

Do Breast Cancer Patients Mispredict Future Well-being in Decisions about Breast Reconstruction?

Clara Lee, MD, MPP

Associate Professor of Surgery

Adjunct Associate Professor of Health
Policy and Management

Collaborators

- Peter Ubel
- Michael Pignone
- Allison Deal
- Ruth Huh
- Lillian Blizard
- David Ollila
- Lisa Carey

Funding

- Lineberger Population Sciences Award
- NC TraCS Pilot Award
- NCI K07 Award

- Think about a recent decision.

Predicting future well-being

- College football game
- Tenure
- Lottery



Gilbert 1998

Schkade & Kahneman 1998

Brickman 1978

Why do we do this?

- Focusing illusion
- Failure to predict adaptation

Medical examples

- Kidney transplant
- Colostomy
- HIV test result

Smith et al 2008

Riis et al 2005

Sieff et al 1999

Deciding about breast reconstruction



The problem

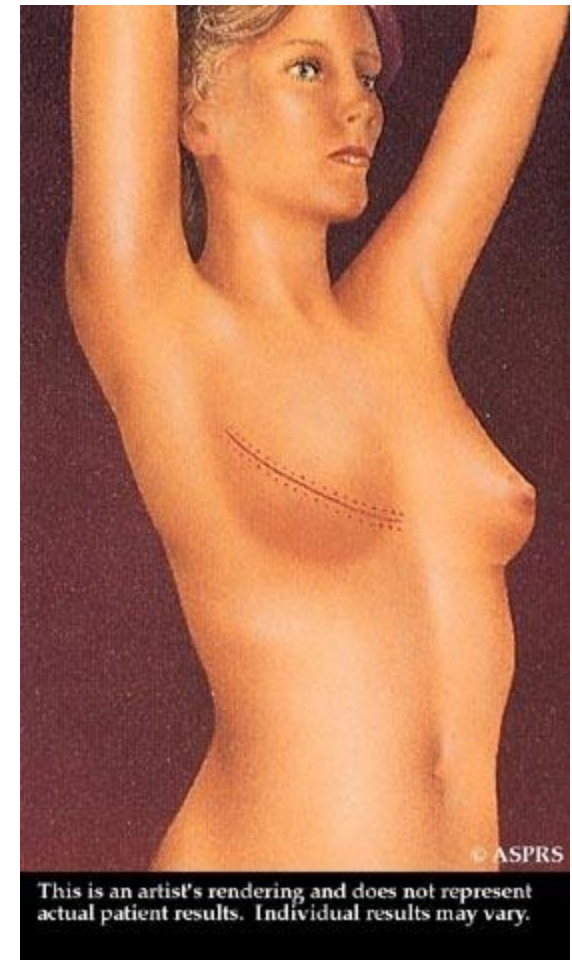
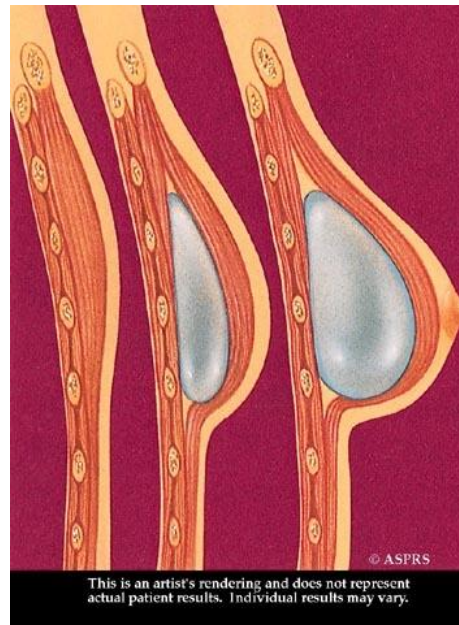
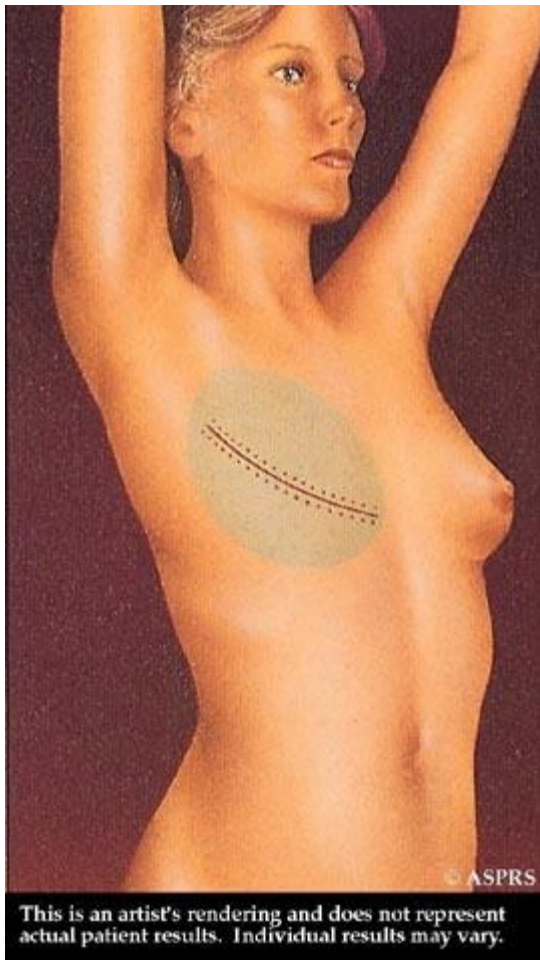
- Practice variations: race, income, location
- Potential overuse: up to 40% regret having reconstruction
- Potential underuse: 30-60% report not being informed of reconstruction

