Burden of chronic physical conditions and mental disorders in primary care

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Background
The World Health Organization (WHO) has stated that the three leading causes of burden of disease in 2030 are projected to include HIV/AIDS, unipolar depression and ischaemic heart disease.

Aims
To estimate health-related quality of life (HRQoL) and quality-adjusted life-year (QALY) losses associated with mental disorders and chronic physical conditions in primary healthcare using data from the diagnosis and treatment of mental disorders in primary care (DASMAP) study, an epidemiological survey carried out with primary care patients in Catalonia (Spain).

Method
A cross-sectional survey of a representative sample of 3815 primary care patients. A preference-based measure of health was derived from the 12-item Short Form Health Survey (SF–12): the Short Form–6D (SF–6D) multi-attribute health status classification. Each profile generated by this questionnaire has a utility (or weight) assigned. We used non-parametric quantile regressions to model the association between both mental disorders and chronic physical condition and SF–6D scores.

Results
Conditions associated with SF–6D were: mood disorders, $\beta = -0.20$ (95% CI $-0.28$ to $-0.12$); pain, $\beta = -0.08$ (95% CI $-0.16$ to $-0.00$) and anxiety, $\beta = -0.04$ (95% CI $-0.03$ to $-0.06$). The top three causes of QALY losses annually per 100,000 participants were pain (5064), mood disorders (2634) and anxiety (805).

Conclusions
Estimation of QALY losses showed that mood disorders ranked second behind pain-related chronic medical conditions.

Declaration of interest
None.

The epidemiological transition from acute to chronic illness has been accompanied by a parallel change in the measurement of the health status of populations, which has moved from focusing almost exclusively on mortality rates to the introduction of functioning, disability, and health-related quality of life (HRQoL) measures. The interest in HRQoL measures has also been favoured by the progressive change of the healthcare model to a person-centred approach that takes into account the autonomy of patients and the values of society.1,2

A wide variety of instruments have been developed to measure HRQoL. This paper focuses on the Short Form–6D (SF–6D),3 a multi-attribute health-status classification system with six attributes derived from the 12-item Short Form Health Survey (SF–12). Each profile generated by this questionnaire has a ‘weight’ assigned. This utility reflects the value that society gives to this health status. In a broad sense, utility could be seen as synonymous with preference: the more preferred a status, the more utility it has. In general, utilities oscillate between 0 (which represents death) and 1 (representing perfect health).3

These utilities are used to calculate quality-adjusted life-years (QALYs). A QALY is a measure that considers both quantity and quality of life and is an indicator of life expectancy weighted by the quality of life (i.e. utility) of remaining life-years. For instance, a year of life lived in perfect health is worth 1 QALY (1 year of life $\times$ 1 utility = 1 QALY), half a year lived in perfect health is equivalent to 0.5 QALYs (0.5 years $\times$ 1 utility), the same as 0.5 year of life lived in a situation with utility 0.5 (0.5 year $\times$ 0.5 utility). Although QALYs are used mainly in cost-utility analysis, it has been suggested that QALYs could be useful in estimating the burden of mental disorders.5–7

Since the seminal ‘burden of disease’ study by the World Health Organization (WHO) and the World Bank,8 mental health has been incorporated into the international health policy agenda as a top priority. An update by the WHO has stated that the three leading causes of burden of disease in 2030 are projected to include HIV/AIDS, unipolar depressive disorders and ischaemic heart disease.9 Nevertheless, these studies based their estimations on disability-adjusted life-years (DALYs), a measure widely criticised for using weights derived from experts’ opinion on specific diseases, whereas QALYs are based on health status and weights generated from social preferences.10

This paper studies the HRQoL and QALY losses associated with mental disorders and chronic medical conditions using data from the diagnosis and treatment of mental disorders in primary care (DASMAP) study, an epidemiological survey carried out with primary care patients in Catalonia (Spain).

