ORIGINAL ARTICLE

Functioning and Utility for Current Health of Patients With Depression or Chronic Medical Conditions in Managed, Primary Care Practices

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Background: Health utility is the recommended outcome metric for medical cost-effectiveness studies. We compared health utility and quality of life for primary care patients with depression or chronic medical conditions.

Methods: Respondents were outpatients (N = 17 558) of primary care clinicians (N = 181) in 7 managed care organizations. Utility was assessed by time tradeoff, or the years of life that patients would exchange for perfect health, and standard gamble, or the required chance of success to accept a treatment that can cause immediate death or survival in perfect health. Probable 12-month depressive disorder and affective syndromes were assessed through self-report items from a diagnostic interview. Medical conditions were assessed with self-report. Quality of life was assessed by the 12-Item Short-Form Health Survey. Regression models were used to compare quality of life and utility for patients with depression vs chronic medical conditions.

Results: Patients with probable 12-month depressive disorder had worse mental health and role-emotional and social functioning and lower utility for their current health than patients with each chronic medical condition (for most comparisons, $P<.001$). Depressed patients had worse physical functioning than patients with 4 common chronic conditions but better physical functioning than patients with 4 other conditions (each $P<.001$). Patients with lifetime bipolar illness and 12-month double depression had the poorest quality of life and lowest utility.

Conclusions: Primary care patients with depressive conditions have poorer mental, role-emotional, and social functioning than patients with common chronic medical conditions, and physical functioning in the midrange. The low utility of depressed patients relative to patients with chronic medical conditions suggests that recovery from depression should be a high practice priority.

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DEPRESSION is associated with limitations in multiple domains of health-related quality of life (HRQOL), defined as perceptions of daily functioning and well-being in physical, social, and psychological domains, that equal or exceed those associated with most common chronic medical conditions, such as arthritis or diabetes.[1-4] Yet, levels of detection and treatment for depression in managed care, primary care settings remain moderate at best.[5-9] One factor that could contribute to low treatment rates is the perception of patients that recovery from depression is a relatively low priority relative to recovery from common medical conditions that are physically limiting. In this article, we compare both HRQOL and utility for current health of primary care patients with depression or chronic medical conditions.

Utility is defined as "the preference of the patient for a particular health outcome or health status."[9] A lower utility for a condition means a higher preference for recovery from that state. The ability to compare utility for diverse health states is a main reason why it is the recommended outcome for cost-effectiveness analyses.[9] Because of the low relative HRQOL of depressed patients, and because utility tends to be lower with more severe symptoms,[10,11] we hypothesize that utility for current health will also be at least as low for depressed patients as for those with chronic medical conditions. As a context for these comparisons, we also replicate previous comparisons by Wells et al[3] of depression and chronic medical conditions in mental and physical HRQOL.

Depression is a heterogeneous condition, and utility could also vary across different subtypes. Thus, we also explore differences in HRQOL and utility among subgroups of patients who screen positive for probable major depression, dysthymic disorder, subthreshold depressive symptoms, and bipolar disorder. We hypothesized that patients with more se-

METHODS

Data were gathered at the baseline assessment for Partners in Care, an experiment to evaluate the cost-effectiveness of improving quality of care for depression in primary care, managed care practices.[12]

SAMPLING

We selected 6 managed care organizations by purposive sampling from diverse geographic sites and included organizations with high enrollment of Hispanics. The organizations included staff-model health maintenance organizations, multispecialty group practices under a single prepaid health plan or a network of plans, and managed, public health clinics. Informed consent was obtained from clinicians. Of 183 eligible primary care clinicians, 181 agreed to participate. A consecutive sample of adult visitors was asked to complete a 10-minute self-report patient screener in Spanish or English. Informed consent was not obtained from patients because no identifiable information was collected, as approved by the Human Subjects Protection Committees of RAND, Santa Monica, Calif, and the organizations.

To enable the intervention study, the sample was restricted to patients with insurance that covered the mental health specialists fielding the interventions. In 4 organizations, virtually all patients were eligible. In one site, the study was limited to patients with prepaid plans, while in another it was restricted to those with prepaid plans and about 50% of those with fee-for-service plans. Across sites, staff approached 44 052 individuals, of whom 10 120 (23.0%) were ineligible, ie, younger than 18 years, ineligible insurance, or there for laboratory studies only or accompanying a patient. Of 33 932 eligible patients, 6600 (19.5%) refused the survey, and 27 332 agreed. This article excludes surveys completed in Spanish (n = 1754), because the items assessing utility were worded differently. The items used to measure utility were at the end of the survey, and 7211 English-speaking respondents (29.8%) did not complete them because they had to leave the clinic, so we excluded them, as well as an additional 809 patients (3.3%) who were missing data on age or depression. The analytic sample consisted of 17 558 patients. Persons who completed the items were younger and in better perceived general health ($P<.001$), more likely to be depressed ($P<.02$), and disproportionately from 2 sites. These factors explained only 5% of variance in response, however. We controlled for these factors in analyses and weighted the data for probability of participation and response.

