Happiness or Predicted Happiness: Which should we Maximize?

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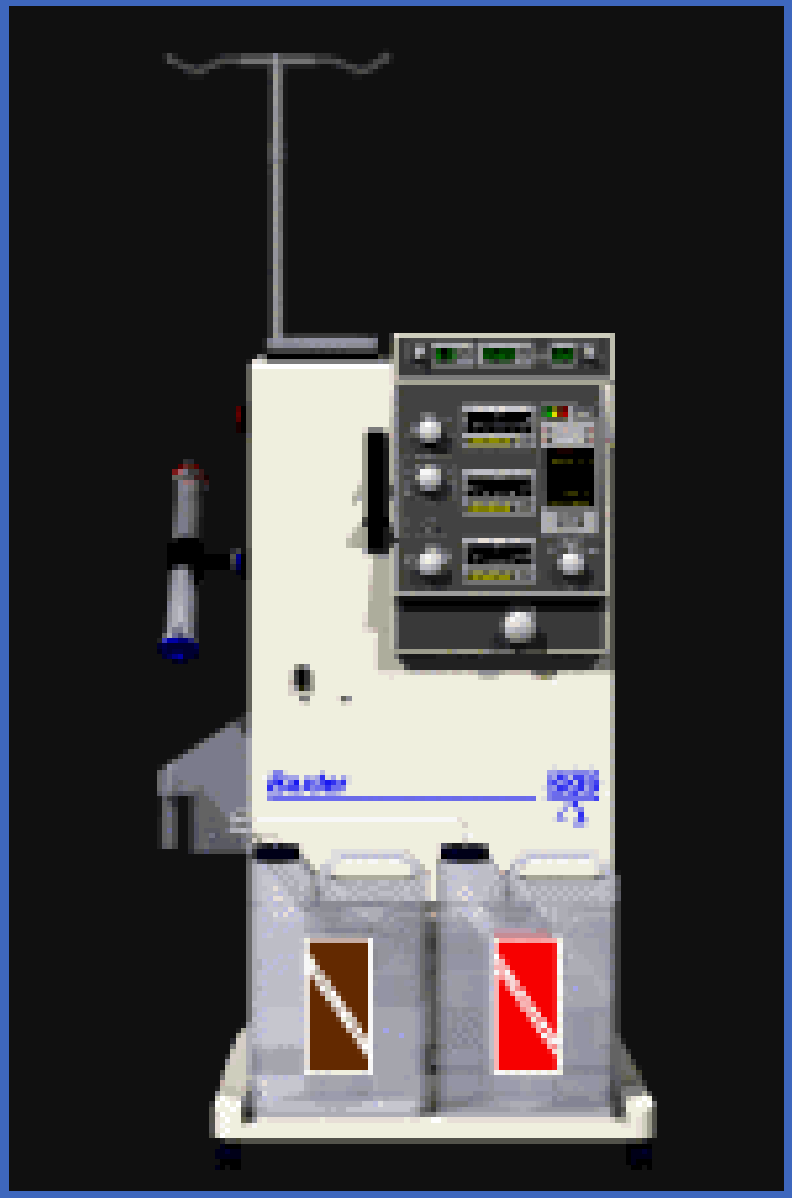


The answer depends on who you ask

- TTO utility of ESRD (0-1 scale)
  - Patients = .56
  - Community = .39
- Moods (-2 to +2 scale)
  - Patients = .66
  - Community prediction of patients = -.17

Economic Importance of This Discrepancy

- Whose utilities should we include in cost effectiveness analyses?

As if the "who" question wasn't enough!

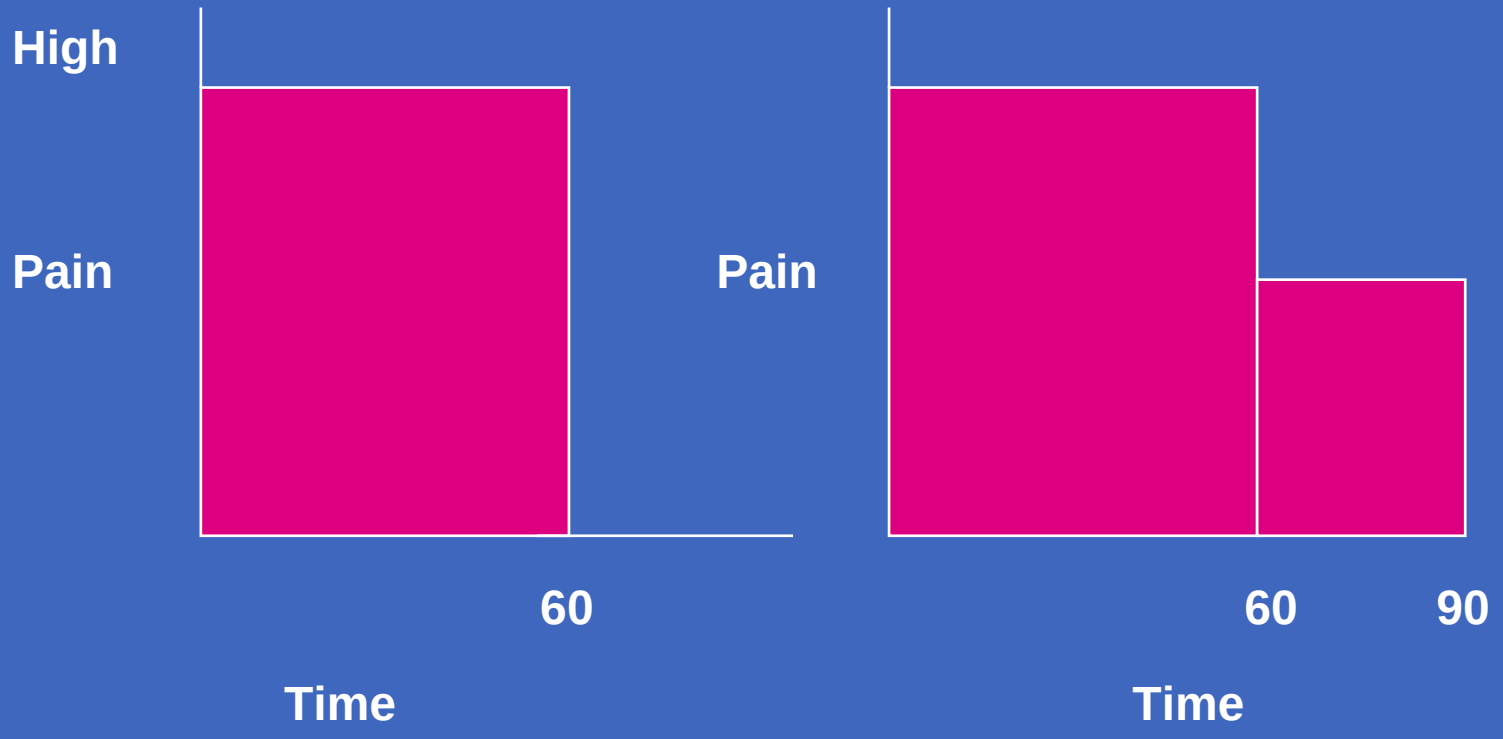
- We need to figure out what question to ask
- Specifically: should policy decisions be based on
  - decision utility or
  - experience utility