Method
Participants
The study was a face-to-face, cross-sectional survey of a representative sample of adult attendees (18 years or older) at primary care health centres in Catalonia. Catalonia is one of the 17 regions or ‘autonomous communities’ that comprise Spain. As a consequence of a devolution process started in 1981, the autonomous communities have full governance on health and social care. Healthcare and social care are central to policies for people with severe disabilities are publicly financed and near-universal coverage is provided. The features of this system have been explained elsewhere.11

A stratified multistage probability sample without replacement was drawn. Replacement was prohibited to ensure that every individual had a known probability of selection. The sampling frame was all the health regions in Catalonia (a total of seven).
The first stage consisted of selection of the primary care centres within each health region, with the number of primary care centres selected in each region proportional to its population. However, in order to have a minimum set of interviews even in the smaller regions, at least six primary care centres were chosen per region. Each primary care centre’s selection probability was related to the population of the catchment area covered by the centre. A total of 77 health centres out of 352 participated in the DASMAP study. In the second stage, all the general practitioners (GPs) at the selected health centres were invited to participate and a total of 618 GPs did so. This represented nearly 69% of all the GPs working at the 77 health centres. The third stage consisted of the random selection of patients. Participants were selected with a systematic sampling strategy from the daily list of all patients with an appointment with each of the participating GPs. A total of 3815 participants were evaluated. The weighted response rate was 80.5%. Further information on the DASMAP study can be found elsewhere.12

Measures

SF–6D

Health-related quality of life was assessed using the Spanish version 2.0 of the SF–12.4,13,14 The SF–12 is a valid, reliable and widely-used instrument for the assessment of HRQoL.

The SF–12 was revised to produce the SF–6D, a six-dimensional health-state classification each with three to five levels. The dimensions are: physical functioning (from 1, health does not limit you in moderate activities, to 3, health limits you a lot); role limitations (from 1, you have no problems with your work or regularly daily activities, to 4, you are limited in the kind of work or other activities as a result of your health); social functioning (from 1, your health limits your social activities none of the time, to 5, your health limits your social activities all of the time); pain (from 1, you have pain that does not interfere with your normal work at all, to 5, you have pain that interferes extremely); mental health (from 1, you feel downhearted and low none of the time, to 5, you feel downhearted and low all of the time); and vitality (from 1, you have a lot of energy all of the time, to 5, you have a lot of energy none of the time). The combination of the dimensions with severity levels formed a total of 7500 distinct health states. For instance, a person with no problems will have a health state profile of ‘111111’, whereas a person with no problems in physical health (from 1, health limits your social activities none of the time, to 5, your health limits your social activities all of the time); pain (from 1, you have pain that does not interfere with your normal work at all, to 5, you have pain that interferes extremely); mental health (from 1, you feel downhearted and low none of the time, to 5, you feel downhearted and low all of the time); and vitality (from 1, you have a lot of energy all of the time, to 5, you have a lot of energy none of the time). The combination of the dimensions with severity levels formed a total of 7500 distinct health states. For instance, a person with no problems will have a health state profile of ‘111111’, whereas a person with no problems in physical functioning, role limitation or pain, but with moderate problems in social functioning such as feeling downhearted and lethargic all the time, will have a profile of ‘111155’.3

Each one of these health profiles has a score. The scoring table for the SF–6D was developed by Brazier and colleagues based on a variant of the standard gamble technique on a random sample of the general population of the UK.3 Using the scoring table we are able to compute the utility of each of the health profiles generated. As Spanish scores are not available, in this study we have used the UK scores for the SF–6D derived from the SF–12 questionnaire.

Mental disorders

Mental disorders were assessed with the Spanish versions of the Structured Clinical Interview for DSM–IV Axis 1 Disorders SCID–I (major depressive episode, dysthyemic disorder and anxiety disorder modules, excluding obsessive–compulsive disorder)15 and the Mini Neuropsychiatric Diagnostic Interview (manic/hypomanic episodes, obsessive–compulsive disorder, substance and alcohol use disorders, anorexia nervosa and bulimia nervosa).16,17 Both instruments allow diagnoses according to DSM–IV18 criteria.

Chronic physical conditions

Chronic physical conditions were assessed using a checklist that included questions about a wide range of chronic physical conditions commonly managed by GPs such as allergies, arthritis or rheumatism, asthma, bronchitis, constipation, diabetes mellitus, heart disease, heart attack, high blood pressure, migraines or frequent headaches, neck or back pain and digestive ulcer. Similar conditions, or conditions with similar risk factors, were grouped together (i.e. chronic pain includes arthritis or rheumatism, chronic back pain, chronic neck pain, and migraines or frequent headaches; cardiovascular disease includes heart attack, and heart disease; respiratory conditions include asthma and bronchitis; high blood pressure; and diabetes). Moreover, at the end of the checklist, participants had an open question about other chronic conditions they suffered from but were not asked about in the checklist. Just 41 out of the 3815 participants responded that they suffered from a form of cancer and 8 out of the 3815 suffered from Parkinson’s disease. Due to their low prevalence we did not include these in our analyses.