MEASUREMENT OF HEALTH STATUS

Probable 12-month depressive disorder was assessed through self-report versions of stem items (E1, 2, 34) for *DSM-IV* major depressive and dysthymic disorder[13] of the 12-month Composite International Diagnostic Interview Version 2.1 (CIDI-12, 2.1).[14] These items ask whether there was a period of 2 weeks or more of daily sadness, depressed mood, or lack of interest in usual pleasurable activities in the past 12 months, or a 2-year or longer period of nearly daily depression or lack of interest extending into the last 12 months. In addition, we included 2 items to assess whether the respondent had had 1 week or more of daily depression or lack of interest in the past 30 days. We define *probable 12-month depressive disorder* as having a positive response on both a 12-month and a 30-day item. This criterion had a positive predictive value of 55% for 12-month major depressive or dysthymic disorder, based on 1485 study patients who, at the time of enrollment, completed the CIDI-12, 2.1 affective disorders section in person or by telephone.[14] Because the CIDI-12 requires a positive stem item to score disorder, the sensitivity of this criterion is by definition 100%. We conducted a methods study in which persons who scored positive on the 12-month items but negative on the 30-day items underwent a verbal repeat of the interview, and 10% at that step were positive. Thus, true sensitivity is somewhat below 100%.

We developed indicator variables defining probable affective syndromes, using the depression items and 2 stem items from the lifetime mania section of the lifetime version of the CIDI 2.1. We considered persons with any positive mania item to have probable lifetime bipolar disorder. Those who scored negative on mania but positive on the 12-month depression stem items were considered to have major depression only, dysthymia only, or double depression (concurrent major depression and dysthymia), depending on which stem items were positive. Those with all stem items negative but who reported

vere types, particularly bipolar disorder and concurrent major depression and dysthymic disorder, or double depression, will have the lowest utility for their current health.

RESULTS

The patients were diverse in age and ethnicity, eg, 16.9% were Hispanic (**Table 1**). The majority (62.0%) were women. The most common conditions were back problems (24.9%), arthritis (20.1%), hypertension (20.0%), and migraine (15.2%), while 16.5% had probable 12-month depressive disorder. The percentage with any affective syndrome was higher (33.5%) because it included persons with lifetime mania or either 12-month or 30-day symptoms. The most common syndrome was 12-month major depression only (19.8%). **Table 2** provides descriptive statistics for the HRQOL measures and for the TTO and SG for the whole sample and among those with less than the maximum utility, ie, greater than 0 on TTO or less than 100 on SG. Only 19.6% of patients were willing to trade any months of life for perfect health (by TTO), and these patients were on average willing to trade 39 days. Only 20.5% of patients were willing to accept anything less than a 100% chance of success to try a treatment that would offer either immediate death or cure (by SG), and on average these patients required a 74% chance of success to accept the treatment.

Table 3 describes HRQOL and utility of current health (unadjusted) for patients with depression only, both depression and a chronic medical condition, a medical condition only, or neither problem. On each HRQOL and utility measure, the differences among groups was highly statistically significant (each $P<.001$). By inspection of Table 3, mental HRQOL was poorest for those with depression and physical functioning was poorest for those

30-day symptoms were considered to have symptoms only. The remainder had no affective syndrome. Because we cannot directly test the validity of these screening measures, we consider the analyses to be exploratory.

We assessed current chronic medical conditions with a self-report checklist, derived from the Medical Outcomes Study.[5] The conditions were asthma, diabetes, hypertension, arthritis, migraine headaches, and chronic lung, neurologic, heart, gastrointestinal tract, vision, and back problems. The items assessed whether the individual currently had each condition. We assessed current HRQOL through the 12-Item Short-Form Health Survey (SF-12). We used the global mental and physical scales, which have excellent reliability and construct validity and account for more than 90% of the variance in longer-form measures.[15] These scales are standardized to a US adult general population mean of 50 and SD of 10 by means of norm-based scoring. Some physical items have a negative weight on the mental score, while psychological items have a negative weight on the physical score. As a result, the impact of depression on physical health may be underestimated while the impact of medical conditions on mental health may be underestimated.[16] Furthermore, some psychological items directly assess symptoms of depression, so it can be unclear whether an association with depression simply reflects the autocorrelation of depressive symptoms across measures. To avoid these problems, we also used the physical functioning items of the SF-12 (plus an additional item on vigorous activities from the SF-36) to create a physical functioning score (standardized on a 0-100 scale, with a higher score indicating better health), and the SF-12 social limitation and role-emotional limitation items to represent mental health (each standardized to a 0-100 scale, with a lower score indicating fewer limitations).

MEASUREMENT OF UTILITY

To assess utilities in a large sample at a reasonable cost, we opted for single-item measures of 2 standard approaches, the time tradeoff (TTO) (ie, years of life an individual is willing to give up for perfect health until death, relative to 10 years in a given health state) and the standard gamble (SG) (ie, the required chance for outcome success to accept a treatment that can result in either immediate death or perfect health, relative to living another 10 years in their current state of health).[17-19] One-day test-retest reliability on a different sample of 228 patients showed good reliability (Spearman correlation coefficients of 0.8 for TTO and 0.7 for SG).

For the TTO, patients were asked to imagine that there is a treatment that would permit them to live in perfect physical and mental health but that reduces life expectancy. Patients indicated how many months or years they would give up for a treatment that would allow them to live in perfect health, if they had 10 years to live. Maximum utility for current health is represented by a score of 0, and a higher TTO score indicates lower utility for current health. For the SG, patients were asked to imagine they had 10 years to live in their current state of health, both physical and mental, and that there was a treatment that could either give them perfect health or kill them immediately. Patients were asked to indicate what chance of success the treatment had to have before they would accept it. Maximum utility for current health is represented by 100, and a lower score on SG indicates lower utility.