Morrow JAMA 2005

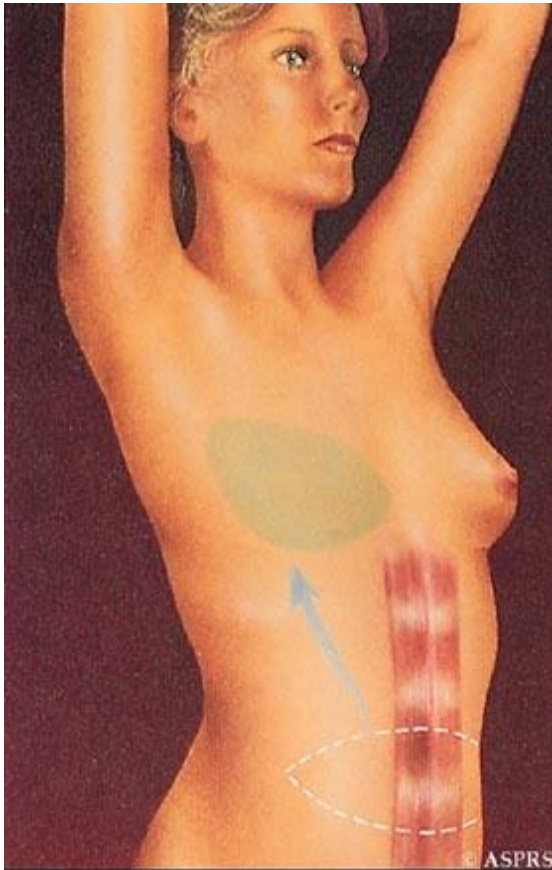
Zhong PRS 2015

Alderman Cancer 2008

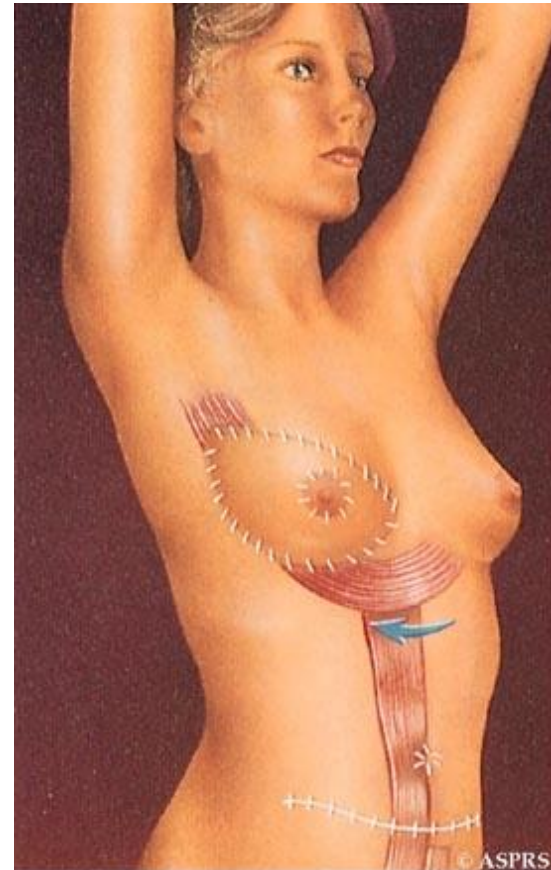
Implant-based reconstruction



TRAM flap

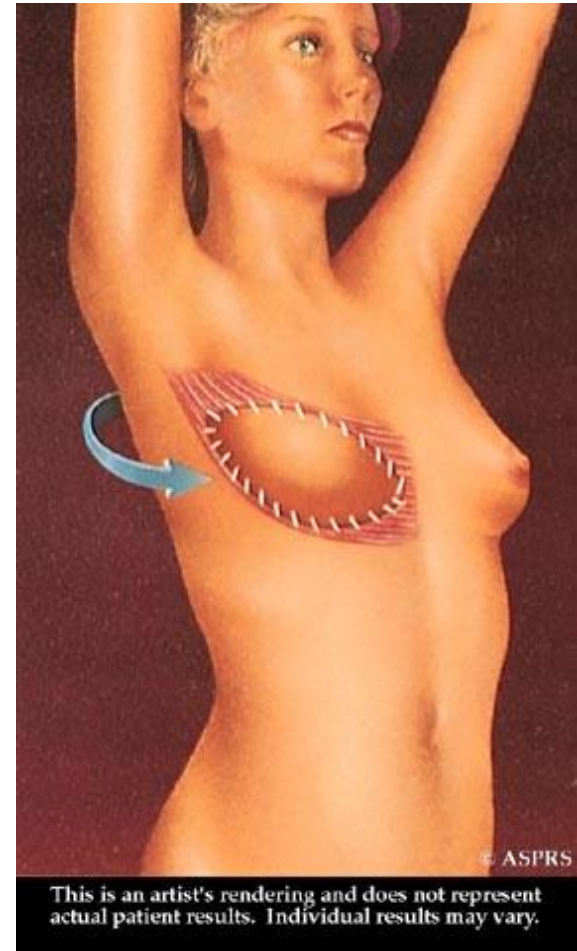
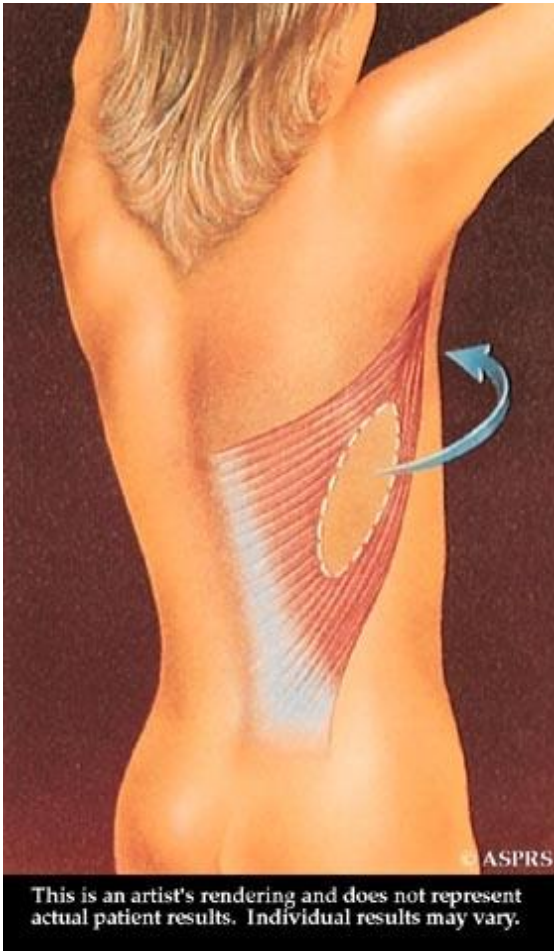


This is an artist's rendering and does not represent actual patient results. Individual results may vary.



This is an artist's rendering and does not represent actual patient results. Individual results may vary.

Latissimus flap



Aim

- To assess the accuracy of patients' preoperative predictions about their post-operative body image and well-being and the association between prediction accuracy and satisfaction with decisions.