A Quick and Inaccurate History of Economics

- Economics = Science of utility maximization
- Original notion of utility
  - Jeremy Bentham
  - Balance of pleasure & pain = Experience utility
- More recent view of utility
  - Revealed preferences
  - Rational people's free choices lead to utility maximization

    = Decision utility

Illustration of distinction between Experience and Decision Utility



What happened in this study?

- Experience utility –
  - The 60 second bucket was better than the 90
- Decision utility –
  - The 90 second bucket was better

- People misremembered their 2 experiences, causing them to make a bad decision

Goals of Talk

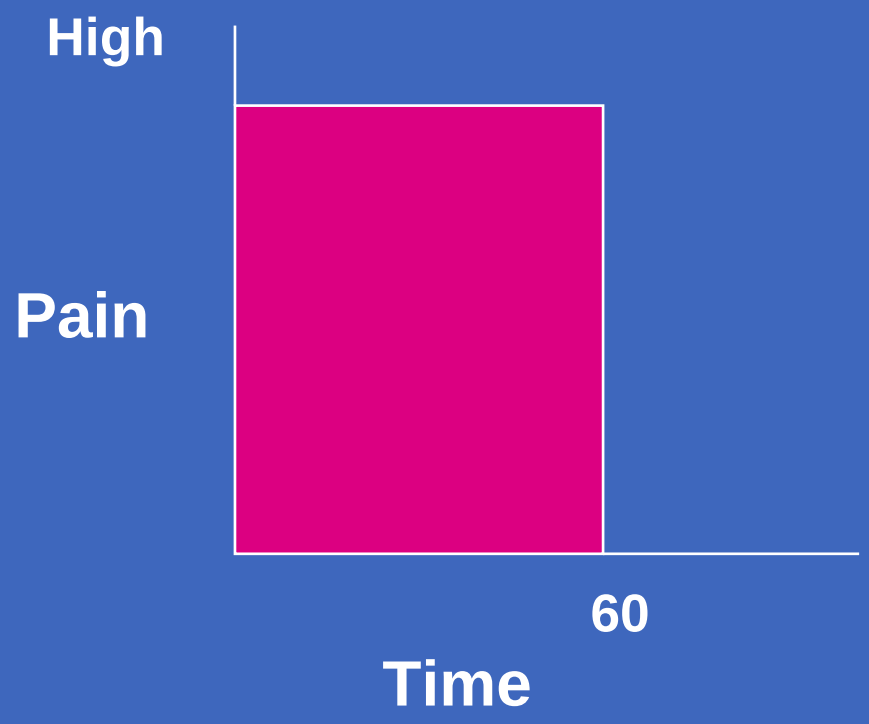
- Potential flaw of decision utility
  - Based on mispredictions and misrememberings of experience utility
- Potential flaw of experience utility
  - Goals of healthcare go beyond mood maximization
- Point to future research directions
  - Empirical
  - Normative

Global versus Momentary QoL: source of patient overestimation?