ANALYSIS

To compare patients with depression or chronic medical conditions, we estimated multiple linear regression models. The dependent variables were the HRQOL and utility measures. The main independent variables were probable 12-month depressive disorder and the 11 chronic medical conditions. The covariates were patient demographics (age, sex, education, ethnic group, and site). In separate runs, we added the global physical and mental HRQOL scales as covariates to the TTO and SG analyses, to test whether depressed patients have lower utility than would be predicted from their HRQOL alone. We conducted parallel analyses using the affective syndrome indicators. Although individuals are clustered within providers and clinics, the intraclass correlations are less than 0.001, ie, trivial. We present results without adjustment for clustering.[20,21] We present adjusted means, controlling for all covariates in the regression. Because we report many significant findings in a consistent direction, a formal Bonferroni correction[22] for hypothesis testing is too conservative. We focus on results significant at .005 or better. All data are weighted to the characteristics of the full primary care patient population.

with a medical condition. Utility for current health was lowest, on both TTO and SG, for patients with both types of conditions, intermediate for patients with one type, and highest for patients with neither type.

Table 4 shows the adjusted mean HRQOL and utility for patients with and without each condition. The conditions can be grouped into (1) those associated with poorer HRQOL and lower utility across measures (depression; diabetes; chronic lung, neurologic, gastrointestinal tract, or back problems; or migraine); (2) those affecting physical HRQOL only (asthma, hypertension); and (3) those affecting HRQOL and utility, but not mental or role-emotional functioning (arthritis, heart disease, eye problems). This statement is based on the difference scores in Table 4 with $P<.001$.

Table 5 compares patients with depression and specific chronic conditions, adjusting for covariates. On global mental health, role-emotional, and social functioning, depressed patients had significantly worse HRQOL than did patients with each of the chronic medical conditions (each $P<.001$). The magnitude of the differences in global mental health, 13 to 15 points, was greater than 1 SD, a large effect. By the global physical scale, patients with 9 chronic conditions (all but asthma and hypertension) had worse physical HRQOL than depressed patients (each $P<.001$). However, patients with depression had worse physical functioning than did patients with asthma, hypertension, gastrointestinal tract problems, or migraines, while depressed patients had better physical function than patients with chronic lung, neurologic, heart, or back problems (each $P<.001$). The magnitude of the differences in physical functioning was 3 to 7 points, about one-fifth to one-tenth SD. A difference of 2 to 3 points on the parent instrument is often considered clinically meaningful. As shown in Table 5, depressed patients had lower utility for their current health by either TTO (a higher

Table 1. Characteristics of Primary Care Patients (Screened Sample With Utility Measures, N = 17 558)

	Actual No.	Weighted %
Age group, y		
17-24	1570	8.8
25-44	7512	42.7
45-54	3745	21.5
55-64	2128	12.3
65-69	1045	5.9
≥70	1558	8.8
Female sex	11 004	62.0
Ethnic groups (main)		
Hispanic	3071	16.9
African American	1352	7.9
Asian American	586	3.4
American Indian	560	3.2
European American	11 989	68.6
Education group, y		
<12	1329	7.5
12	4869	27.6
13-15	5513	31.3
≥16	5847	33.5
Current chronic condition		
Asthma	1550	8.8
Diabetes	1496	8.6
Hypertension	3492	20.0
Arthritis	3532	20.1
Chronic lung disease	695	4.0
Chronic neurologic disease	371	2.1
Heart disease	717	4.1
Chronic gastrointestinal tract disease	1517	8.7
Back problems	4378	24.9
Eye problems	1639	9.3
Migraines	2685	15.2
Probable depressive disorder	2896	16.5
Affective syndromes		
Lifetime bipolar (manic symptoms)	331	1.9
12-mo double depression	944	5.3
12-mo major depression	3479	19.8
12-mo dysthymia	151	0.9
1-mo symptoms only	987	5.6
No affective syndrome	11 666	66.5

Table 2. Health-Related Quality of Life and Utility of Primary Care Patients (N = 17 558)

	Weighted Mean (SD)	Range
Health-related quality of life		
Global physical*	48.0 (9.9)	11.0-67.9
Physical functioning*	74.3 (30.1)	0-100
Global mental*	50.2 (10.2)	9.0-71.0
Limited emotional role functioning†	19.8 (36.5)	0-100
Limited social functioning†	18.7 (27.9)	0-100
Utility		
Time tradeoff	7.7 (23.4)	0-120
Mean if >0‡	39.2 (39.4)	1-12
Standard gamble	94.6 (16.8)	0-100
Mean if <100§	73.9 (28.8)	0-99

**A high score represents good health.*
†A high score represents poor health.
‡Included 19.6% (n = 3443).
§Included 20.5% (n = 3612).

score) or SG (a lower score) than did patients with each chronic medical condition. Most comparisons were highly significant, except neurologic conditions by TTO or SG and chronic lung or heart problems by SG.

When we added global mental and physical scales as covariates, depressive disorder retained a unique effect in predicting TTO (the depression coefficient had $t = 3.76$, $P<.001$). Furthermore, for SG (but not TTO), there were significant interaction terms between depression status and global mental and physical HRQOL (the pair of coefficients in the regression had $F_{2,45} = 5.42$; $P = .008$). Reductions in HRQOL lowered utility of current health more for depressed than for nondepressed patients. Stratified analyses indicate that for both depressed and nondepressed patients, those with worse mental and physical HRQOL had lower utility for their current health.

