Supporting Breast-Self-examination in Female Childhood Cancer Survivors

A Secondary Analysis of a Behavioral Intervention

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Survivors' Breast Cancer Risks

- Hodgkin's survivors (Taylor et al., 2006)
  - 9.9% over 25 years of follow-up
  - 12.2% with supradiaphragmatic irradiation
- Other childhood cancers (Kenney et al., 2004)
  - >30% develop secondary breast cancer
  - 17% bone and soft-tissue sarcomas
- Mantle, abdominal, craniospinal irradiation
- Premature menopause
- Primary cancer diagnosis at an older age (10-16 years)
- Family history of breast CA or thyroid disease

Mammography Scorecard for Childhood Cancer Survivors

- Lack of insurance
- Additional radiation exposure
- Less effective in dense pre-menopausal breast tissue
- Underutilization of preventive health care
- Mammography vs. BSE in detection of abnormal findings
  - 30% vs. 63% in Hodgkin's survivors (Wolden et al., 2000)
  - 20% vs. 71% in women under 45 years of age (Coates et al., 2001)
  - BSE survival/locoregional control = mammography (women <40 years of age) (Diratzouian et al., 2005)

Factors Supporting or Negating BSE in Cancer Survivors

- Supporting BSE
  - valuing BSE as risk reducer
  - belief in early detection
  - knowledge
  - confidence in performing BSE
  - supportive partners/family members
- Negating BSE
  - fear of disease diagnosis
  - embarrassment
  - forgetfulness, too busy
  - African-American, Hispanic background
  - little interest/concern in future health issues☺

