

MEASUREMENT OF UTILITY LOSSES IN DEPRESSION

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ABSTRACT

OBJECTIVE: To identify utility weights for use in cost-utility analyses of antidepressants.

METHODS: Systematic search of MEDLINE using search terms for depression and utility/preference weights. Utility weights by depression severity and changes in utility by response to treatment were abstracted. Methods used to derive utilities were cross-tabulated with the values obtained.

RESULTS: Six published studies were reviewed. Three studies obtained utility weights using the standard gamble (SG) method, one study used the SG and time trade-off (TTO) methods, one study used the EQ5D TTO weights, and one study used the quality of well being (QWB) scale weights. One of the SG studies compared utility for those with and without depression using a 10-year time horizon (0.942 (standard deviation (SD) 0.159) versus 0.963 (SD 0.144)). The other three SG studies compared utility for different depression severity levels and, depending on the whether the SG lottery was presented for temporary or lifetime health states, estimated utilities for severe depression were between 0.09 (SD 0.02) and 0.813 (SD 0.209) and for mild depression were between 0.59 (SD 0.02) and 0.871 (SD 0.184). Three of the six reviewed studies compared the gain in utility for those who responded to treatment to those who did not. The gain in utility for responders compared to non-responders in these studies was: 0.053 at 1 year using the SG lifetime method; 0.180 at 4 months using the QWB weights; and 0.220 at 2 months using the EQ5D TTO weights.

CONCLUSIONS: Published estimates of utility weights for people with depression and of the gains in utility in people recovering from depression vary considerably depending on the method of assessment. We recommend that utility gains for antidepressant treatments be estimated using SG for temporary health states along with sensitivity analyses using alternative methods of utility assessment.

INTRODUCTION

Most economic evaluations of antidepressants have used effectiveness measures other than quality-adjusted life years (QALYs) in the denominator including:

- Probability of remission,
- Probability of response, or
- Depression-free days.

Since QALYs are now considered the preferred effectiveness measure to use for cost-effectiveness analysis, it is critical to have credible utility weights associated with different outcomes following treatment of depression such as:

- Remission,
- Partial Response, and
- Non-Response

METHODS

A comprehensive MEDLINE search was conducted to identify studies that have estimated:

- Utility weights for those with different levels of severity of depression, and
- Utility weight changes associated with remission or partial response to depression treatment.

Key word searches were completed using the terms depression, major depressive disorder, or depressive disorder and utility or preference weights.

76 abstracts were reviewed and 6 full text papers obtained for data abstraction.

Utility weights by depression severity and changes in utility by response to treatment were abstracted. Methods used to derive utilities were cross-tabulated with the values obtained.

SUMMARY OF STUDY DESIGNS

Publication	Design
Wells KB, Sherbourne CD. Functioning and utility for current health of patients with depression or chronic medical conditions in managed, primary care practice. Arch Gen Psychiatry. 1999; 56: 897-904.	Population 750 people in the US with probable depression and 5,683 with no mental or physical complaints. Methods Cross sectional study Used time trade off (assuming 10 year-year remaining life expectancy) and standard gamble (assuming 10 year duration compared to perfect health and immediate death) for person's current health state for those with probable depression and for those with no medical complaints or depression.
Revicki DA, Wood M. Patient-assigned health state utilities for depression-related outcomes: differences by depression severity and antidepressant medications. J Affective Disorders 48; 1998: 25-36	Population 70 people being treated by primary care providers in Canada and the US for major depressive disorder Methods Cross sectional study Used standard gamble (chaining method) to estimate the utility for 11 hypothetical health states by depression severity and by treatment (nefazodone, fluoxetine, imipramine). In the chaining method, a choice was made first between a certain health state with 1-month duration and a lottery for perfect health or untreated depression for 1 month, followed by a second choice between certain untreated depression with a lifetime duration and a lottery for perfect health or immediate death
Lenert L, Sherbourne C, Sugar C, Wells K. Estimation of utilities for the effects of depression from the SF12. Med Care. 2000; 38: 763-770.	Population 140 US individuals being treated by primary care providers for depression Methods Prospective observational study over 2 years Used cluster analysis to obtain 6 health states from the SF12 including health states with mildly or severely impaired mental health. Utilities for each of these health states were estimated using the standard gamble method and lifetime duration compared to perfect health and immediate death. Change in utility over 1 and 2 years computed using the estimated health state utilities for those with remission or partial response and those with non-response.
Bennett KJ, Torrance GW, Boyle MH, Guscott R. Cost-utility analysis in depression: the McSAD utility measure for depression health states. Psychiatric Services. 2000; 51: 1171-1176.	Population 105 people in Canada with major depressive disorder in remission Methods Cross sectional study Derived utility weights using the standard gamble method for mild, moderate, and severe depression defined using the McSad questionnaire and 6-month and lifetime duration compared to perfect health and immediate death.
Pyne JM, Sieber WJ, David K, et al. Use of the quality of well-being self-administered version (QWB-SA) in assessing health-related quality of life in depressed patients. J Affect Disorders. 2003; 76: 237-247.	Design 58 people in the US being treated for major depressive disorder Methods Prospective observational study over 4 months Collected QWB-SA and depression response (50% decrease in Hamilton depression rating scale (HDRS)) data from people being treated for major depressive disorder at baseline, 4 weeks and 4 months Computed change in utility by treatment response
Sapin C, Fantino B, Nowicki M, Kind P. Usefulness of EQ-5D in assessing health status in primary care patients with major depressive disorder. Health and Quality of Life Outcomes. 2004; 2: 20	Population 250 people in France with a newly diagnosed episode of depression Methods Prospective observational study over 56 days EQ-5D measured at baseline and at 28 and 56 days. Utilities assigned using UK time trade off population weights for the EQ-5D. Data analyzed by disease severity and by response to treatment – Responder/remitter (MADRS ≤12) Responder/not remitter (>50% reduction in MADRS but MADRS >12) Non responder (<50% reduction in MADRS)