Procedure

A group of 20 trained psychologists evaluated participants. An expert panel of three trained the psychologists during a 2-day course. Data were collected between October 2005 and March 2006 using a paper-and-pencil personal interview. After an appointment with a GP, individuals were invited to participate in the study. They were evaluated at their primary care centres after acceptance (including provision of signed informed consent). During a clinical interview of approximately 45 min the instruments were administered. After data collection, responses were processed using the response automatic-capture software TeleForm for Windows (Autonomy Cardiff, www.cardiff.com/products/teleform/index.html). Ethical approval was obtained from the Sant Joan de Déu Foundation ethics board.

Statistical analyses

The dependent variable was the SF–6D score utility. As SF–6D scores had skewed distributions, we used a non-parametric approach. Statistical analyses were carried out in four steps. First, we looked at sociodemographic factors (gender, age, marital status, education and employment), mental disorders and chronic physical condition distributions for the participants. Proportions were weighted in order to restore the representative validity of the sample. We also presented the median of the SF–6D by sociodemographic and clinical (mental disorders and chronic physical conditions) variables. The proportion of participants reporting full health and the most frequent health-state profile were also calculated. Comparisons in the SF–6D by socio-demographic and clinical variables were conducted using the Kruskal–Wallis test. Second, to model the association between health conditions (mental disorders and chronic physical conditions) and the SF–6D, we used non-parametric quantile regression. Quantile regressions extends beyond the notion of ordinary least squares, which estimates the conditional mean of a dependent variable given a set of explanatory variables. Quantile regressions can be used to characterise the entire conditional distribution of the dependent variable. The regression coefficient associated with an explanatory variable is interpreted as the marginal change in the given conditional quantile of the dependent variable corresponding to the marginal change in the variable. Comparisons of coefficients across different percentile levels allowed us to infer the effects of a certain variable at different points in the SF–6D distribution. Moreover, quantile regression is more robust to outliers.19 We based the inference
on the median (percentile 50). Mental disorders and chronic physical conditions were introduced together in the model, adjusting by those sociodemographic variables that were statistically significant (P < 0.20) in the bivariate Kruskal–Wallis tests. Additionally, we tested all the first-degree interactions. We compared a model with several first-degree interactions to the model with no interactions and it did not significantly improve the model fit so, following the parsimony principle, we decided not to include them. Third, to conduct sensitivity analyses, we performed eight additional quantile regressions with the inference based on the first (10), second (20), third (30), fourth (40), sixth (60), seventh (70), eighth (80) and ninth (90) deciles. We were also able to construct trend charts with the coefficients. That is, we were able to examine how the entire distribution changed after taking participants’ characteristics into account. Interquartile range (IQR) regressions between extreme deciles (10 and 90) and between first (25) and third (75) quartiles were carried out with the aim of assessing whether the adjusted coefficients of the mental disorders and chronic physical conditions were different. We conducted bootstrap (b = 500) estimates of standard errors of regression coefficients for each decile regression.

Finally, the HRQoL loss associated with each of the disorders was estimated by multiplying the marginal effect of the conditions that reached significant criteria by the prevalence of the condition. This can be interpreted as the magnitude of the burden measured in annual loss in QALYs without considering mortality. All analyses were carried out with the STATA 10 software for Windows. All significance tests were performed using two-sided analyses were carried out with the STATA 10 software for Windows. All significance tests were performed using two-sided

### Results

We had complete data on the SF–12 from 3754 participants; 16 participants had insufficient data to calculate their SF–6D. The median SF–6D score for the whole sample was 0.77. A total of 262 out of 3754 participants had a profile representing perfect health (7.11%).

#### SF–6D index by sociodemographic characteristics

Table 1 shows the median on the SF–6D score by sociodemographic characteristics. Women had a lower SF–6D score than men (0.82 v. 0.72, P < 0.0001). The median SF–6D score decreased progressively with age, except in the oldest group. Regarding marital status, those previously married had the lowest SF–6D score. Those in paid employment but on sick leave had a median of 0.61; lower than those in paid employment (0.82). The SF–6D score was 0.73 for those participants in the lowest educational group and 0.80 for those in the highest.

