

# What's a Laugh Have to Do with It?

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## Inspirations

- Charles "Chuckles" Hobby
- Nursing school and "critical incident cards"
- Ivy Push, RN
- Chuckle Channel at QMC: what we learned
- Chuckle Channel nationally: why we do it

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"I was confined at Queen's a few years ago. I was depressed and feeling so utterly lonely. TV did not interest me until one day I turned the TV on. It was then I viewed you for the first time. Your humor was so hilarious. I laughed so hard that tears came down my face. From then on, I checked your show religiously. Your entrance into my life touched me deeply and thus my physical and emotional negativities I had felt were supplemented by that expression "all's well with the world!" I can still vision the fun, and the laughter, and the love you expressed in your show. I needed that so much in the hospital. I'm 81---could I become your agent? No charge! Thank you from the bottom of my heart, and my family thanks you too. Ahulani

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**COMIC Study Team**

- Kathleen Baker, MS, PhD: QMC
- Francisco Conde, RN, PhD, co-investigator: QMC
- Betty Ferrell, RN, PhD, FAAN: City of Hope
- Daniel Fischberg, MD, PhD: QMC
- Connie Gazmen, RN, MS, OCN: University of Hawaii
- Jean Imler, RN: QMC
- Joanne Itano, RN, PhD: University of Hawaii
- Rene Latimer, RN, MS: QMC
- Bradley Willcox, MD: QMC
- **Funding:** This project was supported by the University of Hawaii and Queen's Medical Center Partnership Grant.

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**Background**

- Use of humor is a common cognitive-behavioral intervention<sup>1-5</sup>.
- An individual's receptivity to humor may play an important role in the effects of humor on diminishing pain and other symptoms<sup>6</sup>.
- Studies have demonstrated a significant correlation between humor or laughter and increased salivary IgA<sup>7</sup> and decreased cortisol levels.<sup>8</sup>
- Of these studies, no previous randomized controlled trial is known to have examined the impact of a humor intervention on adult patients with cancer.

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### Purpose

- To compare symptoms related to cancer and chemotherapy, salivary immunoglobulin-A, and salivary cortisol between patients randomized to a humorous or non-humorous intervention
- To describe perceptions of patients and their companion (family member or friend) regarding the overall intervention experience.

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### Methods

**Design:** Randomized controlled trial  
**Setting:** Queen's Cancer Center  
**Sample:**  
**Entry criteria for the study:**  
 - ≥ 18 years old with a diagnosis of cancer  
 - actively receiving intravenous chemotherapy  
 - able to speak English  
**Exclusion criteria:**  
 - Deaf  
 - Blind  
 - Had severe mucositis  
 - Had a diagnosis of head or neck cancer with a resulting decrease in salivary flow.  
**Institutional Review Board:** The Queen's Medical Center and the University of Hawaii  
**Incentive:** \$25 gift certificate

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### Intervention

- Humorous Intervention:**
- 45-minute DVD: "Bananas Bunch" (Guardian Studios)
    - 6 comedians with different performance styles and comedic content
- Non-Humorous Intervention:**
- 45-minute DVD: "The A to Z of Steam Railways"
    - British documentary on trains powered by steam engines
    - Mildly engaging without being alarming, stressful or humorous
  - Portable DVD player with headsets
  - If the participant was accompanied by a family member or a friend, that person had the option of consenting to be a co-participant in the study.

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**Instruments**

- Patient demographic form
- Humor Styles Questionnaire (HSQ)
  - 8 items that measure participants' use of humor to cope with stress.
  - 7-point scale ("1=totally disagree" to "8=totally agree")
  - Higher scores indicate a greater tendency to use humor to cope with stress.

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**Instruments**

- Edmonton Symptom Assessment Scale (ESAS)
  - 9 symptoms include: pain, fatigue, nausea, depression, anxiety, drowsiness, shortness of breath, appetite, and sense of well-being.
  - 10-point scale (0 = "no symptom" and 10 = "worst possible symptom")
  - Global ESAS intensity score was calculated by totaling the nine symptom responses.
- State portion of the Spielberger State-Trait Anxiety Index (STAI-S)
  - 20 statements that evaluated how respondents "feel right now, at this moment."
  - 4-point scale (1="not at all" to 4="very much so")
  - Higher scores indicate more anxiety.

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**Instruments**

- Salivary IgA and Salivary cortisol:
  - Collected using a polyester roll or sorbette (Salimetrics, LLC, State College, PA).
  - No food within 30 minutes prior to specimen collection.
  - Mouth rinsed thoroughly with water 10 minutes before sample was collected.
  - Two sorbettes were used for each participant (one inside the left cheek and the other inside the right cheek).
  - Sorbettes held in cheeks for three minutes.
  - Stored in a -70° freezer at The Queen's Medical Center clinical laboratory.
  - At the end of the study, the salivary samples were packaged with dry ice and shipped to a laboratory at the University of Washington for analysis.