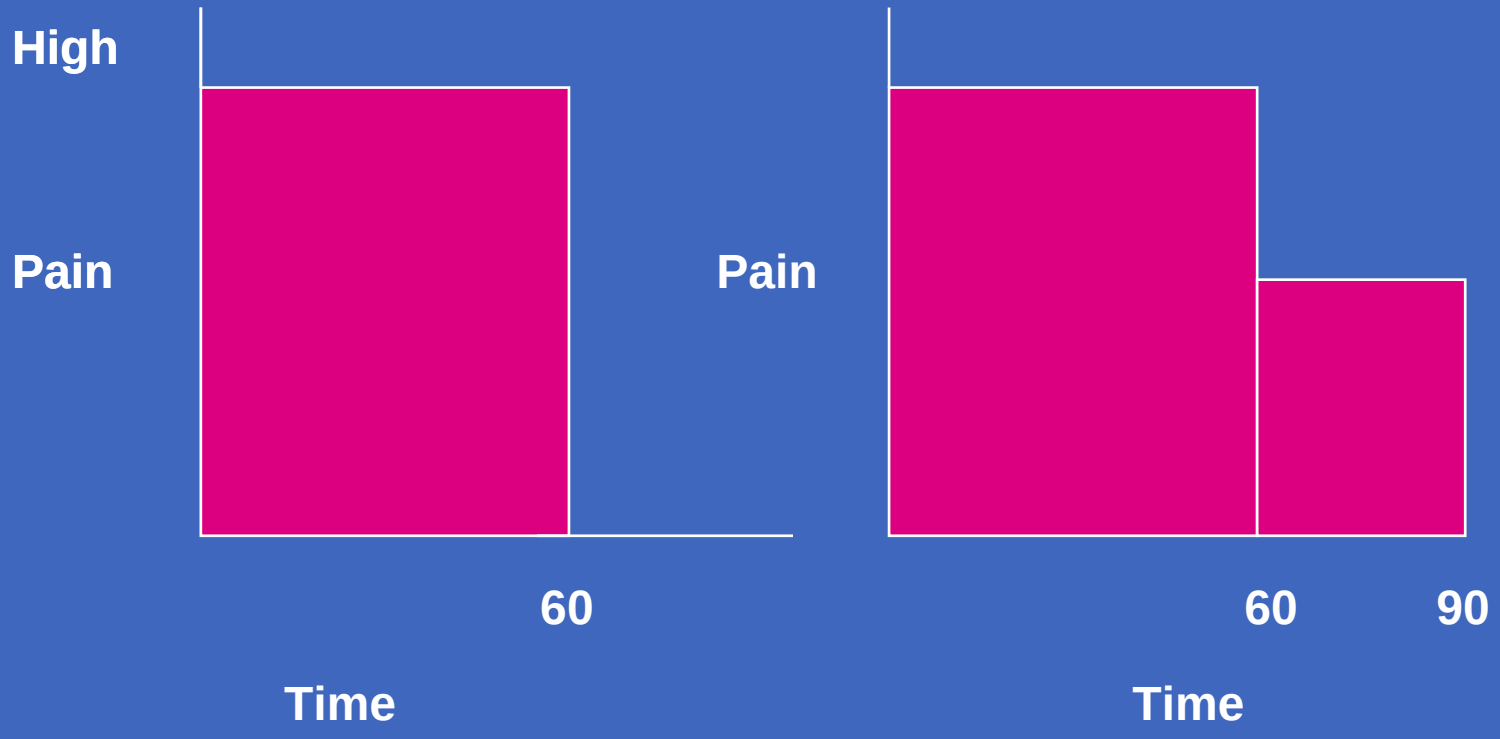
Global versus Momentary Reports of Well-being (SWB)

- People have difficulty describing average emotions over time
- There may be a discrepancy between
  - **moment to moment SWB**
  - **general evaluation of SWB**

No pain, no gain



No pain, no gain

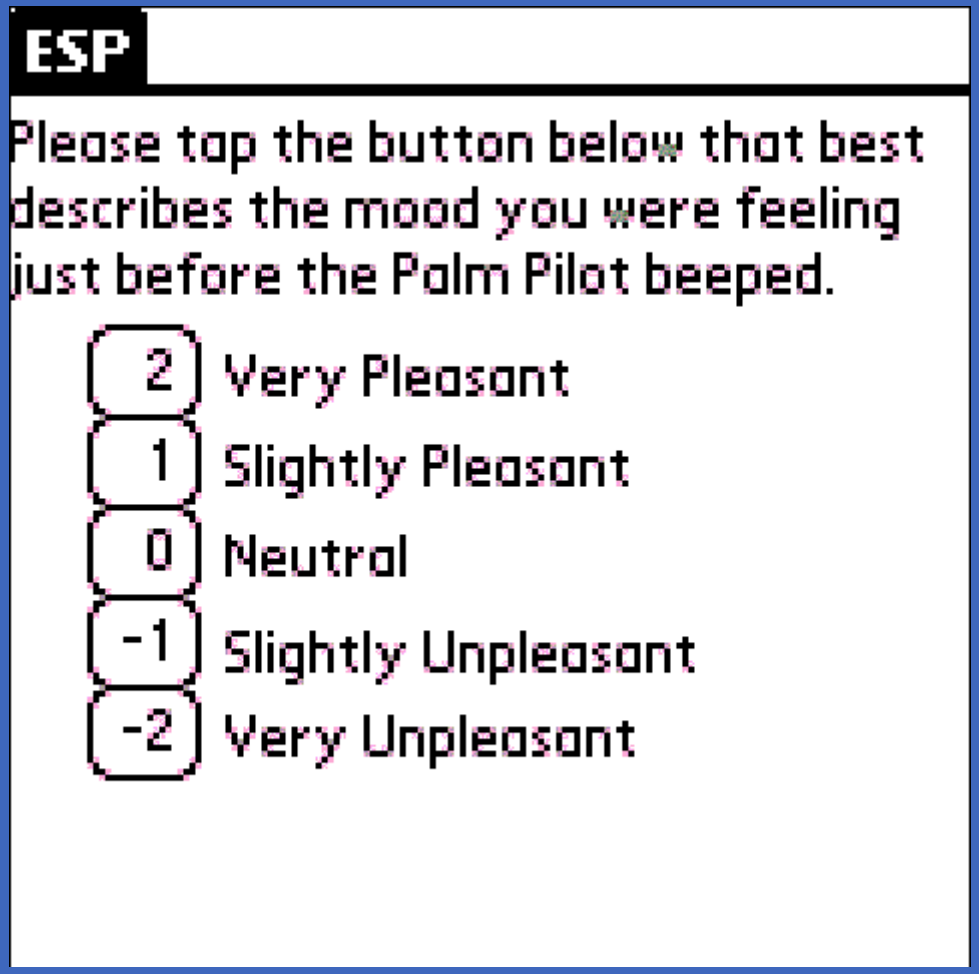


It’s the little things in life

Imagine a Dialysis Patient's Quality of Life

- How happy are you right now (0 - 10)?
  - 6
  - 5
  - 5
  - 6
  - 8
- How happy do you feel generally?
  - 7

Palm Week



Imagining life on Dialysis

	Actual Mood	Dialysis Mood
Patients	**.66**	
Controls	.80	

Specific Moods (0-6 scale)
- Palm Data -

	4 positive measures	5 negative measures
Patients	3.21	1.00
Controls	3.23	.99

Imagining perfect Health (Never had kidney problems. . .)