Hypotheses

- Patients will underestimate positive outcomes of mastectomy alone and overestimate positive outcomes of mastectomy with reconstruction.
- Larger mis-predictions will be associated with lower satisfaction with decisions.

Overall Study Design

- Single site, prospective cohort study
- Women with stages I-III breast cancer, DCIS, or high-risk
- Enrolled in clinic after seeing surgeon
- Self-administered questionnaire before surgery
- Mailed questionnaire at 12 months

Measures and domains

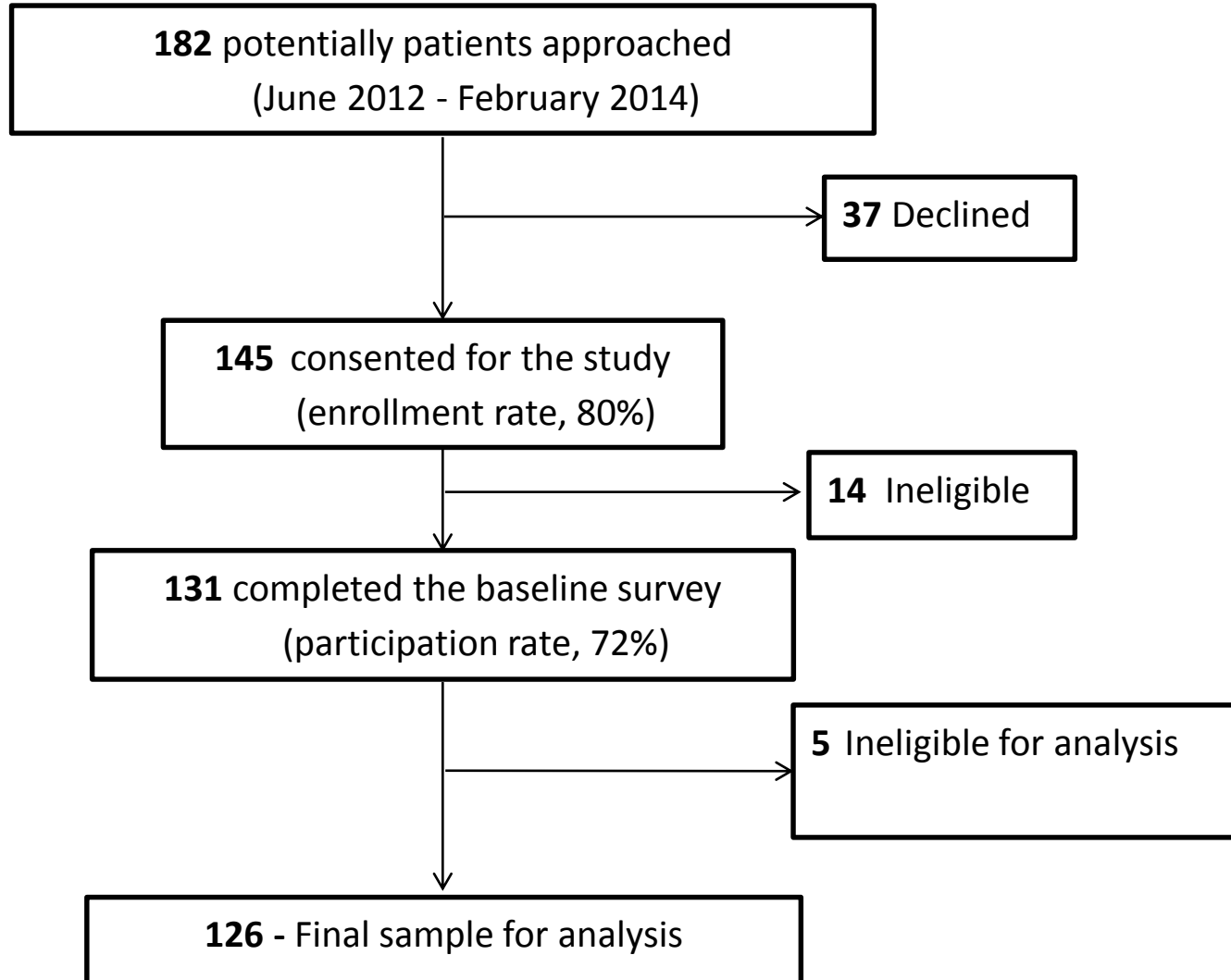
- Cantril's Ladder
 - Happiness
- BreastQ
 - Quality of life
 - Body image
 - Sexual attractiveness
 - Numbness
 - Pain
- Satisfaction with Decisions Scale

