Tailored Messaging in Colorectal Cancer Screening

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Outline

- Comments on studies of tailored messaging in cancer screening
- Presentation of behavioral models
- Description of the study
- Outcomes related to the models
- Observations about model use
- Future work

Comments on Studies on Tailored Messaging in Cancer Screening

- Studies have demonstrated that tailored print interventions are more effective than generic health education materials in increasing cancer screening use.
- Delivering tailored messages via combining mailed and telephone counseling calls is more effective than either mail or telephone alone (mammography).
- No unified theory has been accepted as the standard for message tailoring.

Rimer and Glassman, 1998; Champion et al., 2002;
Science Panel on Interactive Communication and Health, 1999

Preventive Health Model (PHM)

- Sociodemographic background
- Perceived salience and coherence
- Susceptibility
- Performance barriers
- Response efficacy
- Self-efficacy
- Worry and concern
- Social support and influence
- Intention

Precaution Adoption Process Model (PAPM)

- Never heard of
- Not considered
- Decided against
- Undecided
- Decided to do
- Do
- Continue Doing.

Colorectal Cancer and Screening

- 175,500 new cases and 57,100 deaths in 2003
- Colorectal cancer screening can reduce incidence and mortality (>25% and >33%, respectively)
- Screening utilization is low (24% stool blood test, 28% endoscopy)