	Actual Mood	Dialysis Mood	Healthy Mood
Patients	.66		1.10
Controls	.80	-.17	

A Whole Lot of Mispredicting Going On

- Patients
  - Mispredict life without kidney disease
- General public
  - Mispredict life with kidney disease

- These mispredictions of experience utility could influence decision utility

Looking forward to a kidney transplant

Misestimating the benefits of kidney transplantation

- Surveyed patients waiting for kidney transplant
  - Measured QoL
  - Asked them to predict QoL 1 year after successful transplant
- Resurveyed them after transplant
  - Measured QoL
  - Asked them to remember pre-transplant QoL

Mispredictions

Domain	Pre-tx	Prediction for Post-tx	Actual Post-tx
QoL (0-100)	66	91	83
Travel (days/yr)	9	20	12
Work (hrs/wk)	12	32	15
Energy (1-5)	3.2	4.9	4.3

Misremembering ESRD

Time	Pre-tx QoL	Post-tx QoL
Pre-tx	66	91
Post-tx:		
Immediate	57	78
6 months	55	80
12 months	48	83

What's it like to have a colostomy?

Colostomy Patient Survey

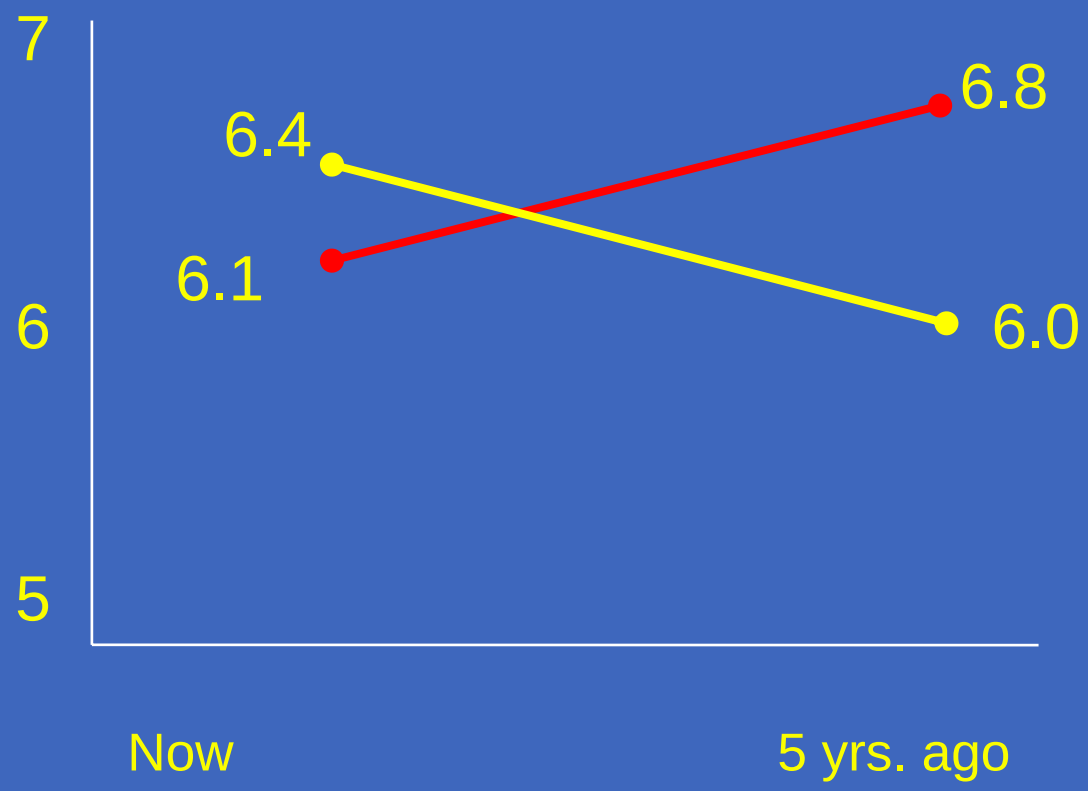
- Surveyed people who have received colostomies within last 5 years
  - 94 permanent
  - 100 reversed
- What do these two groups think of life with a colostomy?

Adapting to life with a Colostomy

- Overall quality of life (0-100)
  - permanent = 67
  - reversed = 71
- Overall positive mood (0-4)
  - permanent = 3.1
  - reversed = 3.1
- Overall negative mood (0-4)
  - permanent = 1.8
  - reversed = 1.9

So ... little to no difference in mood or quality of life

How Happy: Now & 5 yrs. ago



How bad do these groups think it is to have a colostomy?

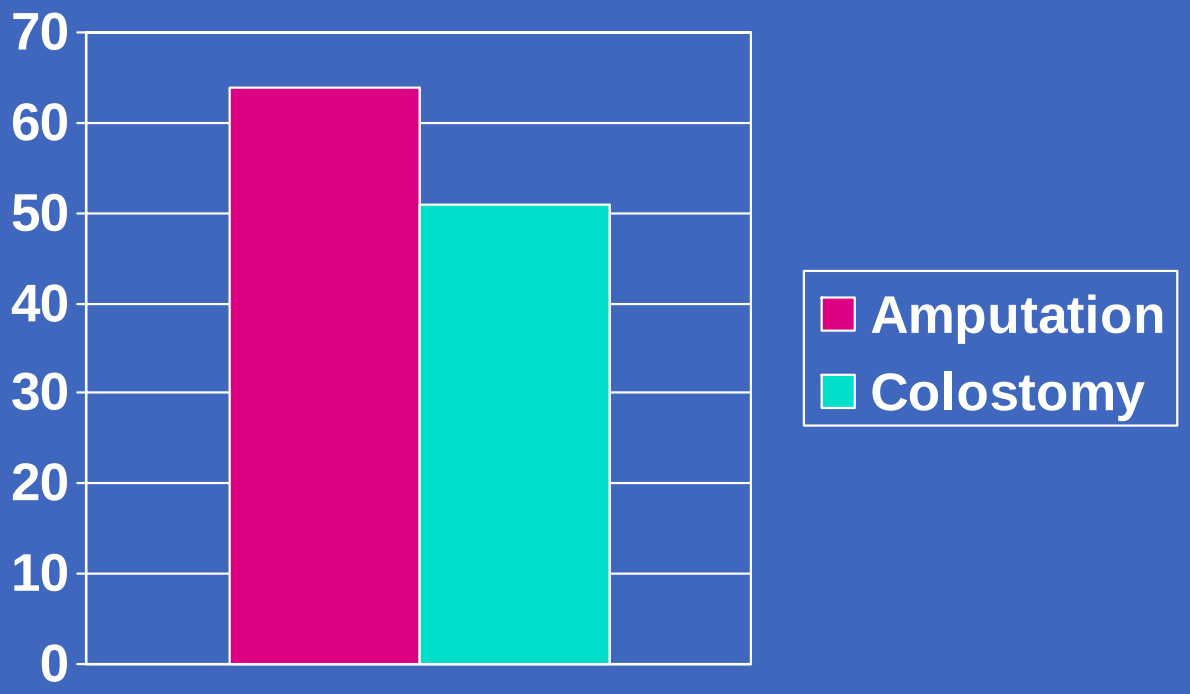
- Time tradeoff (TTO) utility question
  - Imagine you will live 10 years with a colostomy then die.
  - How many months (0-120) would you give up to get rid of the colostomy?
    - permanent = 18 months
    - reversed = 44 months

