



Research report

Impact of psychiatric disorders and chronic physical conditions on health-related quality of life: Singapore Mental Health Study



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ARTICLE INFO

Article history:

Received 15 October 2012

Received in revised form

18 November 2012

Accepted 19 November 2012

Available online 20 December 2012

Keywords:

Quality Adjusted Life Years
Singapore

Major depressive disorder
Obsessive compulsive disorder
Bipolar disorder

ABSTRACT

Background: Few studies have established Quality Adjusted Life Years (QALY) losses associated with mental and chronic physical conditions in the community. The aim of the current study was to establish and compare the QALY losses associated with select mental and chronic physical conditions in Singapore.

Methods: The Singapore Mental Health Study was a cross-sectional epidemiological survey of a nationally representative sample. The diagnosis of psychiatric disorders was established using the Composite International Diagnostic Interview (CIDI 3.0) and health related quality of life (HRQoL) was measured using the Euro-QoL-5D (EQ-5D).

Results: Pain conditions, hypertension and MDD were associated with the highest loss of QALYs in Singapore at a population level. The marginal effect on HRQoL by – Major Depressive Disorder (MDD), Obsessive Compulsive Disorder (OCD) and Bipolar Disorder was higher than the effect of any physical condition.

Limitations: The presence of chronic physical diseases was established using a check-list rather than with more objective measures and UK tariffs were used as local tariffs are not available and this might introduce some cultural bias.

Conclusions: QALY losses associated with psychiatric disorders were high, emphasizing the need for recognizing them as major public health concerns and the need for appropriate resource allocation.

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1. Introduction

Singapore is a city-state nation in South-East Asia off the southern tip of the Malay Peninsula. A former British colony, present day Singapore is a highly developed market-based economy. Transitions in disease patterns that are consistent with those in more economically developed societies i.e. from infectious diseases to chronic diseases have also been observed in Singapore. This has resulted in changes in the measurement of the health status of the population from mortality based indicators to measures of functioning, disability and health-related quality of life. The World Health Organization (WHO), conceptualized quality of life (QoL) as a “multidimensional construct describing an individual's subjective perception of their position in life in the context of the culture and value system in which they live, and in

relation to their goals, expectations, standards and concerns” (The WHOQOL Group, 1996). Wenger and Furberg (1990) defined health-related quality of life (HRQoL) as, “those attributes valued by patients including, their resultant comfort or sense of well-being; the extent to which they were able to maintain reasonable physical, emotional, and intellectual function; and the degree to which they retain their ability to participate in valued activities within the family, in the workplace, and in the community.” Thus, HRQoL refers to patients' perceptions of their own functioning and well-being (Gold et al., 2002) and is a patient-reported outcome that encompasses multiple domains. HRQoL measures have several important uses, such as planning of clinical care of individual patients, and as an outcome measure of a clinical trial or a program. Focusing on HRQoL as a national health standard can also bridge boundaries between disciplines as it can be used to estimate the impact of different diseases on the functioning and well-being of the population. HRQoL data can help identify disease areas of need and resource allocation for policy makers, guide the development of healthcare strategy at national

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level and monitor the effectiveness of community interventions (Centers for Disease Control and Prevention (CDC), 1994).

The Euro-QoL-5D (EQ-5D) is a self-report generic HRQoL instrument developed by a multi-national and multidisciplinary research group – the EuroQol Group (Rabin and de Charro, 2001). A subject's self-classification information can be summarized as a single score which represents 'health utilities' that are anchored at 0 (equal to death) and 1 (health state of full health) using an EQ-5D value set generated from the general population. This in turn can be expressed as Quality Adjusted Life Years (QALY). QALY is defined as a 'measure of a person's length of life weighted by a valuation of their health-related quality of life' (National Institute for Health and Clinical Excellence, 2008). Thus, it takes one year of perfect health (utility score of 1) to generate one QALY. QALYs allow direct comparison between different disease groups and interventions.

A number of studies conducted in Singapore have both validated and used the EQ-5D in the local population (Luo et al., 2003) and specific clinical populations (Luo et al., 2009; Au Eong et al., 2012). There are, however, few studies that have established QALY losses associated with mental illnesses and chronic medical conditions in the community (which allows comparison of the true burden of the disorders). The objectives of this study were to establish and compare the QALY losses associated with major depressive disorder (MDD), dysthymia, bipolar disorder, generalized anxiety disorder (GAD), obsessive compulsive disorder (OCD), alcohol use disorders and select chronic physical conditions in a population survey conducted in Singapore.