#### SF–6D score by conditions

The median SF–6D score varied by disease group, from 0.55 for participants with any mood disorders to 0.74 for participants with diabetes or high blood pressure (Table 2). When considering specific illnesses, major depressive disorder showed the lowest SF–6D (0.53), followed by social phobia (0.60), dysthmic disorder (0.60), panic disorder (0.60) and migraines (0.66). Those with heart attack showed the highest SF–6D (0.76). The only conditions that were not statistically significant when presence and absence were compared were any substance misuse, alcohol dependence/misuse, heart attack and diabetes. The worst health state profile (i.e. 34555) was the most frequent in participants with any mood disorder.

#### Impact of mental disorders and chronic physical conditions on the SF–6D

Figure 1 shows the modifying effect of mental disorders and chronic physical conditions when adjusting for sociodemographic characteristics and morbidity. The x-axis shows the decile on which the inference was based. Mood disorders, anxiety disorders and chronic pain were always statistically significant, regardless of the decile used. It was observed that any mood disorder was the condition category that had the greatest impact on the SF–6D score, independently of the decile used in the quantile regression. The trend chart demonstrated that the predictive capacity of

<p>| Table 1 Sociodemographic characteristics of the sample |
|-----------------------------------------------|----------|----------|--------------------------|-----------------|-------------------|</p>
<table>
<thead>
<tr>
<th>n</th>
<th>%</th>
<th>SF–6D score</th>
<th>Kruskal–Wallis test, P</th>
<th>Proportion reporting full health (111111), % (n)</th>
<th>Most frequent health state profile</th>
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<tr>
<td>Total</td>
<td>3754</td>
<td>100</td>
<td>0.772</td>
<td>&lt;0.001</td>
<td>7.11 (262)</td>
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<tr>
<td>Gender</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td>Male</td>
<td>1386</td>
<td>37.07</td>
<td>0.818</td>
<td>&lt;0.001</td>
<td>10.66 (147)</td>
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<td>Female</td>
<td>2363</td>
<td>62.93</td>
<td>0.724</td>
<td></td>
<td>5.03 (115)</td>
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<tr>
<td>Age group, years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>18–24</td>
<td>182</td>
<td>4.78</td>
<td>0.800</td>
<td>&lt;0.001</td>
<td>11.19 (19)</td>
</tr>
<tr>
<td>25–34</td>
<td>461</td>
<td>12.27</td>
<td>0.800</td>
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<td>6.64 (32)</td>
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<tr>
<td>35–49</td>
<td>836</td>
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<td>0.758</td>
<td></td>
<td>6.26 (53)</td>
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<tr>
<td>50–64</td>
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<td>0.741</td>
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<td>6.98 (76)</td>
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<tr>
<td>&gt;65</td>
<td>1165</td>
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<td></td>
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<tr>
<td>Never married</td>
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<td>16.99</td>
<td>0.800</td>
<td>&lt;0.001</td>
<td>7.45 (48)</td>
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<tr>
<td>Married or living with someone</td>
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<td>64.23</td>
<td>0.793</td>
<td></td>
<td>8.14 (19)</td>
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<tr>
<td>Previously married</td>
<td>702</td>
<td>18.78</td>
<td>0.695</td>
<td></td>
<td>3.30 (23)</td>
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<tr>
<td>Paid employment</td>
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<td>33.98</td>
<td>0.817</td>
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<td>8.03 (105)</td>
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<td>0.614</td>
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<td>Other</td>
<td>2017</td>
<td>53.91</td>
<td>0.746</td>
<td></td>
<td>7.63 (147)</td>
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<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
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<td>12.46</td>
<td>0.727</td>
<td>&lt;0.001</td>
<td>7.21 (32)</td>
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<td>Primary</td>
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<td>950</td>
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<td>0.797</td>
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<td>7.44 (72)</td>
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<td>Higher/University</td>
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<td>12.84</td>
<td>0.800</td>
<td></td>
<td>7.08 (261)</td>
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SF–6D, Short Form–6D.
mood disorders increases along with SF–6D score. That means that the differences in the HRQoL between participants with or without mood disorders is more evident among those with higher SF–6D scores. The IQR regression between extreme deciles (ninth and first) confirmed this. The coefficient of this regression (difference between ninth and first coefficients) was $-0.083$ (95% CI $-0.115$ to $-0.052$, $P<0.0001$). This statistical difference was also found between the first (25) and third (75) quartiles (coefficient $-0.072$, 95% CI $-0.094$ to $-0.049$, $P<0.0001$). Chronic pain also had an impact on the SF–6D score but conversely; as the SF–6D score increased, its predictive capability decreased. That is, differences in the extreme IQR regression (between first and ninth decile) showed a difference between coefficients of 0.052 (95% CI 0.015–0.061, $P<0.0001$). This difference was also found for chronic pain in the IQR regression conducted with first and third quartiles (0.040, 95% CI 0.034–0.071, $P=0.002$).