How does the public value treatment for mental, versus physical, health conditions?

What would your quality of life be like…?

- Below the knee amputation
  - Functioning prosthesis
  - Almost no activity restriction
- Permanent colostomy
  - Etc.
    - 0-100 scale

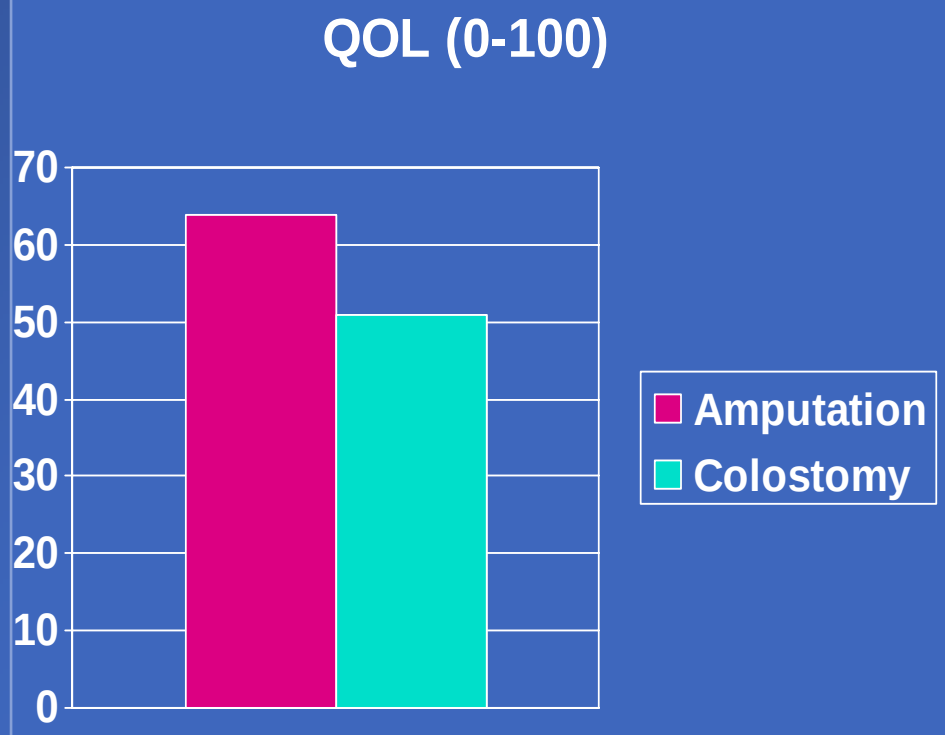
Results

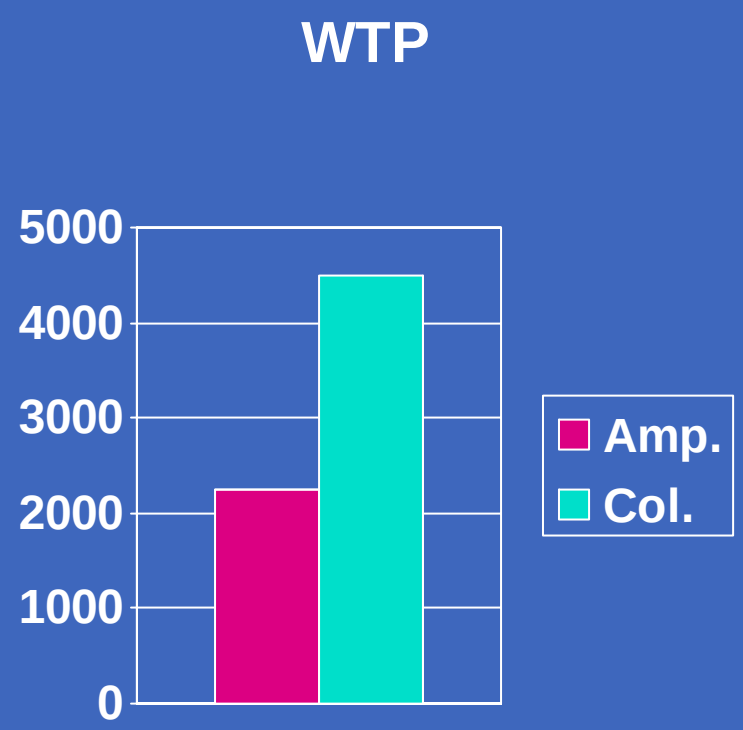


How much would you pay…?

