



Published in final edited form as:

Psychiatry Res. 2007 July 30; 152(1): 45–54.

Quality of life of ‘normal’ controls: Association with lifetime history of mental illness

Dianne Schechter^{*}, Jean Endicott, and John Nee

Department of Research Assessment and Training, New York State Psychiatric Institute, 1051 Riverside Drive, Unit 123, New York, NY 10032, USA

Abstract

This study assessed the perceived quality of life of individuals who were not in treatment for a psychiatric disorder and who were volunteers for a program to recruit control subjects. Subjects completed the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) and a diagnostic evaluation for lifetime history of mental disorders. Individuals were assigned to one of four categories according to the results of the diagnostic evaluation: Never Mentally Ill (NMI), one episode of a Minor Mental Disorder (MMD), Currently Not Mentally Ill with a serious history of mental illness (CNMI), and Currently Mentally Ill (CMI). Subjects in the two healthiest groups (NMI, MMD) reported the greatest life satisfaction and generally did not differ from each other. Subjects in the CNMI group reported significantly less satisfaction than subjects in the NMI and MMD groups, but greater life satisfaction than subjects who were currently mentally ill (CMI). The results demonstrate that an individual's current quality of life is strongly related to the extent of his or her history of mental illness. The findings provide the first available benchmarks for the Q-LES-Q for the degree of life satisfaction experienced by an untreated sample of individuals.

Keywords

Life satisfaction; Mental disorders; Volunteers; Normal controls

1. Introduction

Measurement of quality of life has become an important aspect of assessing the health of patients in treatment for psychiatric disorders. In particular, the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) (Endicott et al., 1993) has been used widely to measure life satisfaction in patients during pre and post treatment phases of therapy.

Studies often use the short-form of the Q-LES-Q, which is identical to the General Activities subscale of the larger instrument. Baseline levels of life satisfaction have been low across a wide range of psychiatric disorders (Kocsis et al., 1997; Miller et al., 1998; Pollack et al., 1998; Freeman et al., 1999; Koran et al., 2002; Rapaport et al., 2002; Liebowitz et al., 2003; Ritsner et al., 2003), and post-treatment scores have shown statistically significant improvement for patients with mood and anxiety related illnesses (Kocsis et al., 1997; Pollack et al., 1997; Russell et al., 2001; Schneider et al., 2001; Koran et al., 2002; Rapaport et al., 2002; Liebowitz et al., 2003).

Corresponding author. Tel.: +1 212 5435533; fax: +1 212 5435386; e-mail: des3@columbia.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

The degree to which Q-LES-Q post-treatment scores are consistent with those from healthy individuals who are not in treatment for a mental illness is not known because very few studies have collected quality of life data from controls. Chand et al. (2004) reported that controls selected by a general health questionnaire reported a mean score of 67% on the General Activities subscale of the Q-LES-Q. Gelfin et al. (1998) found that never mentally ill subjects screened with the use of a standardized psychiatric interview reported a raw mean score of 55.1 on the General Activities subscale, which represents 73% of the total possible score. Additional research is needed to better understand how different referent groups of 'normal' controls score on measures of quality of life. The current study assessed the quality of life of subjects who were not in treatment for a psychiatric disorder, separated into groups according to lifetime history of mental illness.

2. Methods

Subjects were participants in a centralized recruitment program (CRP) for controls for studies at the New York State Psychiatric Institute. A description of the recruitment and assessment procedures for the CRP is included in this report. Additional information about this program can be found in previous reports (Schechter et al., 1994, 1998; Schechter and Lebovitch, 2005). The protocol was begun after IRB approval was obtained.

2.1 Recruitment

Subjects were recruited by posted notices and letters that indicated the program was seeking individuals to participate in studies at the medical center as part of comparison groups. Recruitment materials did not indicate the CRP was seeking "healthy" or "normal" controls in order to decrease the potential for under reporting of psychiatric and medical illness. Screening procedures were used to increase the yield of currently healthy individuals who would be available to participate in multiple studies at the medical center. As a result, the CRP sample was not designed to be epidemiologically representative of the community.

The CRP recruited, evaluated, and maintained a large pool of well-characterized individuals who participated in research as part of comparison groups. The subject pool included information from every individual who completed the diagnostic assessment regardless of psychiatric and medical status at the time of the initial evaluation. Thus, the database of individuals did not include only narrowly defined "normal" controls, but rather was a pool of potential subjects who met a wide variety of diagnostic criteria. The CRP thereby made maximum use of evaluated subjects and had more flexibility to accommodate investigators with different inclusion/exclusion criteria for their comparison group samples. The program provided controls for 167 studies over a period of 15 years. Only about 8% of the studies required that all of their controls have no history of mental illness. The remaining studies recruited currently healthy subjects with selected past histories along with those who were never mentally ill. The acceptable past psychiatric history varied according to the needs of a given study.