As shown in **Table 6**, patients with each of the affective syndromes had significantly worse physical functioning and global mental health and lower utility by TTO than did patients without an affective syndrome (each $P<.001$). By SG, patients with dysthymia only or 30-day depressive symptoms only did not differ significantly in utility for their current health from patients with no affective syndrome. For HRQOL, the syndromes can roughly be ordered from worst to best health: 12-month double depression, lifetime bipolar, 12-month major depression only, 12-month dysthymia only, and 30-day symptoms only. Furthermore, utility for current health was significantly lower for patients with either 12-month double depression or lifetime bipolar disorder compared with patients with each of the other affective syndromes (data available from the authors).

COMMENT

We found that depressed patients place a lower utility on their current health than do patients with most common, chronic medical conditions, other factors being equal. This finding suggests that primary care practices should place a relatively high emphasis on helping patients recover from depression. This does not mean that patients will necessarily accept treatments, however. We did not directly measure patient preferences for treatments or resource allocation. Depressed patients could refuse treatments, for example, if they believe treatment is not efficacious, deny having depression, fear social stigma associated with treatment, or experience financial or other barriers to care.[1,5] Our finding of a relatively low utility for health states associated with depression is consistent with previous studies, based on data from patient or community samples with hypothetical case scenarios or vignettes, or ratings of current health.[10,11,23-25] What is new in our study is the availability of evidence from a large, consecutive sample of primary care patients from multiple managed care practices, and comparisons of both HRQOL and utility assessment across disease conditions.

Consistent with the previous work of Wells et al from the Medical Outcomes Study,[5] we found substantial decrements in physical and mental HRQOL associated with depression, equal to or often exceeding decrements as-

Table 3. Unadjusted Weighted Health and Utility by Depression and Chronic Condition Status for Primary Care Patients (N = 17 558)

	Probable Depression Only, Mean (SD) (n = 750)	Depression and Medical Condition, Mean (SD) (n = 2146)	Medical Condition Only, Mean (SD) (n = 8979)	Neither, Mean (SD) (n = 5683)	Overall Difference	
					$F_{3,17\,554}$	P*
Health-related quality of life						
Physical functioning†	83.6 (24.8)	56.5 (34.3)	69.4 (30.3)	87.5 (22.1)	877.36	<.001
Global physical†	53.2 (8.7)	43.2 (11.5)	46.0 (10.0)	52.3 (6.7)	945.34	<.001
Global mental†	36.6 (11.2)	36.3 (10.6)	52.9 (7.9)	53.1 (7.2)	2041.31	<.001
Limited emotional role functioning‡	55.7 (44.4)	61.2 (30.2)	13.3 (30.6)	9.6 (26.5)	1101.98	<.001
Limited social functioning‡	36.6 (28.6)	47.1 (30.2)	16.0 (25.5)	10.8 (23.3)	859.27	<.001
Utility						
Time tradeoff	13.2 (29.9)	16.2 (31.9)	6.8 (21.9)	5.2 (19.8)	85.31	<.001
No. (%) >0	228 (30.5)	754 (35.0)	1620 (18.0)	841 (14.8)	...	
Mean if >0	43.3 (40.9)	46.1 (39.0)	37.6 (38.5)	35.1 (40.0)	...	
Standard gamble	94.2 (15.9)	90.0 (21.6)	94.8 (16.8)	96.3 (14.4)	54.26	<.001
No. (%) <100	192 (25.7)	701 (32.5)	1771 (19.7)	948 (16.7)	...	
Mean if <100	77.6 (25.0)	69.1 (28.1)	73.4 (29.2)	77.6 (28.6)	...	

*Ellipses indicate not applicable.
†A high score represents good health.
‡A high score represents poor health.

sociated with common chronic medical conditions. Our conclusions about mental HRQOL are consistent across several measures, but our conclusions about physical HRQOL depended on the measure. The results for the global physical scale suggested that depressed patients had better physical HRQOL than patients with chronic medical conditions; on a pure physical limitations measure, however, depressed patients were in the midrange of the medical conditions. This difference may result from a methods effect, ie, the negative weighting of mental health items on the global scale, or from different results for different physical health items that contribute to the global scale. This is an important area for further research and scale development.

The HRQOL and utility described for depressed patients could also result from unmeasured comorbidities, particularly anxiety disorders. However, others have reported less marked effects on HRQOL for anxiety than depressive disorders.[2] In sensitivity analyses, we obtained the same results when controlling for comorbid alcohol abuse, assessed with an established screener.[25] The same criticism applies to findings for the medical conditions.

We also found that depressed patients had lower utility than nondepressed patients even after controlling for global mental and physical HRQOL scores. That is, the HRQOL scales did not fully account for the lower utility for current health of depressed patients. There may be something particularly aversive about severe affective states, such as fear of loss of control or social stigma, that is conceptually distinct from HRQOL, or the SF-12 measures may not be sufficiently comprehensive to capture the health states relevant to depressed patients.[16] This is an important area for further research given that the SF-12 is widely used and several investigators have proposed it as one efficient means for assessing utility in patient and community populations.[26,27] Another explanation could be that depressed patients may be especially prone cognitively to consider gambling with a chance of death to achieve perfect health on the SG item. However, we do not think that the low utility for current health of depressed patients can be explained by the negativistic cognition associated with depression,[28] because poor mental HRQOL was associated with lower utility for current health for both depressed and nondepressed patients.