- To avoid amputation
  - Have fully functioning leg
- To have normal bowel function
  - Etc.
    - $: in thousands

Results

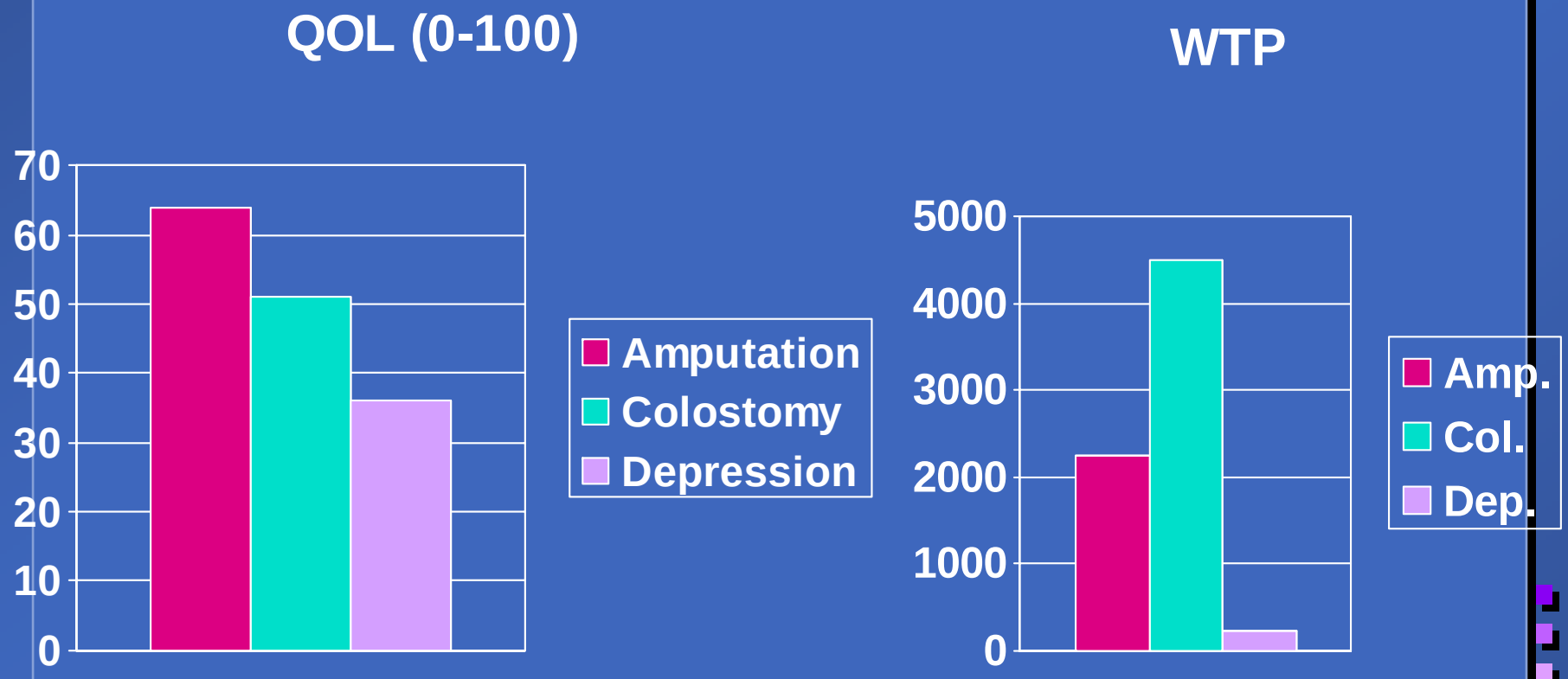




Now let's look at depression

- Ongoing depression, despite treatment
- You feel
  - Sad, downhearted most of the time
  - Tense, uncomfortable often
- You have
  - Difficulty sleeping
  - Poor appetite
  - Little interest in sex
  - A hard time concentrating…

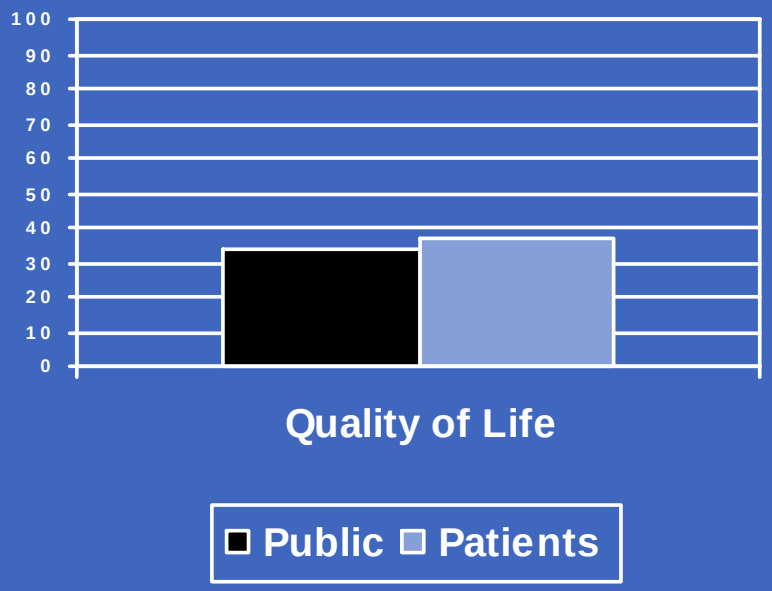
Results

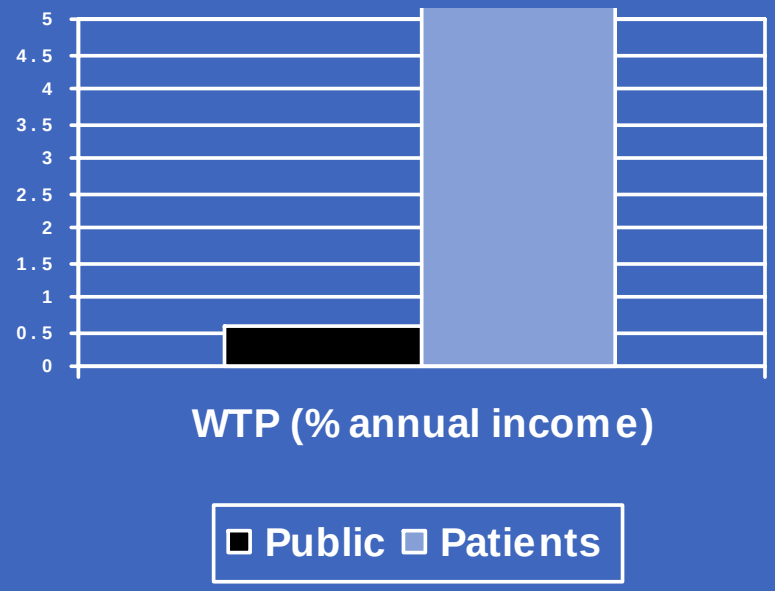


What about patients?