Analyses

- Prediction accuracy: difference between predicted and actual 12 month scores, adjusted for baseline score.
- Association between prediction accuracy and satisfaction with decisions evaluated by linear regression.

Results

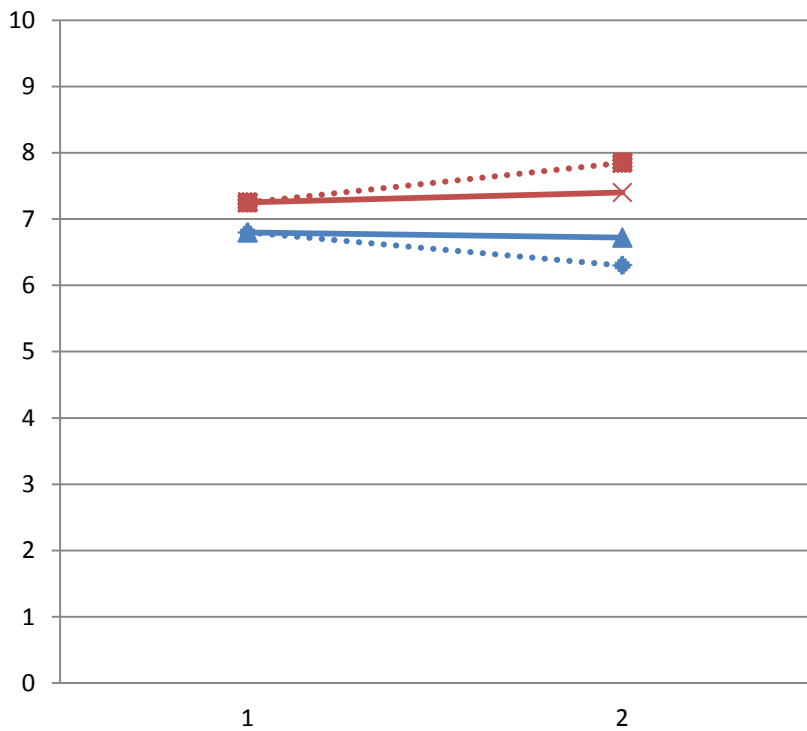
Study Flow Diagram



Study population

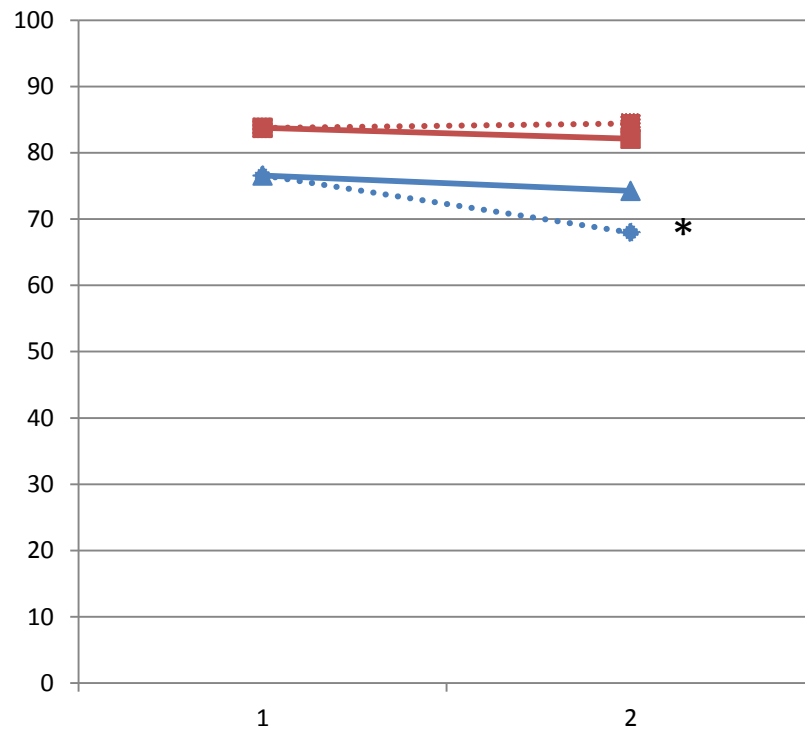
	% of patients			p
	Total N=126	Mastectomy Only N=75	Mastectomy w/ Reconstruction N=51	
Age - mean (SD)	53.2 (12.1)	54.8 (13.8)	50.9 (8.5)	0.08
Education				0.10
High school or less	16.7	22.7	7.8	
Some college or more	82.5	76.0	92.2	
Marital status				0.01
Partnered	65.1	54.7	80.4	
Single	34.1	44.0	19.6	
Race				0.55
White	75.4	72.0	80.4	
Black	18.3	21.3	13.7	
Other/multiracial	6.3	6.7	5.9	
Diagnosis and stage				<0.0001
No malignancy	13.5	1.3	31.4	
DCIS	16.7	9.3	27.5	
Stage I	35.7	37.3	33.3	
Stage II	20.6	29.3	7.8	
Stage III	13.5	22.7	0.0	

Happiness



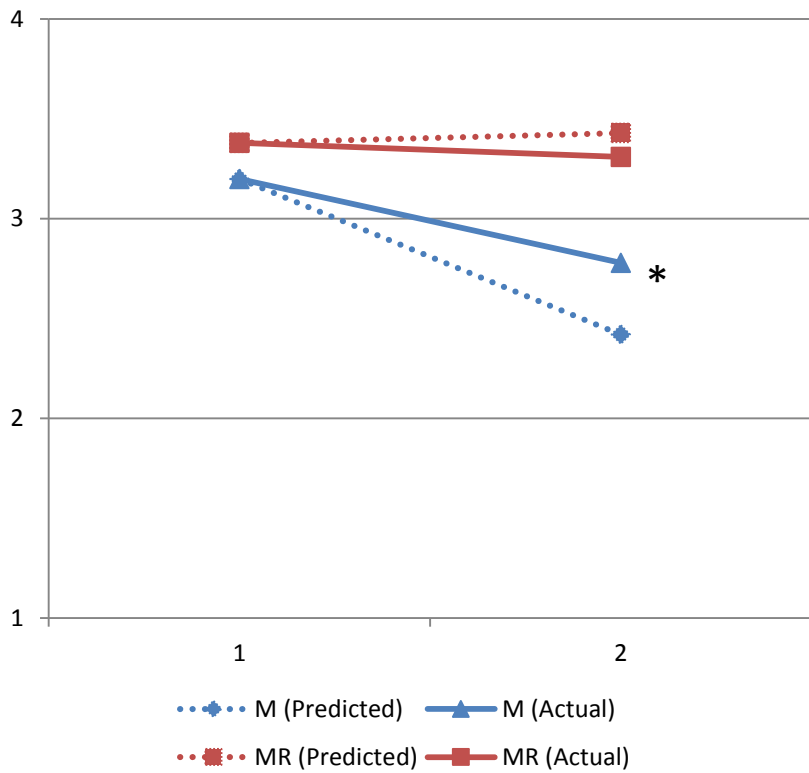
••◆•• M (Predicted) —▲— M (Actual)
••■•• MR (Predicted) —×— MR (Actual)