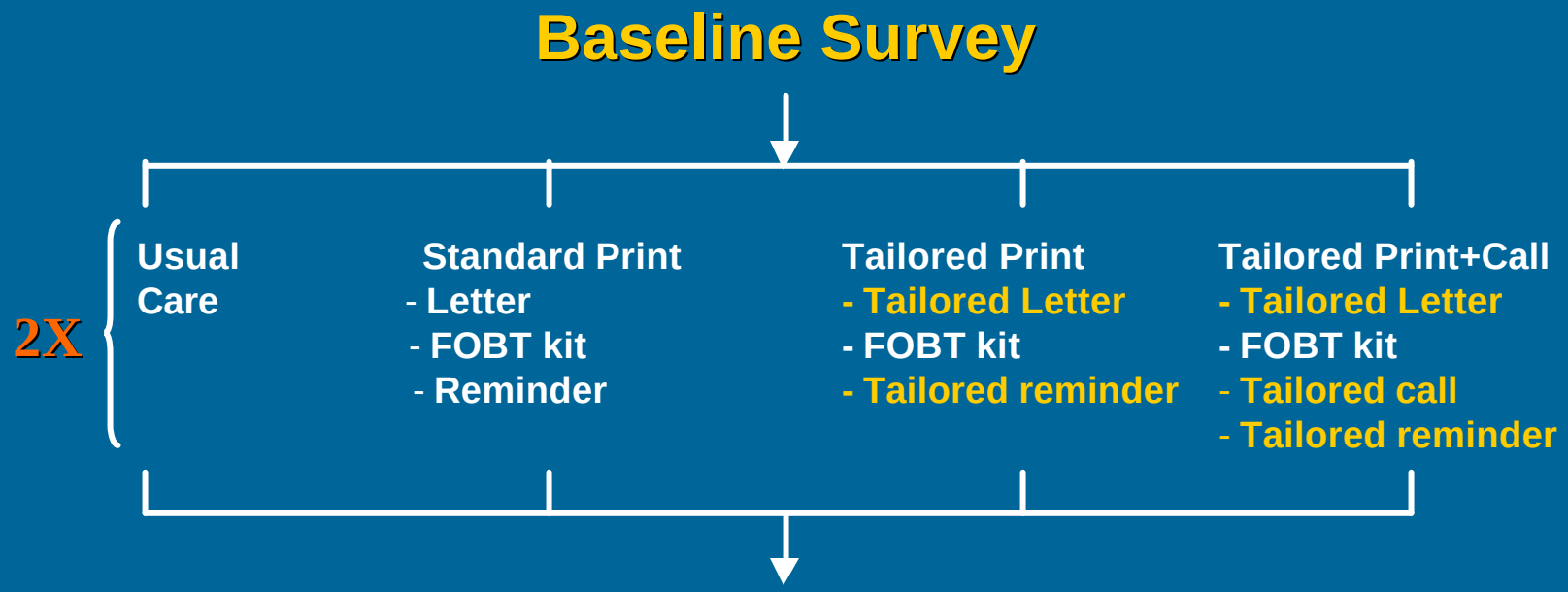
Colorectal Cancer and Screening

- Colorectal cancer screening tests
  - Annual stool blood test (SBT)
  - Flexible sigmoidoscopy (FSIG) q_5 years
  - Annual SBT and FSIG q_5 years
  - Barium enema x-ray q_5 years
  - Colonoscopy q_10 years

Study Population

- Urban Family Medicine Practice Patients
  - Men and women aged 50-74 years
  - Non-adherent to CRC screening guidelines
  - No family history of CRC or colon polyps
  - No personal history of CRC, colon polyps, or inflammatory bowel disease

Study Design



Hypotheses

- SBT and FSIG Screening Utilization
  - Tailored Intervention and Phone >
  - Tailored Intervention >
  - Standary Intervention >
  - Control

PHM Psychosocial Factors (N=1,605)

Factor	Percent Low	High
Perceived salience and coherence	11.6	88.4
Susceptibility	91.0	09.0
Performance barriers	86.7	13.3
Response efficacy	23.7	76.3
SBT self-efficacy	31.5	68.5
FSIG self-efficacy	53.8	46.2
Worry and concern	76.0	24.0
Social support and influence	27.2	72.8

Measuring PAPM Decision Stage

- Description of Screening Test
  - Before this test was described, had your ever heard of <Name of Screening Test>?
  - Have you ever done <Name of Screening Test>?
  - Have you thought about doing <Name of Screening Test> in the future?
  - Which of the following statements best describes your thoughts about doing <Name of Screening Test> in the future?
    - Want to do <Name of Screening Test>
    - Don't want to do <Name of Screening Test>
    - Not sure about doing <Name of Screening Test>

SBT and FSIG Screening Decision Stage (N=1,522)

	SBT		FSIG	
	n	(%)	n	(%)
Never heard of	222	(14.6)	379	(24.9)
Not considered	642	(42.2)	541	(35.6)
Decided against	11	(0.7)	29	(1.9)
Undecided	81	(5.3)	117	(7.7)
Decided to do	566	(37.2)	456	(29.9)

$p<0.0001$

SBT Decision Stage by Gender

	Men (n=510)		Women (n=1012)	
	n	(%)	n	(%)
Never heard of	101	(19.8)	121	(12.0)
Not considering	192	(37.6)	450	(44.5)
Decided against	4	(0.8)	7	(0.7)
Undecided	21	(4.1)	60	(5.9)
Decided to do	192	(37.7)	374	(36.9)

p=.0004

FSIG Decision Stage by Gender

	Men (n=510)		Women (n=1012)	
	n	(%)	n	(%)
Never heard of	119	(23.3)	260	(25.7)
Not considering	150	(29.4)	391	(38.6)
Decided against	15	(2.9)	14	(1.4)
Undecided	42	(8.3)	75	(7.4)
Decided to do	184	(36.1)	272	(26.9)

p=0.0001

SBT Decision Stage by Race

	White (n=579)		Non-White (n=943)	
	n	(%)	n	(%)
Never heard of	76	(13.1)	146	(15.5)
Not considering	237	(40.9)	405	(42.9)
Decided against	1	(0.2)	10	(1.1)
Undecided	42	(7.3)	39	(4.1)
Decided to do	223	(38.5)	343	(36.4)

p=0.01

FSIG Decision Stage by Race

	White (n=579)		Non-White (n=943)	
	n	(%)	n	(%)
Never heard of	73	(12.6)	306	(32.4)
Not considering	228	(39.4)	313	(33.2)
Decided against	17	(2.9)	12	(1.3)
Undecided	68	(11.8)	49	(5.2)
Decided to do	193	(33.3)	263	(27.9)

$p<.0001$

Relating PHM Factors to PAPM Decision Stage

- Backwards stepwise logistic regression models were run comparing participants with referent decision stage to those with all other decision stages that more proximal to screening.
- Modeling was stopped with the identification of four PHM factors that were significantly associated ($p<.05$) with outcome.
- PHM factors with highest odds ratios were retained for use in tailored messaging.