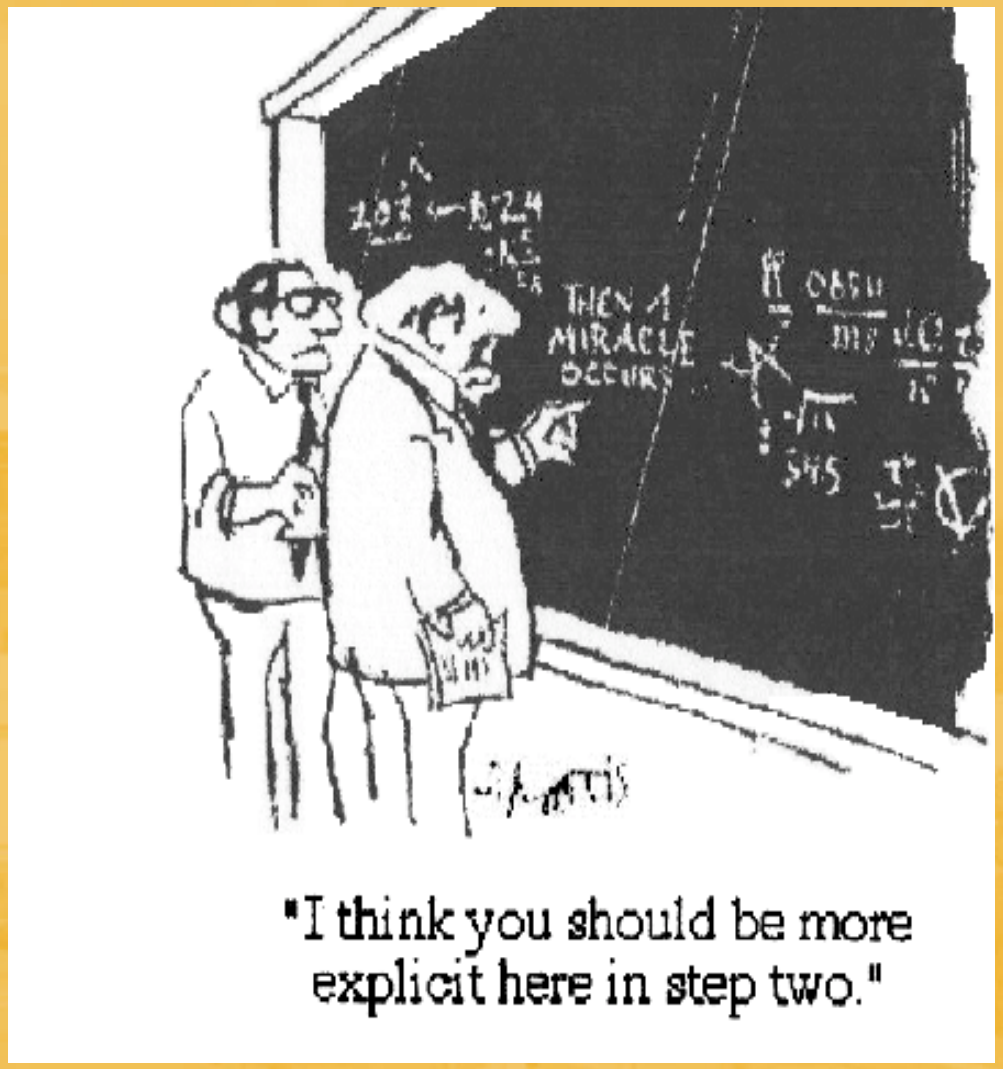
Data Source and Methods

- Prospective longitudinal (1 year), randomized trial of a multi-component educational intervention (Hudson et al., 2002; Cox et al., 2005, 2006)
- Sample
  - Criteria: age 12-18 years, disease in remission for 2 years or more after treatment, cognitive ability to respond to questionnaire and intervention, English as primary language
  - Stratified by sex and age (12-15 yrs., 16-18 yrs)
  - 132 in treatment arm; 135 in standard care arm
- Used Health Belief Model as the conceptual base for changing knowledge, risk perceptions, and health behaviors in adolescent childhood cancer survivors

The Intervention

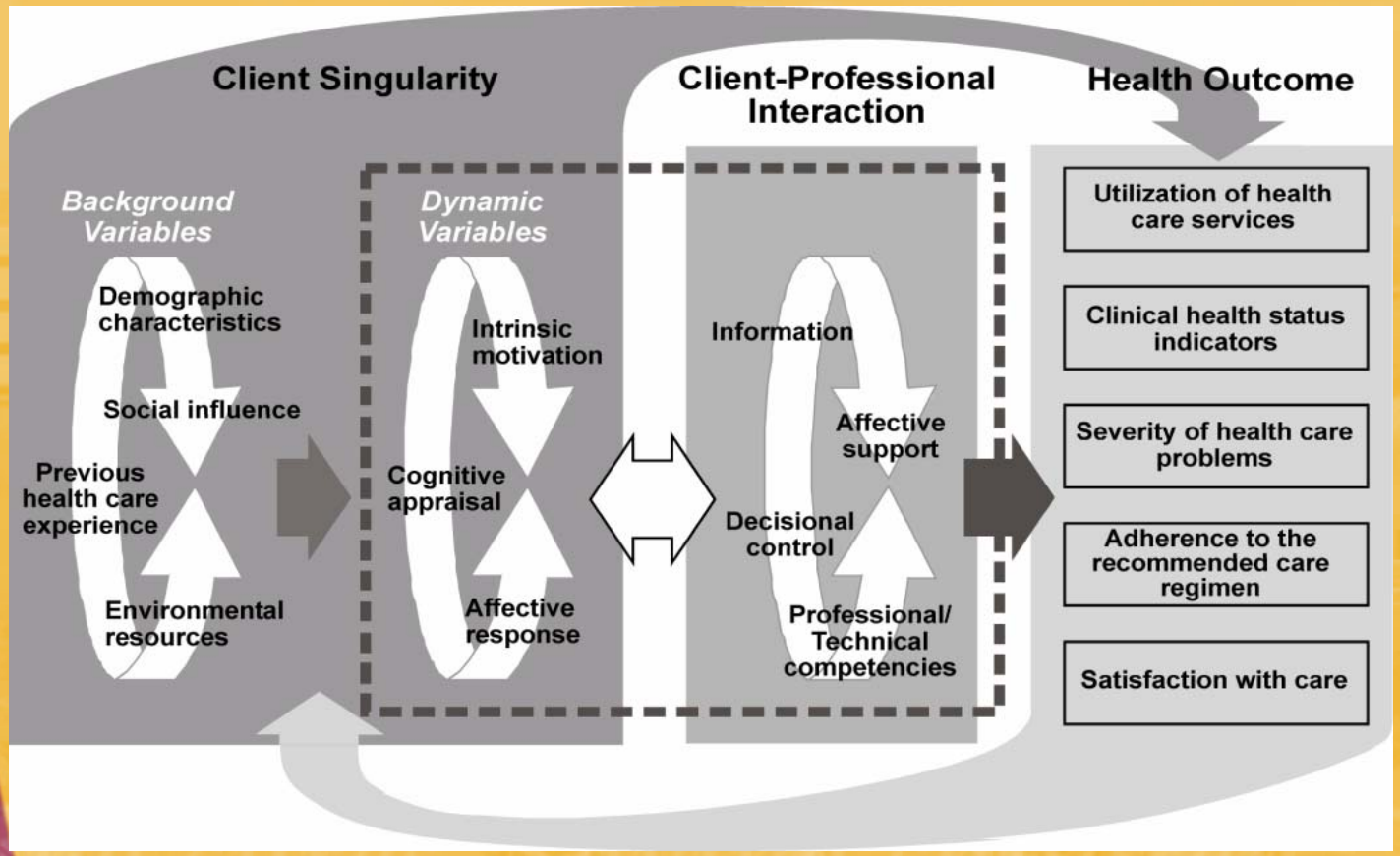
- Late effects screening based on treatment exposures
- Thorough clinical assessment
- Tailored risk counseling based on dx and treatment history
- Instruction in BSE
  - Provider exam to illustrate techniques
  - Return demonstration
  - Practice on latex models (normal, variant, abnormal)

