

IS RELIEF WORTH THE RISK? RISK-BENEFIT PREFERENCES FOR TREATMENTS FOR MENOPAUSE SYMPTOMS

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Objectives

- To estimate women's willingness to accept tradeoffs between cardiovascular and cancer risks, and vasomotor symptom relief.
- To test how presenting risk attributes in absolute-risk or relative-risk scales affects women's stated preferences.

Introduction

Vasomotor symptoms are the most frequent symptoms of menopause and perimenopause, occurring in 85% of perimenopausal women and almost all women with induced menopause or premature menopause (Nelson et al. 2005).

Hormone replacement therapies are effective in reducing the incidence and duration of vasomotor symptoms. However, they can result in an increased risk of breast cancer, stroke, heart attack and cancer of the uterus (Levens and Williams, 2004; JAMA, 2002; NIH, 2002).

A stated preference survey was administered to 500 US women between the ages of 46 and 60 years, inclusive, randomly sampled from a large internet panel to elicit their preferences for relief of vasomotor symptoms.

Two versions of the survey were administered to split samples. The versions were identical except for the risk descriptions; one version described risks using an absolute risk scale and one version described risks using a relative scale.

Example of Stated Preference Tasks

Considering the different results and risk associated with Treatments A and B, which would you prefer if these were the only options available?

	Results of Treatment A	Results of Treatment B			
Intensity of daytime hot flashes	Mild	Severe			
Frequency of daytime hot flashes	More than 6 times	1-2 times			
Frequency of night sweats	1-3 times	1-3 times			
Duration of hot flashes and night sweats	2 years	4 years			
Risk of hip or back fractures within 10 years	15/1,000 (1.5%) or 50% decrease in risk	30/1,000 (3%) or No change in risk			
Risk of heart attack within 10 years	65/1,000 (6.5%) or 30% increase in risk	50/1,000 (5%) or No change in risk			
Risk of Breast Cancer within 10 years	39/1,000 (3.9%) or 30% increase in risk	23/1,000 (2.3%) or 25% increase in risk			
Check the box that best describes your opinion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	A is much better	A is somewhat better	A and B are the same	B is somewhat better	B is much better

Methods

Calculation maximum acceptable risk (MAR):

$$\text{Expected Utility} = \text{Prob}_{\text{AE}} \cdot U_{\text{AE}} + U_{\text{B}}$$

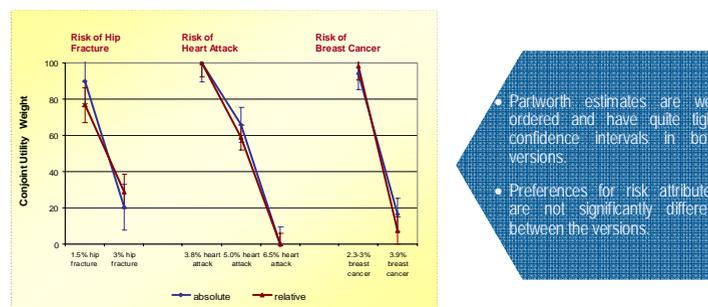
$$U_0 = EU^* = \text{Prob}_{\text{AE}}^* \cdot U_{\text{AE}} + U_{\text{B}}$$

$$\text{Prob}_{\text{AE}}^* = \frac{U_{\text{B}} - U_0}{-U_{\text{AE}}}$$

Prob_{AE} Probability of the serious adverse event
 U_{AE} Conjoint utility of the adverse event
 U_{B} Conjoint utility of the treatment benefit

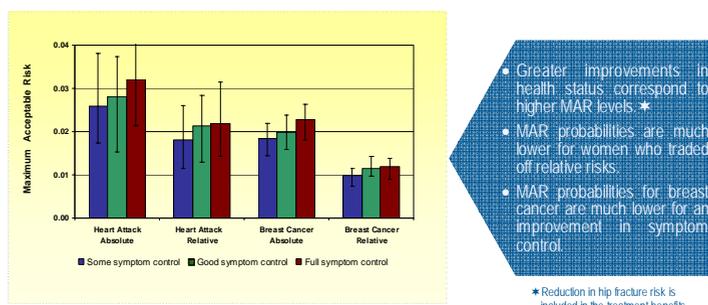
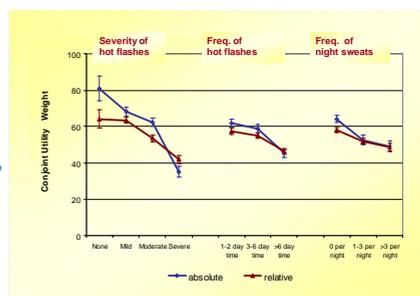
Maximum acceptable risk $\text{Prob}_{\text{AE}}^*$ is the probability that makes expected utility equal to the pretreatment conjoint utility U_0 . It is the change in outcome utility divided by the (negative) disutility of the adverse event.

Results



- Partworth estimates are well ordered and have quite tight confidence intervals in both versions.
- Preferences for risk attributes are not significantly different between the versions.

- The effect of presentation of risk levels influenced preferences for symptom severity.
- Partworth estimates for symptom control are lower in the relative-risk version, indicating that women were more concerned about risk than symptom control in this version.



- Greater improvements in health status correspond to higher MAR levels.*
- MAR probabilities are much lower for women who traded off relative risks.
- MAR probabilities for breast cancer are much lower for an improvement in symptom control.

*Reduction in hip fracture risk is included in the treatment benefits.

Conclusions

Women who presented with absolute risks were relatively more concerned about symptom control than about risks, while women who presented with relative risks were relatively more concerned about risks than about symptom control. This difference affects the degree to which women were willing to tradeoff symptom control for adverse-event risks.

The women in our sample were more concerned about breast-cancer risks than about heart-attack risks, but were willing to trade increases in risks for vasomotor symptom control if the perceived improvements were large enough.

Women who traded off adverse event risks measured on an absolute scale had larger maximum acceptable risks than women who traded off risks measured on a relative scale.

References

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