Quality of Life

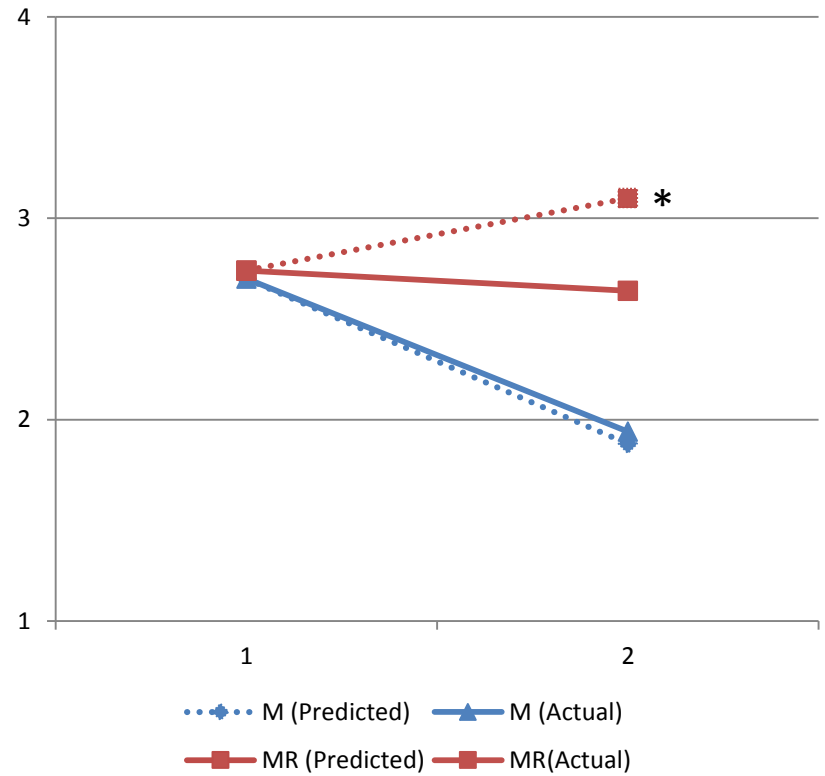


••◆•• M (Predicted) —▲— M (Actual)
••■•• MR (Predicted) —■— MR (Actual)