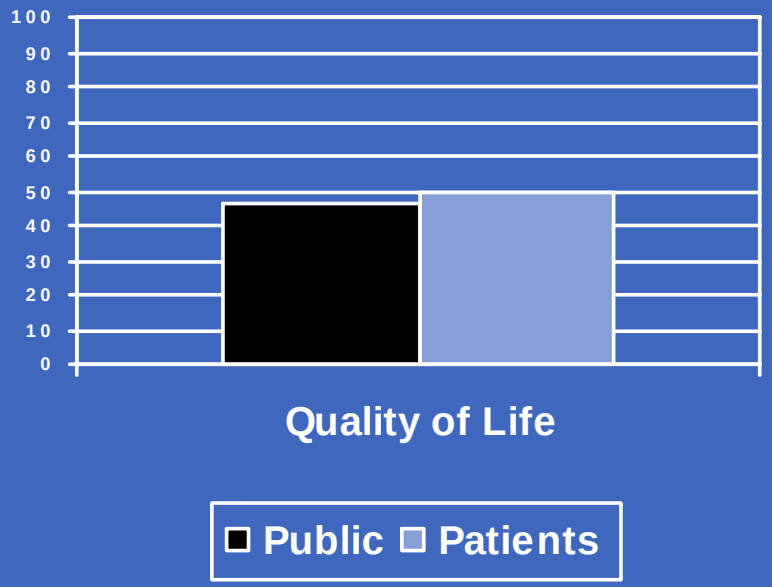
- Surveyed
  - Patients with depression
  - General public with no history of depression
- Asked them to
  - Rate QoL of depression
  - WTP to cure

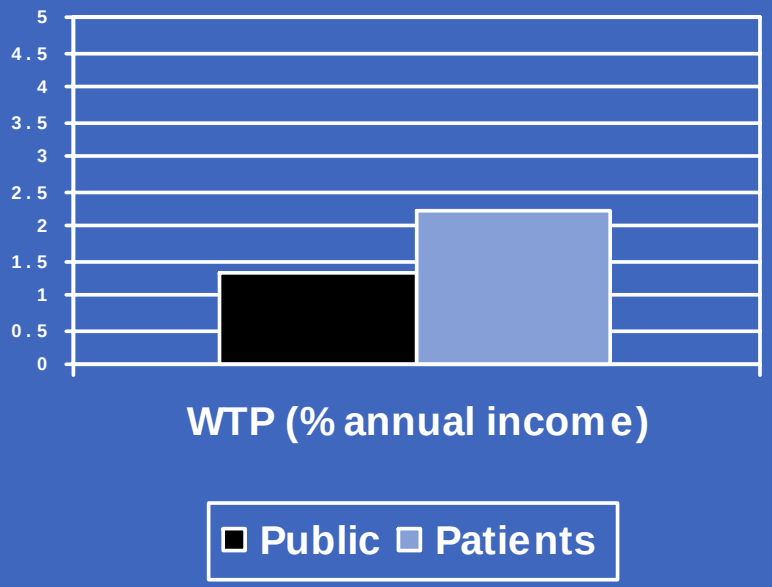
Qol vs. WTP





Qol vs.WTP: Different Population





Decision Utility and Revealed Preferences

Rational decision making and revealed preferences

- $U_a = P_1U_1 + P_2U_2 + \ldots$
- $U_b = P_7U_7 + P_8U_8 + \ldots$
- If I chose A over B
  - Then $U_a > U_b$

Flaws with revealed preference assumptions

- People mispredict utilities
  - As I've shown already
- Even given utilities
  - People don't always integrate p's and u's in rational manner

Kahneman's case against Decision Utility

- Based on
  - mispredictions of utility
  - poor integration of problem and utility

- If we want to maximize utility, we should measure experience utility and devise policies/practices that maximize it

Advantages of experience utility as welfare criterion

- People generally want to be happy
  - But they are often unaware of what would make them happy
- Recent advances allow for more accurate measures of happiness, mood and other experiences
  - Ecological Momentary Assessment
  - Experience Sampling
  - DRM
- Policy should be informed by
  - Actual experience
  - Not mispredicted experience

Current approach to experience utility

- Focus = mood
- Outcomes = maximization of mean mood
  - Integral of momentary affect
- Thus, for example
  - -3, -3, 4, 4, 4 is better than
  - 1, 1, 1, 1, 1

Limitations of Experience Utility as Welfare Criterion

A thought experiment

- Imagine that you are about to receive a below the knee amputation (BKA)
  - You will recover, physically, quickly
  - You will receive a top-of-the-line prosthesis
  - Physical function – almost normal
    - Able to play sports
    - Sprinting and jumping mildly reduced

A thought experiment - continued

- Imagine also that you completely adapt emotionally
  - Mood indistinguishable, on average, from prior to BKA
  - Some pangs of
    - Loss
    - Stigma
  - Balanced by positive emotions from lessons learned

A question about our thought experiment

- How much would you pay to avoid BKA?