2.3 Psychiatric evaluation

A semi-structured telephone interview was used to screen for the initial exclusion criteria listed in Table 1. A substantial portion of the telephone screen was designed to increase the likelihood that subjects who went on to receive a full diagnostic interview would not be currently mentally ill (criteria 4–8).

Individuals who passed the telephone screen were sent a self-report Medical History Questionnaire (MHQ) and consent forms. All subjects had the opportunity to ask questions before providing written informed consent to participate in the recruitment program.

The presence of current and lifetime mental illness was assessed by trained clinical interviewers according to Research Diagnostic Criteria (Spitzer et al., 1978) using the Schedule for Affective Disorders and Schizophrenia - Lifetime version (SADS-L) (Endicott and Spitzer, 1978). An addendum included sections for DSM-IV (American Psychiatric Association, 1994) disorders not specifically covered by the SADS-L.

Overall level of symptomatology during the past month was measured by clinical raters during the diagnostic evaluation using one item from the SADS-L that was scored from 1 (no or minimal symptoms) to 6 (major impairment in several areas of life).

2.4 Quality of life assessment

Subjects completed the long-form of the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) (Endicott et al., 1993) immediately after the in-person diagnostic interview. The Q-LES-Q is a self-report instrument comprised of 93 items, 91 of which can be grouped into eight summary scales reflecting satisfaction with physical health, subjective feelings, work, household duties, school, leisure activities, social relationships, and general activities. The General Activities subscale often is used as a short-form of the Q-LES-Q. It is comprised of 14 items covering a broad range of life issues, plus two items measuring satisfaction with medication, and overall life satisfaction and contentment.

Each of the 93 items is rated on a 5-point scale that indicates the degree of enjoyment or satisfaction experienced during the past week. If one is looking at change over time, a week usually is considered sufficient for symptom and functional measures and should also be adequate for quality of life assessments. The longer the time period studied, the less reliable will be a subject's judgment. In general, one wants the time period under evaluation to be the same across studies.

Higher scores on the Q-LES-Q are indicative of greater enjoyment or satisfaction. Raw summary scores are expressed as a percentage of the maximum possible score to facilitate comparisons across areas of functioning. Because the minimum score for a given item is 1 rather than 0 the maximum percentage score is calculated as follows: $(\text{Raw Score} - \text{Minimum Possible Score}) / (\text{Maximum Possible Score} - \text{Minimum Possible Score})$. For example, on the General Activities subscale/Short-Form the worst possible raw score is 14 and the best is 70. Note: some investigators have reported their data in terms of raw mean scores while others have calculated the maximum percentage score as a percentage of 70.

Test-retest reliability and internal consistency (Cronbach's alpha) of the subscales of the Q-LES-Q were assessed with a subset ($n = 69$) of the overall sample. Subjects completed one copy of the long-form of the Q-LES-Q at home and were sent a second copy of the instrument as soon as the first was received. The results demonstrated that the Q-LES-Q has good test-retest reliability, and its subscales have high levels of internal consistency (Table 2). Even though the internal consistency was high, indicating some redundancy of coverage in each of the subscales, we chose to retain the items because scales made up of more items tend to be more sensitive to change. In addition, some investigators who focus upon the content of a single subscale such as Social Relationships generally are interested in individual items included in the scale.

The General Activities scale is highly correlated with each of the other scales and thus legitimately can be considered a short form of the Q-LES-Q (Table 3). However, it does not provide as detailed an assessment of the many and varied aspects of quality of life as do the other individual subscales.

2.5 Group assignment

The data from all subjects who completed the full diagnostic evaluation were maintained in the program's database of potential subjects who could be recruited for studies. Subjects were assigned to one of four mutually exclusive categories based on the results of the diagnostic interview:

- Never Mentally Ill (NMI);
- Minor Mental Disorders only (MMD);
- Currently Not Mentally Ill (CNMI) with a history of mental illness that did not meet criteria for the Minor Mental Disorders category; and
- Currently Mentally Ill (CMI) with other than one specific phobia.

The MMD category was created to tag individuals with only one episode of a relatively minor mental illness because such individuals were useful controls for a wide range of studies. Subjects met criteria for this category if they met the RDC for only one of the following:

1. Minor Depressive Disorder (past) < 16 weeks;
2. Generalized Anxiety Disorder (past) < 16 weeks;
3. Specific Phobia (current or past);
4. Hypomania (past); or
5. Adjustment Disorder with Depressed Mood (past) < 16 weeks.

Subjects did not meet criteria for the MMD category if they had experienced more than one episode of any of these disorders or any other past mental illness.

Subjects met criteria for the Currently Not Mentally Ill category if they had a history of psychiatric illness that did not qualify them for the MMD category and they were currently not mentally ill.

The data from subjects who were currently mentally ill were maintained in the database for comparison purposes.

2.6 Data analytic plan

Analysis of variance procedures and Chi Square tests were used to compare the four groups with regard to demographic characteristics, Q-LES-Q scale scores, and overall level of symptomatology over the past month. Least significant difference tests were used to make paired group comparisons when an overall means test was significant at $p \leq .05$.