“Then A Miracle Occurs Here”



"I think you should be more explicit here in step two."

Interaction Model of Client Health Behavior



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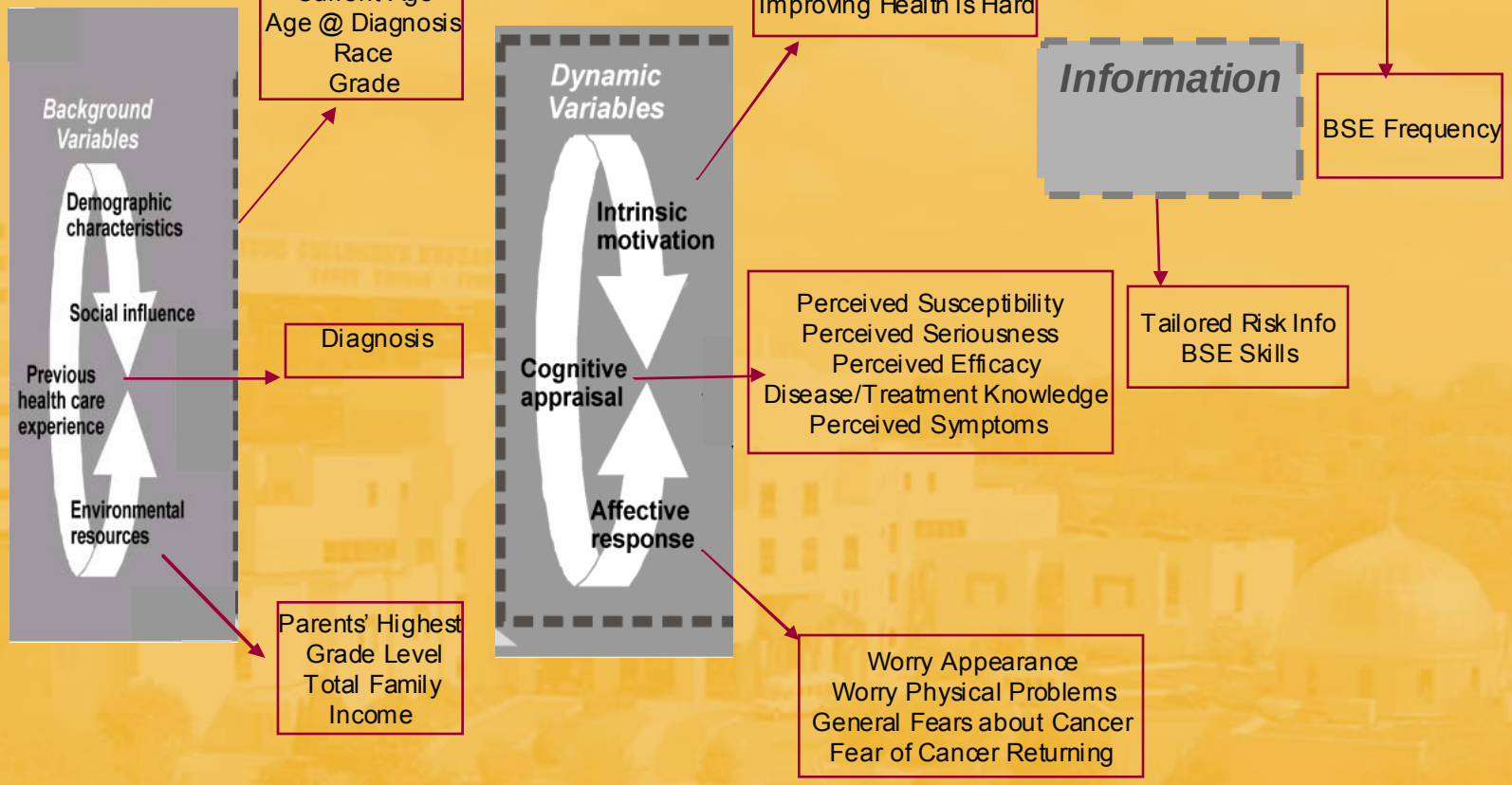