The impact of the other conditions was independent of the decile chosen. In fact, the extreme IQR regressions (between first and ninth decile) did not show any statistical differences for anxiety disorders, cardiovascular diseases, high blood pressure, diabetes or 12-month any substance misuse. When considering the first and third quartiles for the IQR regression, high blood pressure showed a statistically significant trend comparable to that of pain: as SF–6D increased, its predictive capability decreased (difference $0.021$, 95% CI $0.001$–$0.040$, $P=0.04$). The pseudo $R^2$ for each quantile regression oscillated between 0.1266 for the quantile regression with the inference based on the ninth decile and 0.2168 for the quantile regression with the inference based on the median. Table 3 shows the complete model with inference based on the median.

### Burden of disease in primary care

Table 4 shows the annual QALY losses per 100,000 primary care patients that could be explained by each condition. Chronic pain was associated with the greatest QALYs loss, followed by mood disorders (5064 and 2634 respectively). Diabetes showed the smallest QALYs loss (250). Quality-adjusted life-year losses for substance use disorders were not calculated as they did not reach statistical significance in the quantile regression with the inference based on the median.

### Discussion

#### Strengths and limitations

One of the strengths of this study is that it has been conducted using a large representative sample of primary care attendees with good external validity. Moreover, to the best of our knowledge, there are few other studies with sufficiently large epidemiological samples in primary care to compare the impact of both chronic physical conditions and mental disorders in annual QALY losses. Another important strength is the statistical strategy used that permitted exploration of the predictive power of the different mental and physical conditions according to different SF–6D values. Additionally, the 36-item Short Form Health Survey (SF–36)20 and the different versions of it have been recently recommended by STAKES as a routine patient-centred outcome measure21 and this paper shows the different uses of this kind of measure. Finally, this study was carried out in a Mediterranean country. Previous studies aiming to study the burden of disease have been conducted in Anglo-Saxon or Scandinavian countries and little is known about the burden of diseases in southern European countries. It is well known that the expression of mental disorders differs across cultures,22 so our paper also represents a chance to study how robust previous results on burden are.

Some limitations should be mentioned. First, we used UK tariffs and some cultural bias may be expected. A re-analysis of these data should be carried out when Spanish tariffs are available. Second, we estimated QALYs without adjusting for the years lived with the conditions. Therefore our estimates should be considered
Fig. 1  Impact of mental disorders and chronic physical conditions in the Short Form–6D index, adjusted for sociodemographic characteristics, by percentile (non-parametric interquartile range).
out-patient healthcare use, hospitalisations and mortality. 24

...that are associated with both physical and mental disorders.

...they were not included in our analyses. We did not consider, as...different methodology used to assess them meant that...

...at the end of the checklist, the low prevalence of both illnesses...about these illnesses was gathered in the open question included...

...also have a big impact on HRQoL. Although some information...

...chronic physical conditions shows moderate to high agreement...results obtained in other studies.

...with caution as there could be a bias. Third, we did not consider...

...the 'treatment effect'. The vast majority of participants were...

...receiving treatment that may have modified their previous health...

...the vast majority of participants were...treatment effect'...the previous 12-month period, whereas chronic physical conditions...

...the previous 12-month period, whereas chronic physical conditions...

...the previous 12-month period, whereas chronic physical conditions...

...to take into account that mental disorders were assessed considering...

...the previous 12-month period, whereas chronic physical conditions...

...the previous 12-month period, whereas chronic physical conditions...

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0.64. Lastly, Revicky & Wood reported utilities for depression (stratifying by severity) derived from the SF–36.30 Utilities varied from 0.55 to 0.63 for moderate depression, from 0.64 to 0.73 for mild depression and from 0.72 to 0.83 for antidepresant maintenance therapy.