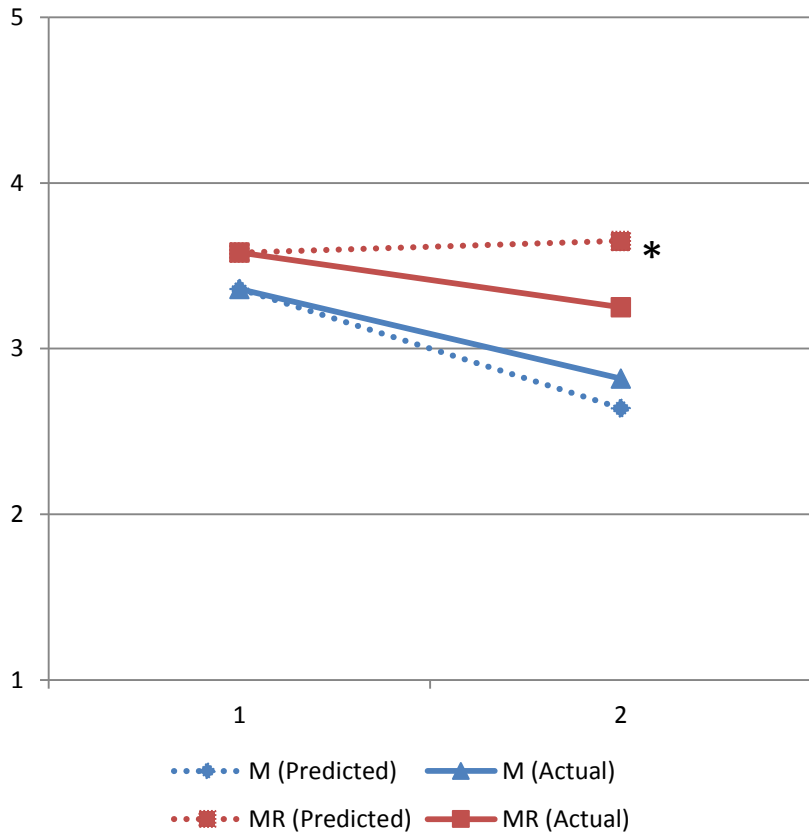
Satisfaction with Breasts Clothed



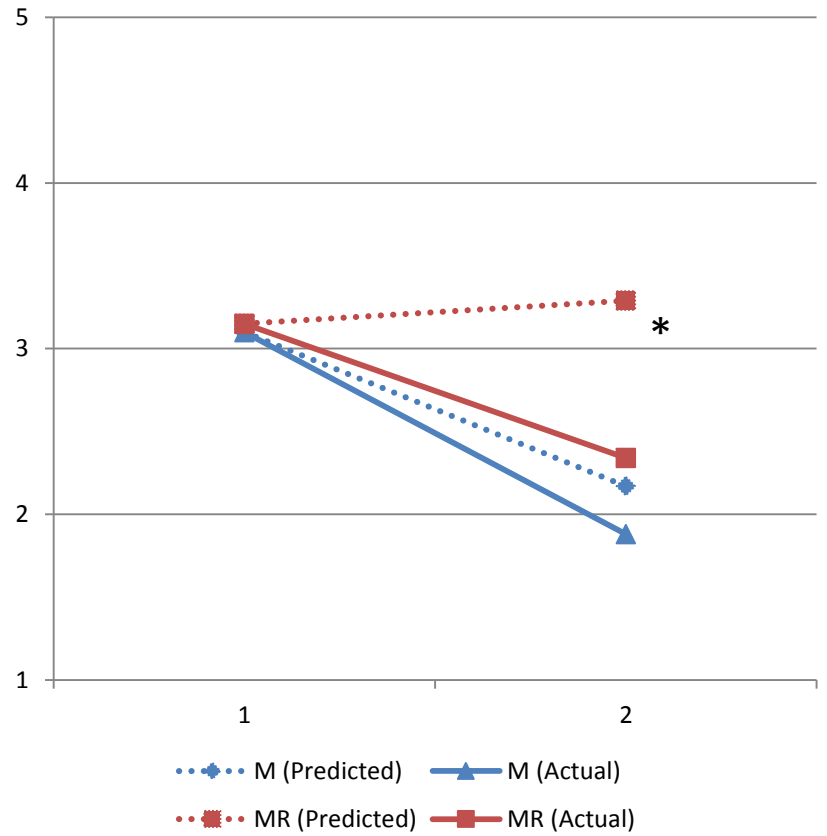
Satisfaction with Breasts Unclothed



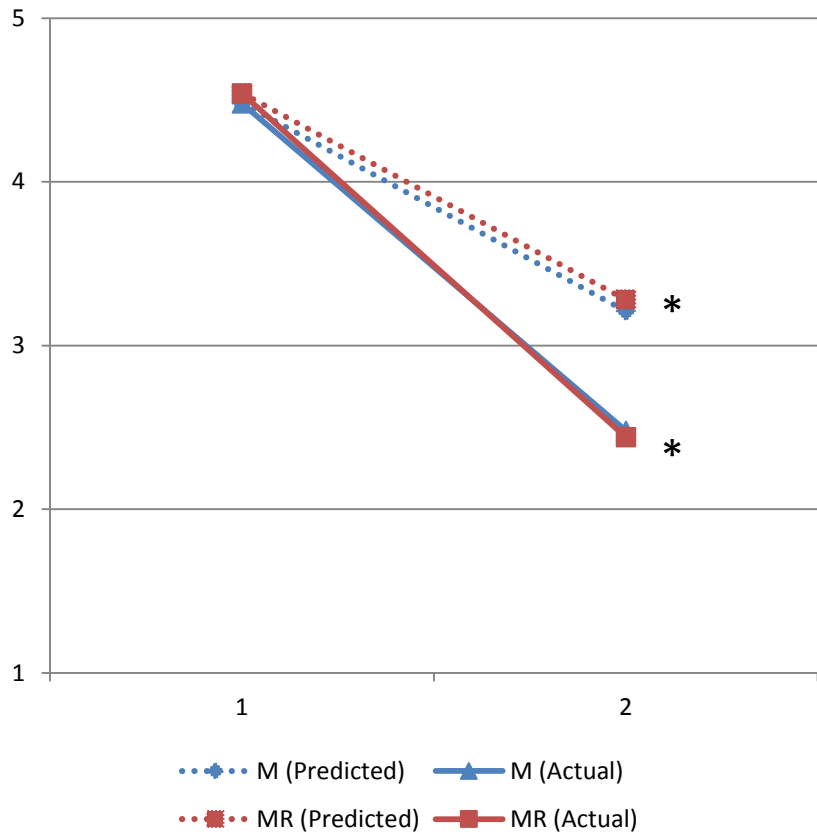
Sexual Attractiveness Clothed



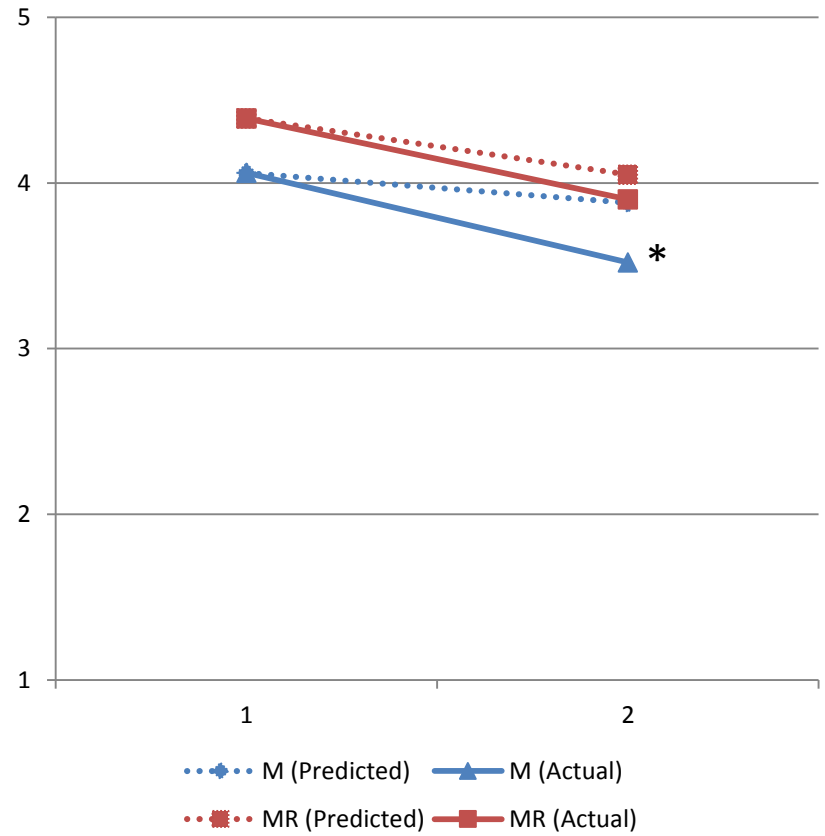
Sexual Attractiveness Unclothed



Numbness frequency



Pain frequency



Satisfaction with decisions

- Overall mean 4.33
 - Mastectomy only: 4.17
 - Mastectomy w/ reconstruction: 4.52 (p=0.01)
- Multivariable model:
 - Only college education associated with SWD ($\beta=0.55$, p=0.03)
 - Prediction accuracy, surgery type, adjuvant therapy, age, race, partnered status *not* associated with SWD