2. Method

2.1. Sample

The Singapore Mental Health Study was an epidemiological study of a nationally representative sample of residents aged 18 years or older, living in households and able to speak English, Malay or Mandarin. Face-to-face interviews were completed with 6616 respondents between December 2009 and December 2010 giving a response rate was 75.9%. The study involved a single-stage design without geographic clustering. The sample size was calculated by running statistical power calculations for single and double proportions to determine what sample sizes were necessary overall, as well as for sub-groups (i.e. age and ethnicity), to produce a precise estimate with a margin of error equal to 0.05 for different disorders. Residents aged 65 and above, Malays and Indians were over-sampled to ensure that sufficient sample size would be achieved to improve the reliability of estimates for the subgroups analysis. Thus, a disproportionate stratified sampling (by age groups and ethnicity) was used where the three main ethnic groups (Chinese, Malays, and Indians) were sampled in equivalent proportion of about 30% each.

The study was approved by the relevant institutional ethics committees and written informed consent was obtained from all participants and parent/guardian of participants who were between 18 and 21 years of age. The study methodology is described in detail in an earlier article (Subramaniam et al., 2012a).

2.2. Measures

2.2.1. HRQoL measurement-EQ-5D

A total of 5606 respondents were administered the EQ-5D during the face to face interviews to measure the health related quality of life. The lower number of HRQoL administrations (as compared to the overall sample) resulted from the decision

to introduce the scale after the pilot phase of the survey and after obtaining relevant ethical and other approvals. Permission to use the measure was obtained from the developers. 5594 respondents who completed the questionnaire were included in this analysis, 0.21% (12) refused to complete the questionnaire. The EQ-5D which is a widely used HRQoL measure (Garratt et al., 2002) provides a simple, generic measure of health for clinical and economic appraisal. (EuroQol Group, 1990). It comprises a descriptive system and a visual analog scale (VAS). The descriptive system assesses 5 domains (i.e., mobility, self-care, usual activities, pain/discomfort, anxiety/depression) and respondents were asked to rate their health on a three-point severity scale (no problem/moderate problem/ extreme problem). The EQ VAS records the respondent's self-rated health on a vertical, visual analog scale where the endpoints are labeled 'Best imaginable health state' (100) and 'Worst imaginable health state' (0). The EQ-5D defines a total of 243 health states. We used the UK time trade-off values (Kind et al., 1999) to convert the states to health utility scores. The scores range from –0.59 to 1.00, with negative values representing health states worse than being dead, 0 representing being dead and 1.00 representing the state of full health (Dolan, 1997).

2.2.2. Psychiatric diagnosis and chronic physical conditions

The diagnosis of psychiatric disorders was established using the Version 3.0 of the Composite International Diagnostic Interview (CIDI 3.0) (Kessler and Ustun, 2004). Diagnostic modules to establish life-time and 12-month prevalence of affective disorders, including MDD, bipolar disorder; anxiety disorders including GAD and OCD and alcohol use disorders i.e. alcohol abuse and alcohol dependence were included in the survey. All diagnoses were established using Diagnostic and Statistical Manual, Fourth Edition, of the American Psychiatric Association (DSM-IV) criteria (APA, 1994) using hierarchy rules for diagnoses.

We used a modified version of the CIDI checklist of chronic medical disorders and the respondents were asked to report any of the disorders listed in the checklist. The question was read as, 'I'm going to read to you a list of health problems some people have. Has a doctor ever told you that you have any of the following...'. This was followed by a list of 15 chronic physical conditions which were considered prevalent in Singapore's population. We then re-classified these disorders into eight types of physical disorders—(1) respiratory disorders (asthma, chronic lung disease such as chronic bronchitis or emphysema), (2) diabetes, (3) hypertension and high blood pressure, (4) chronic pain (arthritis or rheumatism, back problems including those of disc or spine, migraine headaches), (5) cancer, (6) neurological disorders (epilepsy, convulsion, Parkinson's disease), (7) cardiovascular disorders (stroke or major paralysis, heart attack, coronary heart disease, angina, congestive heart failure or other heart disease), and, (8) ulcer and chronic inflamed bowel disease (stomach ulcer, chronic inflamed bowel, enteritis, or colitis).

Socio-demographic information was collected from all respondents using a structured questionnaire.

2.3. Statistical analyses

Mean and standard deviations were calculated for continuous variables, and frequencies and percentages for categorical variables. The EQ-5D index score distributions had a ceiling effect, with 78.96% of the sample scoring full health on the EQ-5D which included 29.36% of those with chronic physical conditions and 2.06% of those with psychiatric disorders. To model the association between health conditions (chronic physical conditions and psychiatric disorders) and EQ-5D, we used Tobit regression

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