Abstract  Background  The National Survey of Mental Health and Well-being in Australia has provided a rare opportunity to investigate not only the sociodemographic distribution of well-being, but also how it is related to impaired mental or physical health, to specific groups of psychiatric disorders and disability in daily life. Methods  A national household sample of 10,641 individuals (response rate 78%) representative of the adult population was interviewed with the Composite International Diagnostic Interview and completed scales measuring recent symptoms, disablement and well-being. The latter was measured by the single item Life Satisfaction Scale of Andrews and Withey (1976) expressed as percentage, with 100% being “delighted”. Results  The mean score for the Australian adult population was 70.4% (95% CI 70.0, 70.8), which matches the proposed universal norm. Men and women had very similar mean scores. Well-being was higher in persons with tertiary education and in those owning or purchasing their homes. It was lower in persons with physical or mental disorders, particularly depression. For alcohol use, a U-shaped relationship was found, whereby well-being was lower both in abstainers and in heavy users. Multiple regression analysis showed that when adjustment is made for confounders, women had higher life satisfaction than men and that high life satisfaction became less common with age in men, but even more so in women. Life satisfaction was impaired for respondents with high psychological distress, especially in the unemployed, the divorced and those with tertiary education, whether or not their symptoms led to a CIDI-A diagnosis of depression. Conclusion  The correlates of well-being are essentially in the expected direction. Depressive disorder has a stronger association with low well-being than other psychiatric diagnoses. Of particular interest is the existence of a small number of persons with current anxiety or depressive disorders who report having high life satisfaction. This deserves further investigation.

Key words  life satisfaction – epidemiology – psychology – cross-sectional survey

Introduction  The notion of positive mental health currently enjoys considerable attention, despite the difficulties in either defining or measuring it. When a National Survey of psychiatric morbidity in Australia was being planned, consumer and carer representatives insisted on a measure of well-being in addition to the assessment of symptoms, disability and use of services. This has proved to be a valuable inclusion. There is a large literature on life satisfaction, well-being and quality of life in people with serious medical conditions. In the social science literature, well-being or life satisfaction in large national samples has been extensively reported, the two expressions being used interchangeably. In his first review of this literature, Cummins (1995) analysed self-reported well-being from 16 studies based on large samples of the general population in Western countries. He found remarkable consistency between populations and proposed a standard of 75% ± 2.5% of the measurement scale maximum score. Cummins (1998) subsequently extended his analysis to include studies of life satisfaction from all major geographic regions in the world. He found remarkable consistency between populations and proposed a standard of 75% ± 2.5% of the measurement scale maximum score. Cummins (1998) subsequently extended his analysis to include studies of life satisfaction from all major geographic regions in the world. This work has shown that the distribution of well-being is invariably negatively skewed, and there is no gender difference in scores. There are lower (less favourable) mean scores in countries characterised by collectivism (e.g. Africa and the Indian Subcontinent) rather than individualism (North America, Western Europe and Australia), in persons aged over 65 years, and in those with...
a physical disability or a low income. Material wealth and individualism together accounted for 35% of the variance in life satisfaction. Cummins (1998) proposed a more universal norm of 70 ± 5%.

To our knowledge, there are no reports of well-being in nationally representative samples where mental health, physical health, disability in daily life and use of medical services have also been assessed. The National Survey of Mental Health and Well-being in Australia has provided a rare opportunity to investigate not only the sociodemographic distribution of well-being in a whole country, but also how it is altered in the presence of impaired mental health. Low life satisfaction is not included in the diagnostic criteria of either ICD-10 (World Health Organization 1992) or DSM-IV (American Psychiatric Association 1994), but might be expected to occur more frequently in persons with common mental disorders. On the other hand, it seemed plausible that high life satisfaction and the presence of such disorders need not necessarily be mutually exclusive.

The hypotheses tested in the present study were that in the Australian population: 1) high life satisfaction is associated with early adulthood, tertiary education, home ownership, good physical health, low neuroticism, few symptoms of psychological distress, absence of anxiety or depressive disorders or of alcohol misuse, the absence of disablement in daily life, and little or no use of health services for mental health problems; 2) life satisfaction is equally impaired across the broad diagnostic categories of anxiety, depression or alcohol misuse, with none being more associated with lower life satisfaction; and 3) a small proportion of people who have anxiety, depressive or substance abuse disorders nevertheless report having a high level of life satisfaction.