It is important to note that the impact of mood disorders in the SF–6D increases as the index does, suggesting that mood disorders are conditions sensitive to small losses in quality of life. This could be explained by the fact that the dimensions comprising the index are very close to the symptoms of depression: role limitation, mental health (feeling downhearted), social limitations and loss of vitality.

With regard to chronic pain we found an overall median utility of 0.72, higher than those previously reported (range 0.52–0.61).31 Assessment methods or the different sample used could explain these differences. On the other hand, Brown et al, who studied the utility associated with migraine, found a utility of 0.62 (assessed with the Health Utilities Index 3 (HU3)).32 This value is close to the 0.66 we found.

Similar to our results, a study focusing on respiratory conditions reported utilities ranging from 0.63 (in a sample of individuals with non-controlled asthma) to 0.80 (in individuals whose asthma was controlled).33 However, this study used the SF–6D derived from the SF–36 and was carried out in a sample in ongoing rehabilitation.

The utility for high blood pressure was 0.74. This value was very similar to that found by a study conducted in the Swedish general population, which reported utilities for high blood pressure ranging from 0.73 to 0.81.34 Regarding diabetes, a Canadian study demonstrated that its utilities oscillated between 0.88 (when it presents without comorbidity) and 0.77 (when it is comorbid with other illness).35,36 We found similar results: diabetes showed a utility of 0.74.

Contrary to the WHO report,37 heart attack did not have a high impact in QALY losses. This could be related to the fact that we did not take into account quantity of years lived with the condition, nor mortality, which could increase the number of QALY losses.

Estimation of QALY losses showed that mood disorders ranked second, behind chronic pain. This may be explained by the high prevalence of the latter condition in our sample. However, we have to take into account that mood disorders showed a five times smaller prevalence than that of pain disorders and that QALYs loss for mood disorders were only half that of pain, highlighting the importance of mood disorders in disease burden. For example, if we compare QALY losses of mood disorders with those of cardiovascular disease, which showed similar prevalence in our sample, QALY losses associated with mood disorders were nearly ten times higher that those associated with chronic cardiovascular conditions. This elevated quantity of QALY losses associated with mood disorders could also be explained by the fact that mood disorders affect all dimensions forming the health profile, and that the worst profile (345555) is more frequent among people with depression.

In conclusion, our findings show that mood disorders are responsible for a large percentage of QALYs lost in Catalan primary care patients, slightly below that of chronic pain. As our data on mental disorders prevalence is very similar to previous reports,36,38,39 we think that our results can be generalised to other populations. The considerable expense that depression generates at both the individual and societal level justifies investment in strategies designed to reduce these costs. General practitioners are in a privileged position to detect and treat depression, and every effort should be made to improve training for these professionals.
Psalm 38: A man with major depression

George Stein

One of the many psalms the psalms served was to console the sick. These are known as the sickness psalms. There are only six such psalms and two describe quite severe depression (Psalms 38 and 88). Psalm 38 is a good example, but for reasons of space only those verses which describe key depressive symptoms are included here.

6 ‘I am utterly bowed down and prostrate, all day long I go around mourning’ – depressed mood.
8 ‘I am utterly spent and crushed: I groan because of the turmoil in my heart’ – despair, anxiety.
10 ‘My heart throbs, my strength fails me: as for the light of my eyes – it has gone from me’ – tachycardia due to anxiety, anergy, anhedonia?
13 ‘But I am like the deaf I do not hear: like the mute who cannot speak
14 ‘Truly I am like one who does not hear and in whose mouth there is no retort’ – sensory inattention, inability to concentrate, with depressive mutism or psychomotor retardation.
18 ‘I confess my iniquity; I am sorry for my sin’ – guilt.

The person may be experiencing an episode of psychotic depression as additional five verses describe enemies who are plotting his end: 12 ‘Those who seek my life lay their snares, Those who seek to hurt me speak of ruin, and mediate treachery all day long’ – they may be real enemies or conspiracy theories with auditory hallucinations and thoughts of death through murder.

There is probably sufficient depressive symptomatology here to diagnose a DSM–IV major depression (five key symptoms, one of which is depressed mood). Such a combination of symptoms in this psalm may suggest that the author had had major depression himself, as it is unlikely that he would be able to render them so faithfully otherwise.
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