. Meeting breast cancer patients' information needs during radiotherapy: what can we do to improve the information and support that is currently provided? European Journal of Cancer Care. 2009;19(4):538-47.
• Halkett G, Kristjanson L, Lobb E. 'If we get too close to your bones they'll go brittle': women's initial fears about radiotherapy for early breast cancer. Psycho-Oncology. 2008;17(9):877-84.
• Pembroke M, Bradley J, Nemeth L. Breast cancer survivors’ unmet needs after completion of cancer treatment including radiation therapy. Oncology Nursing Forum. 2019;Manuscript submitted for publication.

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