Conclusions

- Patients undergoing mastectomy only overestimated its negative impact on most outcomes.
- Patients undergoing mastectomy with reconstruction overestimated its positive impact on most outcomes.
- Both groups of patients overestimated numbness and pain after surgery.
- Prediction accuracy was not associated with satisfaction with decisions.

Limitations

- Sample
- Outcomes only measured at 12 months
- Questions structured for recall over two weeks
- Scale recalibration?

Implications

- Provider communication
- Decision support tools
- Should patients talk to “experienced” patients?
- The premise of shared decision making
 - Patients are the experts on their own preferences

Happiness

- c. Imagine yourself one year after having a mastectomy **with** breast reconstruction. IN GENERAL, HOW HAPPY OR UNHAPPY WOULD YOU EXPECT TO FEEL? Please circle **one** statement that best describes **your average happiness**.

10	Extremely happy (feeling ecstatic, joyous, fantastic!)
9	Very happy (feeling really good, elated!)
8	Pretty happy (spirits high, feeling good.)
7	Mildly happy (feeling fairly good and somewhat cheerful.)
6	Slightly happy (just a bit above neutral.)
5	Neutral (not particularly happy or unhappy.)
4	Slightly unhappy (just a bit below neutral.)
3	Mildly unhappy (just a little low.)
2	Pretty unhappy (somewhat “blue,” spirits down.)
1	Very unhappy (depressed, spirits very low.)
0	Extremely unhappy (utterly depressed, completely down.)

Overall quality of life

2. YOUR OVERALL QUALITY OF LIFE

- a. Using a scale from 0 to 100, where 0 represents the worst imaginable quality of life and 100 represents the best imaginable quality of life, what rating would you give your **current quality of life**? In thinking about your quality of life, please consider your life overall. Quality of life may include areas such as family relationships, friendships, health, work/career, leisure activities, emotional well-being, etc.

_____ (Please write a number from 0 to 100)

- b. Imagine yourself one year after having a mastectomy **without** breast reconstruction. What rating would you expect to give for your quality of life, using a scale from 0 to 100?

_____ (Please write a number from 0 to 100)

Body image

3. YOUR BODY IMAGE IN CLOTHING

- a. With your breasts in mind, how *satisfied or dissatisfied* are you with how you look in the mirror clothed?

Very
dissatisfied

Somewhat
dissatisfied

Somewhat
satisfied

Very
satisfied

- b. Imagine yourself one year after having a mastectomy **without** breast reconstruction. With your breasts in mind, how *satisfied or dissatisfied* would you expect to be with how you look in the mirror clothed?

Very
dissatisfied

Somewhat
dissatisfied

Somewhat
satisfied

Very
satisfied

Sexual attractiveness

1. YOUR SEXUAL ATTRACTIVENESS IN CLOTHING

a. Thinking of your sexuality, how *often* do you feel sexually attractive in your clothes?

None of
the time

A little of
the time

Some of
the time

Most of
the time

All of
the time

Not
Applicable

b. Imagine yourself one year after having a mastectomy **without** breast reconstruction. Thinking of your sexuality, how *often* would you expect to feel sexually attractive in your clothes?

None of
the time

A little of
the time

Some of
the time

Most of
the time

All of
the time

Not
Applicable

Sensation

1. YOUR PHYSICAL SENSATIONS

a. How *often* do you currently experience numbness in your chest area or arms?

None of
the time

A little of
the time

Some of
the time

Most of
the time

All of
the time

b. Imagine yourself one year after having a mastectomy **without** breast reconstruction. How *often* would you expect to experience numbness in your chest area or arms?

None of
the time

A little of
the time

Some of
the time

Most of
the time

All of
the time

Pain

1. YOUR PAIN

a. How *often* do you currently experience pain in your chest area or arms?

None of
the time

A little of
the time

Some of
the time

Most of
the time

All of
the time

b. Imagine yourself one year after having a mastectomy **without** breast reconstruction. How *often* would you expect to experience pain in your chest area or arms?

None of
the time

A little of
the time

Some of
the time

Most of
the time

All of
the time

Satisfaction with decisions

Satisfaction with Decision Instrument. You decided to have breast reconstruction. Answer the following questions about your decision. Please indicate to what extent each statement is true for you **AT THIS TIME**.

		Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	I am satisfied that I am adequately informed about the issues important to me.					
2	The decision I made was the best decision possible for me personally.					
3	I am satisfied that my decision was consistent with my personal values.					
4	I expect to successfully carry out (or continue to carry out) the decision I made.					
5	I am satisfied that this was my decision to make.					
6	I am satisfied with my decision.					