Utility could differ for patients with depression and chronic medical conditions because of differences in acuteness of symptoms. Depressed patients had to have recent symptoms, but not patients with chronic medical conditions. However, this is also the nature of differences in conditions. Furthermore, the medical conditions reported were current, were associated with decrements in HRQOL, and thus were symptomatic. These self-report conditions are positively associated with clinician interview measures.[29] In addition, the relative order of utility for current health by TTO among patients with arthritis, diabetes, heart disease, and depression in our study was similar, despite different assessment and scoring methods, to those reported for a community sample.[23]

Using screening measures of affective syndromes, we found that patients with more severe syndromes, ie, 12-month double depression and lifetime bipolar illness, had worse HRQOL and lower utility for their current health than did patients with major depression, dysthymia, or depressive symptoms only. Patients with each syndrome had poorer HRQOL and lower utility for their current health than did patients without any affective syndrome. These findings emphasize the clinical importance of diverse affective states and suggest that even simple screening measures can help identify important impacts of affective conditions in large samples. It seems clinically reasonable that screens for lifetime bipolar illness and recent double depression would be associated with particularly adverse HRQOL and low utility, given the chronicity and recurrence associated with the full disorders.

Our study has limitations. We used brief screening measures of conditions. Rather than asking individuals

Table 4. Adjusted Profile of Health and Utility of Primary Care Patients With and Without Probable Depression and Specific Chronic Medical Conditions (N = 17 558)*