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### Instruments

- Patients and companions: interview to evaluate the intervention.
  - Tape recorded and transcribed verbatim

1. Please tell me about your experience of watching the DVD.
2. How has watching the DVD affected your experience of receiving chemotherapy?
3. Compared to before watching the DVD, how do you feel now?
4. How did watching the DVD with someone else affect your reaction to the DVD? (asked only if the participant watched the DVD with a caregiver)
5. What else would you like to tell us about watching the DVD?

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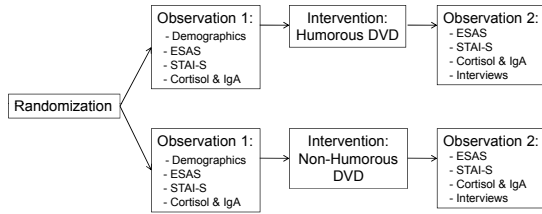
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### Study Schema




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### DVD watched by Participants

#### Humor

- “Bananas Bunch” vol 1
- 45 minutes
- Six comics approx seven minutes each
- Guardian Studios
- Clean, uplifting, inclusive (not crude, demoralizing, racist or anti-anyone)

#### Non-Humor

- “A-Z Steam Railways”
- 45 minutes
- Blurry footage of trains passing through British villages A-Z
- No music, soothing narration, nature scenes

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# Let's Watch!

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## Statistical Analysis

- Student's t, Fisher's exact, or chi-squared ( $\chi^2$ ) to compare baseline characteristics between the two groups.
- Wilcoxon signed rank sum tests: to compare changes in outcomes between baseline and post-intervention within treatment groups.
- Wilcoxon-Mann-Whitney test : to compare changes in outcomes between baseline and post-intervention between treatment groups.
- All tests were two- tailed with P-values < 0.05 considered statistically significant.
- SAS software, version 9.1 (SAS Institute).

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## Qualitative Analysis

- All transcripts were reviewed by three members of the research team.
- Recurring phrases or concepts were identified and analyzed for emerging themes.

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## Demographics

|                        | Humor Group |               | Non-Humor Group |               | P Value |
|------------------------|-------------|---------------|-----------------|---------------|---------|
|                        | n= 26       |               | n= 23           |               |         |
| <b>Age (years)</b>     |             |               |                 |               |         |
| Mean Years ( $\pm$ SD) | 56          | ( $\pm$ 10.5) | 63              | ( $\pm$ 12.4) | 0.047*  |
| <b>Gender</b>          |             |               |                 |               | NS      |
| Male                   | 10          | 38.5%         | 10              | 43.5%         |         |
| Female                 | 16          | 61.5%         | 13              | 56.5%         |         |

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| Ethnicity                            | Humor Group | Non-Humor Group | P value |
|--------------------------------------|-------------|-----------------|---------|
| Native Hawaiian and Pacific Islander | 5 (19.2%)   | 1 (4.3%)        | NS      |
| Asian                                | 5 (19.2%)   | 8 (34.8%)       |         |
| Filipino                             | 4 (15.4%)   | 3 (13.0%)       |         |
| White                                | 6 (23.1%)   | 6 (26.1%)       |         |
| Other                                | 6 (23.1%)   | 5 (21.7%)       |         |
| <b>Cancer Type</b>                   |             |                 | NS      |
| Breast                               | 5 (19.2%)   | 5 (21.7%)       |         |
| Ovarian                              | 4 (15.4%)   | 5 (21.7%)       |         |
| Lymphoma                             | 3 (11.5%)   | 3 (13.0%)       |         |
| Gastrointestinal                     | 2 (7.7%)    | 3 (13.0%)       |         |
| Other                                | 12 (46.2%)  | 11 (47.8%)      |         |

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| Chemotherapy Cycle    | Humor Group | Non-Humor Group | P value |
|-----------------------|-------------|-----------------|---------|
| 1                     | 1 (3.8%)    | 1 (4.3%)        | NS      |
| 2                     | 9 (34.6%)   | 5 (21.7%)       |         |
| 3                     | 4 (15.4%)   | 6 (26.1%)       |         |
| 4                     | 4 (15.4%)   | 4 (17.4%)       |         |
| 5                     | 3 (11.5%)   | 1 (4.3%)        |         |
| >5                    | 3 (11.5%)   | 2 (8.7%)        |         |
| Unknown               | 2 (7.7%)    | 4 (17.4%)       |         |
| <b>Co-morbidities</b> |             |                 | NS      |
| Hypertension          | 5 (19.2%)   | 8 (34.8%)       |         |
| Diabetes              | 1 (3.8%)    | 5 (21.7%)       |         |
| Heart Disease         | 1 (3.8%)    | 5 (21.7%)       |         |
| Asthma                | 3 (11.5%)   | 1 (4.3%)        |         |
| Kidney Disease        | 0           | 2 (8.7%)        |         |
| Hepatitis             | 0           | 1 (4.3%)        |         |