UTILITY WEIGHTS BY DISEASE SEVERITY Means (Standard Deviation)

Disease Severity	Wells et al 1999	Revicki et al 1998	Lenert et al 2000	Bennett et al 2000	Sapin et al 2004
No depression	0.963 (.144) -0.999 (.005)	0.72 (.17) 0.86 (.16)	0.944 (.206)	0.79 (.023) - lifetime	0.86 (.130)
Mild depression		0.64 (.20) 0.73 (.21)	0.871 (.184)	0.59 (.018) - 6-month	0.74 (.190)
Moderate depression		0.55 (.03) 0.63 (.23)		0.32 (.013) - 6-month	0.44 (.270)
Severe depression		0.30 (.28)	0.813 (.209)	0.04 (.016) - lifetime 0.09 (.020) - 6-month	0.30 (.270)
Depression not specified	0.942 (.159) -0.996 (.008)				
Utility Measurement Method	SG or TTO lifetime (10-year) duration	SG chaining	SG lifetime duration	SG 6-month and lifetime duration	EQ-5D profile + UK TTO weights at Day 56

- Studies have used different methods to estimate utility weights for depression by disease severity
- Utility estimates by disease severity vary according to the estimation method used
- Utility decreases as the severity of depression increases with all measurement methods

DIFFERENCE IN UTILITY BETWEEN NO/MILD DEPRESSION AND SEVERE DEPRESSION

	Revicki et al 1998	Lenert et al 2000	Bennett et al 2000	Sapin et al 2004
Difference in utility between no/mild depression and severe depression	0.56	0.13	0.50-0.75	0.56
Utility Measurement Method	SG chaining	SG lifetime duration	SG 6-month and lifetime duration	EQ-5D profile + UK TTO weights

- Difference in utility between no/mild depression and severe depression varies from 0.13 to 0.75
- Lenert's SG assuming a lifetime depression duration estimates the smallest differences in utility by depression severity

CHANGE IN UTILITY FROM START OF TREATMENT BY TREATMENT RESPONSE

	Lenert et al 2000	Sapin et al 2004	Pyne et al 2003
Time from start of treatment	1 year	56 days	4 months
Baseline Utility	Not given	0.300 - 0.350	0.410 - 0.425
Change in utility with remission/partial response	0.042	0.500	0.201
Change in utility with non-response	-0.012	0.280	0.021
Utility measurement method	SG lifetime duration	EQ-5D profile + UK TTO weights	QWB-SA scale

- Duration of follow-up is different for the three studies
- Lenert's one-step SG does not show a large difference in utility by treatment response compared to the other measurement methods

CONCLUSIONS

- One-step SG assuming a lifetime duration of depression may not be appropriate for utility assessment because people may not be willing to take a risk of immediate death for a generally short duration episodic illness
- Chaining SG or profile methods using the EQ-5D and time trade-off weights appear to give similar results
- Utility weights vary among individuals but the standard deviation was always lower than the mean in the studies reviewed
- Change in utility weights with treatment response varies with the method used to assess utility
- Cost-utility ratios for depression treatment will be sensitive to the utility assessment method
- Sensitivity analyses should be performed to capture the impact of the uncertainty in utility gains with treatment