	Physical		Mental			Utility	
Health Condition	Global Physical†	Physical Functioning†	Global Mental†	Role-Emotional Functioning‡	Social Functioning‡	Time Tradeoff	Standard Gamble
Probable depression							
No	48.12 (0.08)	75.71 (0.24)	52.77 (0.06)	12.39 (0.25)	14.56 (0.21)	6.40 (0.18)	95.23 (0.14)
Yes	47.31 (0.19)	66.98 (0.57)	37.28 (0.20)	57.32 (0.83)	39.97 (0.56)	14.28 (0.58)	91.62 (0.38)
No – yes	–0.81 (0.20)	–8.73 (0.60)	–15.50 (0.22)	44.93 (0.88)	25.41 (0.60)	7.88 (0.61)	–3.61 (0.40)
t Test (*P*)	–4.07 (<.001)	–14.59 (<.001)	–71.65 (<.001)	51.15 (<.001)	42.24 (<.001)	12.91 (<.001)	–8.96 (<.001)
Asthma							
No	48.05 (0.08)	74.67 (0.24)	50.20 (0.08)	19.76 (0.29)	18.76 (0.22)	7.65 (0.19)	94.69 (0.13)
Yes	47.33 (0.23)	70.25 (0.71)	50.52 (0.23)	19.74 (0.89)	18.43 (0.70)	8.10 (0.65)	94.13 (0.48)
No – yes	–0.73 (0.24)	–4.42 (0.74)	0.31 (0.23)	–0.02 (0.93)	–0.32 (0.73)	0.45 (0.68)	–0.56 (0.50)
t Test (*P*)	–3.09 (.002)	–5.98 (<.001)	1.35 (.18)	–0.02 (.98)	–0.44 (.66)	0.65 (.51)	–1.11 (.27)
Diabetes							
No	48.26 (0.08)	74.93 (0.24)	50.29 (0.08)	19.59 (0.29)	18.47 (0.22)	7.50 (0.18)	94.92 (0.13)
Yes	45.07 (0.25)	67.30 (0.80)	49.65 (0.23)	21.62 (0.92)	21.48 (0.75)	9.71 (0.70)	91.58 (0.57)
No – yes	–3.19 (0.26)	–7.63 (0.83)	–0.64 (0.24)	2.03 (0.96)	3.01 (0.78)	2.21 (0.73)	–3.34 (0.60)
t Test (*P*)	–12.30 (<.001)	–9.20 (<.001)	–2.70 (.007)	2.12 (.03)	3.87 (<.001)	3.00 (.003)	–5.62 (<.001)
Hypertension							
No	48.17 (0.08)	74.92 (0.26)	50.27 (0.08)	19.52 (0.31)	18.73 (0.24)	7.72 (0.20)	94.67 (0.15)
Yes	47.25 (0.16)	71.73 (0.50)	50.07 (0.15)	20.71 (0.60)	18.73 (0.48)	7.59 (0.42)	94.53 (0.32)
No – yes	–0.93 (0.18)	–3.19 (0.56)	–0.21 (0.16)	1.19 (0.66)	0.01 (0.54)	–0.13 (0.47)	–0.14 (0.37)
t Test (*P*)	–5.16 (<.001)	–5.72 (<.001)	–1.28 (.20)	1.80 (.07)	0.02 (.99)	–0.27 (.79)	–0.38 (.71)
Arthritis							
No	48.86 (0.08)	76.36 (0.25)	50.22 (0.08)	19.44 (0.31)	18.32 (0.24)	7.37 (0.20)	94.88 (0.15)
Yes	44.54 (0.18)	66.00 (0.54)	50.28 (0.16)	21.02 (0.62)	20.35 (0.48)	8.96 (0.47)	93.68 (0.34)
No – yes	–4.32 (0.20)	–10.36 (0.60)	0.06 (0.17)	1.58 (0.69)	2.03 (0.55)	1.59 (0.52)	–1.20 (0.39)
t Test (*P*)	–21.38 (<.001)	–17.16 (<.001)	0.37 (.71)	2.30 (.02)	3.71 (<.001)	3.04 (.002)	–3.101 (.002)
Chronic lung disease							
No	48.19 (0.08)	74.88 (0.23)	50.29 (0.08)	19.55 (0.28)	18.47 (0.22)	7.65 (0.18)	94.74 (0.13)
Yes	43.12 (0.39)	59.76 (1.22)	48.85 (0.36)	24.76 (1.49)	25.08 (1.13)	8.77 (1.02)	92.24 (0.89)
No – yes	–5.07 (0.40)	–15.12 (1.25)	–1.44 (0.36)	5.21 (1.52)	6.61 (1.15)	1.12 (1.05)	–2.50 (0.90)
t Test (*P*)	–12.71 (<.001)	–12.15 (<.001)	–3.99 (<.001)	3.44 (.001)	5.75 (<.001)	1.07 (.29)	–2.76 (.006)
Chronic neurologic disease							
No	48.11 (0.08)	74.60 (0.23)	50.27 (0.08)	19.60 (0.28)	18.50 (0.21)	7.60 (0.18)	94.71 (0.13)
Yes	42.35 (0.54)	59.58 (1.72)	48.56 (0.48)	27.08 (1.93)	29.56 (1.53)	12.07 (1.64)	91.24 (1.20)
No – yes	–5.76 (0.54)	–15.02 (1.74)	–1.71 (0.48)	7.48 (1.95)	11.06 (1.55)	4.47 (1.65)	–3.47 (1.22)
t Test (*P*)	–10.63 (<.001)	–8.65 (<.001)	–3.57 (<.001)	3.84 (<.001)	7.15 (<.001)	2.71 (.007)	–2.86 (.004)
Heart disease							
No	48.17 (0.08)	74.86 (0.23)	50.24 (0.08)	19.68 (0.28)	18.55 (0.22)	7.69 (0.18)	94.75 (0.13)
Yes	43.67 (0.40)	60.73 (1.21)	49.97 (0.32)	21.67 (1.31)	22.86 (1.10)	7.80 (0.94)	91.99 (0.83)
No – yes	–4.50 (0.41)	–14.14 (1.23)	–0.28 (0.32)	2.00 (1.33)	4.30 (1.12)	0.11 (0.96)	–2.76 (0.85)
t Test (*P*)	–11.01 (<.001)	–11.46 (<.001)	–0.87 (.39)	1.50 (.14)	3.84 (<.001)	0.11 (.91)	–3.24 (.001)
Gastrointestinal tract disease							
No	48.18 (0.08)	74.65 (0.24)	50.37 (0.08)	19.41 (0.29)	18.24 (0.22)	7.35 (0.18)	94.71 (0.13)
Yes	46.01 (0.25)	70.39 (0.77)	48.81 (0.24)	23.43 (0.96)	23.90 (0.71)	11.33 (0.77)	93.87 (0.51)
No – yes	–2.17 (0.26)	–4.26 (0.79)	–1.56 (0.25)	4.02 (1.00)	5.66 (0.74)	3.98 (0.80)	–0.84 (0.53)
t Test (*P*)	–8.52 (<.001)	–5.37 (<.001)	–6.23 (<.001)	4.01 (<.001)	7.67 (<.001)	4.97 (<.001)	–1.58 (.11)
Back problems							
No	49.23 (0.08)	77.42 (0.25)	50.28 (0.09)	19.07 (0.31)	17.49 (0.24)	7.36 (0.20)	94.69 (0.15)
Yes	44.26 (0.15)	64.80 (0.45)	50.09 (0.14)	21.85 (0.55)	22.45 (0.42)	8.67 (0.38)	94.48 (0.26)
No – yes	–4.97 (0.17)	–12.63 (0.50)	–0.19 (0.15)	2.79 (0.61)	4.95 (0.47)	1.31 (0.43)	–0.22 (0.31)
t Test (*P*)	–29.18 (<.001)	–25.05 (<.001)	–1.25 (.21)	4.57 (<.001)	10.52 (<.001)	3.05 (.002)	–0.70 (.48)
Eye problems							
No	48.23 (0.08)	74.93 (0.24)	50.42 (0.08)	19.10 (0.29)	18.21 (0.22)	7.57 (0.19)	94.74 (0.14)
Yes	45.60 (0.25)	67.93 (0.74)	48.38 (0.23)	26.23 (0.96)	23.78 (0.71)	8.91 (0.68)	93.61 (0.49)
No – yes	–2.64 (0.26)	–7.00 (0.78)	–2.04 (0.24)	7.13 (1.00)	5.57 (0.75)	1.34 (0.72)	–1.14 (0.52)
t Test (*P*)	–10.29 (<.001)	–9.03 (<.001)	–8.46 (<.001)	7.13 (<.001)	7.48 (<.001)	1.87 (.06)	–2.20 (.03)
Migraine							
No	48.25 (0.08)	74.72 (0.24)	50.47 (0.08)	19.05 (0.30)	17.95 (0.23)	7.47 (0.19)	94.86 (0.14)
Yes	46.52 (0.18)	71.82 (0.55)	48.92 (0.18)	23.75 (0.72)	23.08 (0.53)	8.90 (0.51)	93.37 (0.36)
No – yes	–1.73 (0.19)	–2.90 (0.58)	–1.55 (0.19)	4.70 (0.78)	5.13 (0.57)	1.43 (0.56)	–1.49 (0.39)
t Test (*P*)	–9.04 (<.001)	–4.96 (<.001)	–8.06 (<.001)	6.04 (<.001)	8.94 (<.001)	2.57 (.01)	–3.83 (<.001)

**Unless otherwise indicated, data are given as mean (SE).*
†A high score represents good health.
‡A high score represents poor health.