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| Karnofsky Performance Score    | Humor Group | Non-Humor Group | P value |
|--------------------------------|-------------|-----------------|---------|
| ≤70                            | 1 (3.8%)    | 4 (17.4%)       | NS      |
| 80                             | 5 (19.2%)   | 4 (17.4%)       |         |
| 90                             | 10 (38.5%)  | 10 (43.5%)      |         |
| 100                            | 9 (34.6%)   | 5 (21.7%)       |         |
| Unknown                        | 1 (3.8%)    | 0               |         |
| <b>Dexamethasone (mg)</b>      |             |                 |         |
| Mean (±SD)                     | 13.8 (±7.7) | 12.1 (±9.1)     | NS      |
| <b>Humor Style*</b>            |             |                 |         |
| Median and Interquartile Range | 46 (38-48)  | 44 (38-50)      | NS      |

*\*Higher scores indicated a greater tendency to use humor to cope with stress.*

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### Edmonton Symptom Assessment Scale

| Measure and Study Group       | Median |      |          | P-value Within Group* | P-value Between Groups** |
|-------------------------------|--------|------|----------|-----------------------|--------------------------|
|                               | Pre    | Post | Post-Pre |                       |                          |
| <b>ESAS</b>                   |        |      |          |                       |                          |
| Comparison Humor to Non Humor |        |      |          |                       | 0.07                     |
| Humor n=26                    | 17.5   | 11.5 | -4.5     | 0.004*                |                          |
| Non-Humor n = 23              | 16.0   | 18.0 | 2.0      | 0.80                  |                          |

*\*Post vs. Pre - Wilcoxon signed rank sum test*

*\*\*Comparison of difference between groups - Wilcoxon-Mann-Whitney test*

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### State-Trait Anxiety Scale

| Measure and Study Group       | Median |      |          | P-value Within Group* | P-value Between Groups** |
|-------------------------------|--------|------|----------|-----------------------|--------------------------|
|                               | Pre    | Post | Post-Pre |                       |                          |
| <b>STAI-S</b>                 |        |      |          |                       |                          |
| Comparison Humor to Non Humor |        |      |          |                       | 0.10                     |
| Humor n=26                    | 33.5   | 26.0 | -5.0     | <0.001*               |                          |
| Non-Humor n = 23              | 24.0   | 25.0 | -1.0     | 0.17                  |                          |

*\*Post vs. Pre - Wilcoxon signed rank sum test*

*\*\*Comparison of difference between groups - Wilcoxon-Mann-Whitney test*

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**Discussion**

- First RCT to evaluate the impact of humor vs. non-humor films on the symptoms of adult cancer patients.
- The study demonstrates that a humor intervention may be linked to a significant decrease in the intensity of chemotherapy-related symptoms, in particular pain, sense of well-being, and anxiety.
- Long-term impact of humor on immune function is unknown.
- Limitations:
  - "No intervention" group
  - Small sample size
- Strengths:
  - Randomized clinical trial
  - Patients with actual symptoms in an outpatient setting

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### Nursing Implications

- Findings support the use of humor as an inexpensive, efficient, and effective intervention that may complement pharmacological therapy for the management of symptoms related to cancer and chemotherapy.

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### Making Humor Available to Patients

- DVD library: QMC story
- Volunteer clowns
- Closed-circuit television as a therapeutic modality: Chuckle Channel
- Spontaneous openings: 87% of home hospice visits, most humor instigated by patients themselves

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## References

1. Weisenberg M, Tepper I, Schwarzwald J. Humor as a cognitive technique for increasing pain tolerance. *Pain*, 1995;63:207-12.
2. Bennett M, Lengacher C. Design and testing of the Complimentary Therapy Rating Scale. *Altern Health pract*. 1998;4:179-198.
3. Stuber M, Hilber SD, Mintzer LL, et al. Laughter, humor and pain perception in children: a pilot study. *Evid Based Complement Alternat Med*, 2009;6:271-6.
4. Johnson P. The use of humor and its influences on spirituality and coping in breast cancer survivors. *Oncol Nurs Forum*, 2002;29:691-5.
5. Lengacher CA, Bennett MP, Kip KE, et al. Relief of symptoms, side effects, and psychological distress through use of complementary and alternative medicine in women with breast cancer. *Oncol Nurs Forum*, 2006;33:97-104.
6. Hudak DA, Dale JA, Hudak MA, DeGood DE. Effects of humorous stimuli and sense of humor on discomfort. *Psychol Rep*, 1991;69:779-86.
7. Berk LS, Felten DL, Tan SA, Bittman BB, Westengard J. Modulation of neuroimmune parameters during the eustress of humor-associated mirthful laughter. *Altern Ther Health Med*, 2001;7:62-72, 74-6.
8. Berk LS, Tan SA, Fry WF, et al. Neuroendocrine and stress hormone changes during mirthful laughter. *Am J Med Sci*, 1989;298:390-6.

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