**Subjects and methods**

**The sample**

The National Survey was conducted throughout Australia in 1997 by the Australian Bureau of Statistics (ABS). An account of the sample and the interview has been given elsewhere (Andrews et al. 1999; Hall et al. 1999; Henderson et al. 2000; Korten and Henderson 2000). Private dwellings were selected at random using a stratified multi-stage area sample which ensured that all adult persons within each State and Territory had a known chance of selection. Experienced ABS interviewers, specially trained for the survey, approached approximately 13,600 dwellings. One person aged 18 years or over from each dwelling was then randomly chosen and personally interviewed, whenever possible in private. After the purpose of the interview and its Australia-wide coverage had been completely described to all respondents, their informed consent was obtained.

**The interview**

The trained ABS interviewers administered the automated version of the Composite International Diagnostic Interview (Robins et al. 1988), the CIDI-A, developed by Peters and Andrews (1995). This identified persons with anxiety, depressive or substance abuse disorders by ICD-10 criteria. The following measures were also included: the 12-item General Health Questionnaire (GHQ-12) (Goldberg 1978); a 10-item scale (the K-10 Scale) for non-specific psychological symptoms developed for population studies by Kessler and Mroczek (1994) with scores ranging from 10 to 50 with higher scores indicating fewer symptoms; and the 12 neuroticism items from the short form of the Eysenck Personality Questionnaire-Revised (EPQ-12) (Eysenck et al. 1985) as a measure of vulnerability to anxiety and depression.

Subjective well-being was measured by the Life Satisfaction Scale of Andrews and Withey (1976) in which people are asked: "How do you feel about your life as a whole, taking into account what has happened in the last year and what you expect to happen in the future? Tell me the number that most corresponds to how you feel." Respondents were then presented with a card showing the following ratings: Delighted–1; Pleased–2; Mostly satisfied–3; Mixed–4; Mostly dissatisfied–5; Unhappy–6; Terrible–7. This single item was used because Cummins (1995) had found its performance satisfactory in large population-based studies. He also noted that "if researchers are interested only in an overall life-satisfaction score... it seems that a single question can yield reliable and valid data."

On this Life Satisfaction Scale, a lower score indicates higher life satisfaction. In all the analyses below we have followed Cummins (1995) in converting the raw scores 5 to the "percentage of scale maximum," by applying the linear transformation 100(7-S)/6. On this transformed scale, a group uniformly rating themselves "delighted" will score 100 while a group uniformly rating themselves "terrible" will score zero. We will refer to this as the percent life satisfaction or PLS scale.

Disablement was measured by the two items of the Brief Disability Questionnaire (Ormel et al. 1994) that ask: "During the last one month, how many days in total were you unable to carry out your usual activities fully?" and "During the last one month, how many days in total did you stay in bed all or most of the day because of illness or injury?" The larger of these two numbers was taken as the number of "days out of role," when the respondent was unable to meet social role obligations. Physical health was measured by the physical subscale of the SF-12, which provides both a physical and a mental health scale based on responses to 12 questions on limitations due to health across different domains (Ware et al. 1996). Information was collected about the use of health services, including the number of visits to a GP, and about the frequency of - and expectations of - disablement in the last year and what you expect to happen in the future?

**Statistical analysis**

Univariate associations were tested using ordinal logistic regression, because of the skewness and discreteness of the 7-point scale used in the National Survey. This type of model acknowledges the categorical nature of the scale and so does not require the assumption of normality, yet it avoids the need to dichotomise the data using an arbitrary cut-point which would be necessary in order to use binary logistic regression. In the multivariate analyses we were able to use the simpler and more familiar multiple linear regression. These richer models accounted for a substantial part of the variance in life satisfaction, and the residual variation was normally distributed, which was not the case with the univariate analyses.

The sample was weighted to reflect the age, sex and geographical distribution of the Australian population. Analyses were carried out in STATA release 7 (Stata Corporation 2001) using modelling methods that take account of the sampling weights. Confidence intervals are at the 95% level.

**Results**

Interviews were completed on 10,641 persons, representing a response rate of 78%. No information is available on the sociodemographic characteristics of the non-responders. The estimated mean PLS for the Australian adult population was 70.4% (95% CI 70.0, 70.8),...