Table 5. Adjusted Difference in Health and Utility for Depression Relative to Specific Medical Chronic Conditions, Primary Care Patients (N = 17 558)*

	Physical		Mental			Utility	
Condition	Global Physical†	Physical Functioning†	Global Mental†	Role-Emotional Functioning‡	Social Functioning‡	Time Tradeoff	Standard Gamble
Asthma	−0.08 (0.31)	−4.32 (0.95)	−15.81 (0.32)	44.95 (1.29)	25.73 (0.94)	7.44 (0.94)	−3.06 (0.65)
t Test (*P*)	−0.27 (.79)	−4.56 (<.001)	−49.76 (<.001)	34.91 (<.001)	27.36 (<.001)	7.91 (<.001)	−4.73 (<.001)
Diabetes	2.39 (0.33)	−1.10 (1.04)	−14.86 (0.33)	42.90 (1.32)	22.40 (1.00)	5.68 (0.97)	−0.27 (0.71)
t Test (*P*)	7.15 (<.001)	−1.06 (.29)	−45.28 (<.001)	32.46 (<.001)	22.41 (<.001)	5.87 (<.001)	−0.38 (.70)
Hypertension	0.12 (0.27)	−5.55 (0.82)	−15.29 (0.27)	43.74 (1.11)	25.40 (0.81)	8.01 (0.79)	−3.48 (0.55)
t Test (*P*)	0.45 (.65)	−6.80 (<.001)	−55.90 (<.001)	39.42 (<.001)	31.51 (<.001)	10.20 (<.001)	−6.30 (<.001)
Arthritis	3.51 (0.29)	1.63 (0.87)	−15.56 (0.28)	43.35 (1.14)	23.38 (0.82)	6.29 (0.81)	−2.42 (0.57)
t Test (*P*)	12.12 (<.001)	1.88 (.06)	−55.03 (<.001)	38.07 (<.001)	28.41 (<.001)	7.81 (<.001)	−4.27 (<.001)
Chronic lung disease	4.26 (0.45)	6.39 (1.39)	−14.06 (0.43)	39.72 (1.79)	18.80 (1.31)	6.76 (1.23)	−1.12 (1.00)
t Test (*P*)	9.48 (<.001)	4.59 (<.001)	−32.70 (<.001)	22.21 (<.001)	14.38 (<.001)	5.52 (<.001)	−1.12 (.26)
Neurologic disease	4.96 (0.59)	6.29 (1.85)	−13.79 (0.54)	37.45 (2.20)	14.35 (1.69)	3.42 (1.76)	−0.14 (1.30)
t Test (*P*)	8.48 (<.001)	3.40 (.001)	−25.64 (<.001)	17.05 (<.001)	8.47 (<.001)	1.94 (.05)	−0.108 (.91)
Heart disease	3.69 (0.46)	5.40 (1.38)	−15.22 (0.39)	42.93 (1.61)	21.11 (1.28)	7.78 (1.15)	−0.85 (0.94)
t Test (*P*)	8.04 (<.001)	3.91 (<.001)	−38.96 (<.001)	26.69 (<.001)	16.46 (<.001)	6.76 (<.001)	−0.91 (.37)
Gastrointestinal tract disease	1.36 (0.34)	−4.47 (1.04)	−13.94 (0.34)	40.91 (1.39)	19.75 (0.99)	3.90 (1.03)	−2.77 (0.70)
t Test (*P*)	4.06 (<.001)	−4.32 (<.001)	−40.52 (<.001)	29.42 (<.001)	19.94 (<.001)	3.78 (<.001)	−3.95 (<.001)
Back problems	4.16 (0.27)	3.89 (0.81)	−15.31 (0.27)	42.14 (1.11)	20.46 (0.80)	6.58 (0.75)	−3.40 (0.51)
t Test (*P*)	15.27 (<.001)	4.84 (<.001)	−55.92 (<.001)	37.96 (<.001)	25.69 (<.001)	8.72 (<.001)	−6.70 (<.001)
Eye problems	1.83 (0.34)	−1.73 (1.02)	−13.46 (0.34)	37.79 (1.41)	19.84 (1.01)	6.54 (0.98)	−2.48 (0.68)
t Test (*P*)	5.37 (<.001)	−1.70 (.09)	−39.51 (<.001)	26.75 (<.001)	19.61 (<.001)	6.70 (<.001)	−3.64 (<.001)
Migraine	0.92 (0.29)	−5.84 (0.88)	−13.95 (0.31)	40.23 (1.24)	20.28 (0.87)	6.45 (0.85)	−2.12 (0.58)
t Test (*P*)	3.16 (.002)	−6.67 (<.001)	−45.49 (<.001)	32.36 (<.001)	23.24 (<.001)	7.59 (<.001)	−3.68 (<.001)

*Unless otherwise indicated, data are given as mean (SE).
†A high score represents good health.
‡A high score represents poor health.