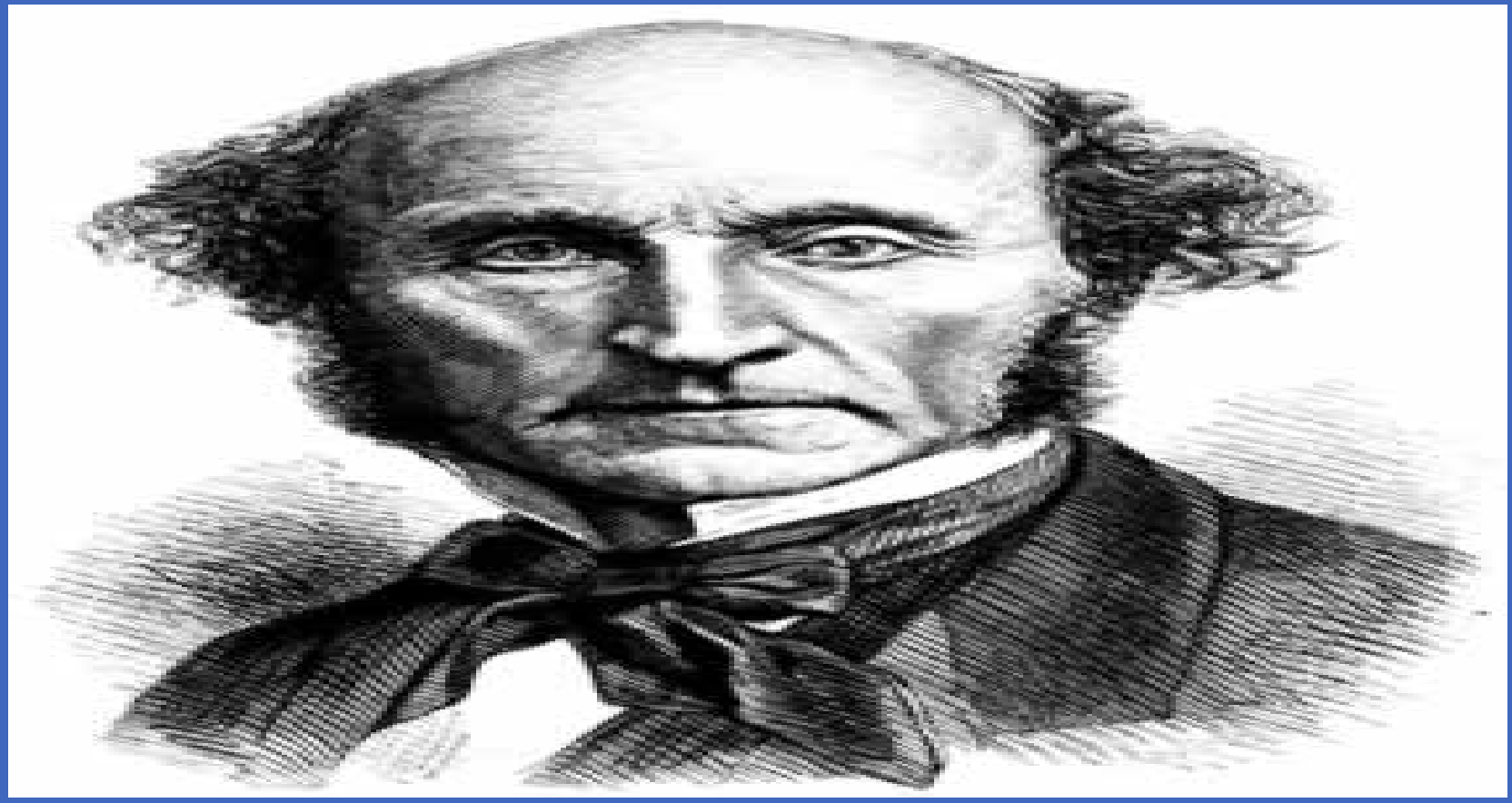
Relevance of adaptation to debate about experience utility

- If moods largely return to normal after good and bad circumstances
- Then policies based on experience utility
  - Won’t care too much about people’s circumstances

Beyond Mood

- “Experience” utility consists of things other than mood
- And “happiness” may not be what we want to maximize

John Stuart Mill



What is missing from experience utility?

- Mill's higher and lower pleasures
  - Better to be an unhappy person than a happy pig
  - Consider: wine connoisseur
- Meaning and purpose
  - Raising young children
- Evaluation of experiences matters
  - Consider two movies

What is missing from experience utility?

- Capabilities
  - Walking in the woods with your children
- Brief episodes
  - Death of a loved one
- Self-identity
  - BKA
- Moral considerations
  - I do it even though it won't make me happy

Where Do We Go From Here?

Step 1: Recognize there is no perfect solution

- Debate about “whose QALYs” to measure
  - Patients
  - Public
- Ultimately Irresolvable
  - Both groups mispredict

Step 2: Improve People's Predictions

- To extent decision utility
  - Biased by mispredictions
- We should try to improve predictions
  - Before measuring utility

Empirical exploration of distinction between experience and decision utility

- Developed intervention to help people take account of adaptation when making affective forecasts
  - Think of bad event from more than 6 months ago
    - more or less upsetting than predicted
    - emotions stronger or weaker over time?
  - List the 2 most upsetting things about becoming paraplegic
  - Do you think these 2 things would become more or less upsetting over time?

Thinking about adaptation changed QoL estimates

		QoL Rating (0 - 100)		
Disability	N	Before	After	P
Paraplegia	123	47	52	.003
Paraplegia	56	-	62	.001

Thinking about adaptation changed policy recommendations

- Given choice between saving the lives of
  - 100 people who can be returned to perfect health
  - X people who would experience onset of paraplegia
    - X = 1000
- When given same choice after thinking about adaptation
  - X = 101

Thinking about adaptation did not change decision utility

- Standard gamble to elicit utility of paraplegia
  - What chance of death would you take to be cured of paraplegia
- Time Tradeoff elicitation
  - Imagine you will live 10 more years
  - How many months of that time would you give up to be cured of paraplegia
- Adaptation exercise
  - Did not influence responses to either elicitation

These 3 studies suggest that

- Thinking about adaptation changes
  - QoL estimates
    - And potentially experience utility estimates
- But does not change
  - People's decision utility

In Conclusion

Adaptation Important for Two Reasons

1. People mispredict it
2. They value things other than happiness

Our Answer to “Whose QALYs”

- Is not a job for science alone
- We need to decide what we value
  - And what we most want to get out of health care