Data Analysis

- T-test for paired samples
- Wilcoxon signed rank
- Mixed between/within subjects repeated measures ANOVA
- Analysis of covariance (ANCOVA)

TABLE 1. Patient Characteristics at the Time of Study Entry

Characteristic	Total Sample (N=149)	
	n[a]	%
Race		
Caucasian	125	84
African-American	20	14
Hispanic	3	2
School Grade		
5-8	64	44
9-12	79	54
>12	4	2
Mother's Highest Grade		
4 - 12	75	51
13 - 18	71	49
Father's Highest Grade		
3 - 12	66	48
13 - 18	72	52
Total Family Income ($)		
< 35,000	62	42
35,000 - >60,000	87	58
Primary Diagnosis		
Leukemia/Lymphoma	87	59
Solid Tumor	61	41
	Median (Range)	
Age (Years)	15.00 (11.99-19.11)	
Time since Diagnosis (Years)	11.72 (2.23-16.89)	

[a]Variability in n for each category due to missing data

Results T^0 – T^1

- ↑ BSE (p=<0.001)
- ↓ Symptoms (p=0.039)
- ↓ General fears about cancer (p=0.039)
- ↑ Knowledge (p=0.026)
- ↑Perceptions of seriousness (p=0.042)
- ↑ Motivation (p=<0.001)

Predictors of ↑BSE @ Follow-up

- Baseline Predictors
  - Older age (p=<0.001)
  - Higher school grade (p=<0.001)
  - Perception of needing to change behavior (p=0.041)
  - Less concerned about appearance (p=0.021)
  - Trouble to stay healthy X {time} (p=0.036)
  - Perceived efficacy of behavior X {time} (p=0.034)

- Follow-up Predictors
  - Older age (p=<0.001)
  - Higher school grade (p=<0.001)
  - Trouble to stay healthy (p=0.021)
  - Mother's highest grade X {time} (p=0.032)

ANCOVA Predictors of Follow-up BSE: Controlling for age, grade, baseline BSE

- Baseline BSE (p=<0.001)
- Baseline susceptibility X grade (p=0.032)
- Diagnosis of leukemia/lymphoma (p=0.021)
- Grade X fear cancer return (p=0.027)
- Grade X general cancer fears (p=0.040)
- Grade X mother's education (p=0.040)

Female Childhood Cancer Survivors @ Greatest Risk

- Young, newly pubescent
- Fearful that cancer will return
- Fearful about cancer in general
- Unmotivated to change behavior
- Diagnosis of bone or soft tissue sarcomas
- More highly educated parents

"One Size Does NOT Fit All"!!!

- Elicit and examine fears/anxieties
- Use concrete modeling techniques with return demonstrations
- Offer personalized risk information
- Support autonomy, acknowledge difficulty of behavior change
- Specifically tailor information to
  - Background factors (age, SES, development)
  - Cognitive appraisal (knowledge, beliefs, risks)
  - Motivation (perceptions of needing/wanting to change)
  - Affect (fears, worries)

Study Limitations

- Measurement of BSE
- Single item variables
- Study powered on 2 genders

Conclusions

The more “tailored” the intervention to the uniqueness of the individual patient, the greater the likelihood of positive health outcomes

Cox, Cox et. al, 1982 - 2008

Motivation is increased when patients understand their personal risk, when they learn and feel competent in the health behaviors that can modify risk, and when worries and fears about their risks are not immobilizing (Cox, 1982; 1984)