Relating PHM Factors to "Better" PAPM Decision Stage

- Never heard of vs Not considered, Undecided, and Decided to do
- Decided against vs Not considered, Undecided, and Decided to do
- Not considered vs Undecided and Decided to do
- Undecided vs Decided to do
- Else vs Decided to do

PHM Factors and Decision Stage More Proximal to SBT Screening

Decision Stage	SBT*
Never heard of	Salience and coherence, Susceptibility
Not considered	Susceptibility, Response efficacy
Decided against	Susceptibility, Self-efficacy
Undecided	Salience and coherence, Self-efficacy
Decided to do	Response efficacy, Self-efficacy

***Socsinf** of physicians was retained for each stage.

PHM Factors and Decision Stage More Proximal to FSIG Screening

Decision Stage	FSIG*
Never heard of	Salience and coherence, Self-Efficacy
Not considered	Performance barriers, Self-efficacy
Decided against	Response efficacy, Self-efficacy
Undecided	Susceptibility, Self-efficacy
Decided to do	Salience and coherence, Self-efficacy

***Socsinf** of physicians was retained for each stage.

PHM Factors Related to Decision Stage(s) More Proximal to Screening

Decision Stage	SBT*	FSIG*
Never heard of	Salcoh, Sucept	Salcoh, Selfeff
Not considered	Suscept, Respeff	Perfbarr, Selfeff
Decided against	Suscept, Selfeff	Respeff, Selfeff
Undecided	Salcoh, Selfeff	Suscept, Selfeff
Decided to do	Respeff, Selfeff	Salcoh, Selfeff

*Two PHM factors were identified for each stage and behavior. **Socsinf** of physicians was retained for each stage.

Producing Tailored Message Pages

- A library of messages related to identified PHM factors was generated.
- “Template” pages were created for use in displaying messages.
- An algorithm was developed and a program was written to select messages related to PHM factor score and PAPM decision stage.
- Messages were selected and were displayed on template pages mailed to participants.

Tailored Message Page
Stage: Not Considered SBT

- “On the survey, you told us that you are not thinking about doing stool blood testing.”
- **PHM/PAPM Messages**
- “Please think about doing the enclosed stool blood test.”

PHM/PHM Messages

- Factor: Susceptibility (low score)

- Message: “You may think you are not at risk for developing colorectal polyps or cancer. It’s important to know that you are at risk. Colorectal polyps are common in people over 50. Colorectal cancer is a common cancer among people in this age group. Your risk for these conditions increases as you get older.”

PHM/PHM Messages

- Factor: Response Efficacy (low score)

- Message: “You may think that colorectal cancer screening isn’t effective. But, it is. It could save your life by finding colorectal cancer polyps (removing colorectal polyps can prevent cancer) or by finding early, curable cancer.”

PHM/PHM Messages

- Factor: Social Support and Influence (low score)

- Message: “You may not know that doctors at <Practice Name> believe colorectal cancer screening is important. They do believe it is important. Your doctors think it that colorectal cancer screening is a good way to protect your health.”

Observations

- Decision staging differed for SBT and FSIG.
- SBT and FSIG decision staging varied by gender and race.
- PHM constructs (i.e., salience and coherence, susceptibility, performance barriers, response efficacy, self-efficacy, and physician support and influence) were associated with being in a “better” decision stage.

Future Work

- Complete intervention delivery over 2 rounds.
- Determine predictors of decision stage change and screening test utilization.
- Interview participants to identify factors that:
  - Identify factors that explain why decision stage change occurred and facilitate movement in decision stage.
  - Identify factors that explain why decision stage change did occur and facilitate movement in decision stage or continuation of behavior.