Table 6. Adjusted Health and Utility for Primary Care Patients With Affective Syndrome (N = 17 558)*

	Physical		Mental			Utility	
Affective Syndromes	Global Physical†	Physical Functioning†	Global Mental†	Role-Emotional Functioning‡	Social Functioning‡	Time Tradeoff	Standard Gamble
None	48.26 (0.08)	76.60 (0.26)	54.18 (0.06)	8.16 (0.23)	12.61 (0.23)	5.49 (0.19)	95.48 (0.15)
Lifetime bipolar	46.76 (0.52)	68.49 (1.69)	41.67 (0.64)	48.18 (2.46)	37.18 (1.71)	16.88 (1.95)	89.46 (1.30)
t Test (*P*)	−2.87 (.004)	−4.76 (<.001)	−19.32 (<.001)	16.13 (<.001)	14.20 (<.001)	5.81 (<.001)	−4.59 (<.001)
Bipolar—none	−1.50 (0.52)	−8.11 (1.70)	−12.52 (0.65)	40.02 (2.48)	24.57 (1.73)	11.39 (1.96)	−6.02 (1.31)
t Test (*P*)	−2.87 (.004)	−4.76 (<.001)	−19.32 (<.001)	16.13 (<.001)	14.20 (<.001)	5.81 (<.001)	−4.59 (<.001)
12-mo Double depression	46.55 (0.33)	64.40 (1.01)	36.12 (0.36)	60.25 (1.42)	43.74 (0.99)	18.58 (1.17)	88.30 (0.79)
t Test (*P*)	−5.08 (<.001)	−11.74 (<.001)	−49.49 (<.001)	35.82 (<.001)	30.35 (<.001)	11.01 (<.001)	−8.89 (<.001)
Double—none	−1.71 (0.34)	−12.20 (1.04)	−18.07 (0.37)	52.09 (1.45)	31.13 (1.03)	13.09 (1.19)	−7.18 (0.81)
t Test (*P*)	−5.08 (<.001)	−11.74 (<.001)	−49.47 (<.001)	35.82 (<.001)	30.35 (<.001)	11.01 (<.001)	−8.89 (<.001)
12-mo Major depression only	47.63 (0.16)	70.24 (0.48)	42.75 (0.19)	41.93 (0.76)	29.62 (0.48)	10.68 (0.45)	93.96 (0.29)
t Test (*P*)	−3.63 (<.001)	−12.20 (<.001)	−57.42 (<.001)	42.23 (<.001)	31.84 (<.001)	10.46 (<.001)	−4.66 (<.001)
Major—none	−0.63 (0.17)	−6.36 (0.52)	−11.44 (0.20)	33.77 (0.80)	17.01 (0.53)	5.20 (0.50)	−1.52 (0.33)
t Test (*P*)	−3.63 (<.001)	−12.20 (<.001)	−57.42 (<.001)	42.33 (<.001)	31.84 (<.001)	10.46 (<.001)	−4.66 (<.001)
12-mo Dysthymia only	46.05 (0.75)	66.75 (2.26)	46.33 (0.80)	30.48 (3.23)	26.75 (2.30)	13.14 (2.72)	95.10 (1.16)
t Test (*P*)	−2.93 (.003)	−4.33 (<.001)	−9.75 (<.001)	6.89 (<.001)	6.12 (<.001)	2.81 (.005)	−0.32 (.75)
Dysthymia—none	−2.21 (0.76)	−9.85 (2.27)	−7.85 (0.81)	22.32 (3.24)	14.14 (2.31)	7.66 (2.72)	−0.38 (1.17)
t Test (*P*)	−2.93 (.003)	−4.33 (<.001)	−9.75 (<.001)	6.89 (<.001)	6.12 (<.001)	2.81 (.005)	−0.32 (.75)
30-d Symptoms only	48.12 (0.28)	73.48 (0.82)	46.66 (0.30)	29.44 (1.30)	21.69 (0.79)	8.97 (0.79)	94.77 (0.51)
t Test (*P*)	−0.50 (.62)	−3.70 (<.001)	−24.45 (<.001)	16.15 (<.001)	11.03 (<.001)	4.28 (<.001)	−1.32 (.19)
Symptoms—none	−0.14 (−0.29)	−3.13 (0.85)	−7.53 (0.31)	21.28 (1.32)	9.09 (0.82)	3.49 (0.82)	−0.70 (0.53)
t Test (*P*)	−0.50 (.62)	−3.70 (<.001)	−24.45 (<.001)	16.15 (<.001)	11.03 (<.001)	4.28 (<.001)	−1.32 (.19)

*Unless otherwise indicated, data are given as mean (SE).
†A high score represents good health.
‡A high score represents poor health.

to directly assess the value of hypothetical conditions, a common method applied to small patient samples with the use of sophisticated assessment technology,[10,24,30] we assessed the utility for their current health. The strength of our approach is the diversity and number of patients whose utilities were represented, rather than the depth in the assessment. The results might not apply to other managed, primary care practices. A consecutive patient sample overrepresents high utilizers and sicker individuals. Nonresponse on items that assessed utility was moderately high, but we weighted for nonresponse.

Overall, our findings emphasize the importance of attending to patient preferences for outcomes and suggest that depressed patients in managed, primary care practices have a strong desire to recover from depression, reinforcing the importance of quality improvement programs and patient education.

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