3. Results

3.1 Background

The social demographic characteristics of the participants in each group are presented in Table 4. In total, 529 subjects completed the diagnostic evaluation and the Q-LES-Q on the same day. Approximately 25% ($n=130$) of the subjects were Never Mentally Ill (NMI) and about 52% ($n=274$) were currently healthy, but had a history of at least one episode of mental illness. Of those, 9% of the overall sample ($n=49$) had experienced only one episode of a minor mental disorder (MMD), and 43% ($n=225$) were currently not mentally ill (CNMI), but had a more clinically significant history of mental illness. The remaining 24% ($n=125$) of the sample were experiencing a current episode of mental illness at the time of the evaluation (CMI).

Subjects ranged in age from 18 to 84, with a median of 33 years. Both males and females were well represented, but females comprised a higher proportion of the sample (58% versus 42%). Although the majority of the subjects were Caucasian (65%), the subject pool also included a large number of minority candidates (35%, $n = 186$). The subjects tended to be highly educated, with 95% having gone beyond high school, and approximately 78% having at least a bachelor's degree. Approximately 30% of the sample were married or living with a mate at the time of the evaluation, 57% had never married, and 13% had been in a previous marriage.

Chi Square and Anova tests indicated that the diagnostically defined groups did not differ significantly with regard to sex, age, educational achievement, ethnicity, or marital status.

3.2 Quality of life

The Q-LES-Q subscale means, expressed as a percentage of the total subscale scores, are presented in Table 5. Anova tests revealed a significant overall group effect for each of the subscales with the sole exception of school satisfaction. Analysis of covariance tests with age and sex controlled were used to determine the extent to which gender and age influenced the findings. As the covariate adjusted group effects were identical to the non adjusted effects with the sole exception of school satisfaction, which reached statistical significance in the adjusted test, these are provided in Table 5.

Paired comparison of covariate adjusted means revealed the same between group effects as those with non adjusted means for all subscales except the school satisfaction scale. The group comparisons indicated that subjects in the NMI and MMD groups reported the greatest life satisfaction and did not differ significantly from each other. In contrast, subjects in the NMI and MMD groups reported greater life satisfaction across a wide range of areas than subjects who currently were healthy, but had a significant history of mental illness (CNMI). The NMI and MMD groups also expressed significantly more life satisfaction in all domains than subjects who were currently mentally ill (CMI). Finally, subjects who were currently ill were significantly less satisfied in a wide range of areas than were subjects in the CNMI group.

3.3 Psychiatric history

Lifetime psychiatric history for each group is presented in Table 6. By definition, subjects in the NMI group had no lifetime history of mental illness, and subjects in the MMD group had experienced only one episode of one of several disorders (hypomania, minor depression, generalized anxiety disorder, phobic disorder, or adjustment disorder). Those with adjustment disorder are noted within the category of other psychiatric disorders.

Subjects in the CNMI and CMI groups had very similar lifetime psychiatric history profiles. None of the subjects had a history of a psychotic disorder. Major Depressive Disorder was by far the most commonly experienced illness (68.4% and 72.8% respectively). The next most commonly occurring disorders included hypomanic disorder, minor depressive disorder, generalized anxiety disorder, phobic disorder, and alcoholism.

Table 7 provides the rates of current mental disorders in the CMI group. Phobic disorder was the most common current psychiatric illness (43.2%), with the majority of the phobias of the simple subtype (61.7%). Otherwise, major depression remained the most common mental disorder (13.6%).

The relationship between quality of life and level of psychiatric symptomatology and functioning during the past month is explored in Table 8. Overall level of symptomatology and functioning was measured by clinicians during the SADS-L interview on a 1 to 6 scale with higher numbers indicative of greater levels of impairment. These scores are shown in relation to scores from the General Activities (GA) subscale of the Q-LES-Q. With the exception of

one individual, this community sample of subjects was rated as experiencing no more than a moderate level of symptoms with some difficulty in functioning (level 4 of 6 on the SADS-L).

The mean percentage of the maximum possible score on the General Activities subscale of the Q-LES-Q corresponded with the SADS-L level of functioning such that individuals rated by clinicians as having lower levels of impairment rated themselves higher in life satisfaction (Table 8). Average GA subscale scores ranged from a high of 85.7 in subjects with no/minimal symptoms and no impairment to 64.3 in subjects who experienced a moderate level of symptoms or who were functioning with some difficulty. This relationship was demonstrated further by a significantly negative correlation between the GA subscale score and the SADS-L level of impaired functioning ($r = -0.32$, $df = 504$, $P \leq 0.0001$). The distribution of scores from the GA subscale ranged broadly for subjects at each level of impairment (Table 7), indicating that quality of life was related to, but not redundant with, overall severity of illness.

Group means for overall level of symptoms and impairment during the past month are presented in Table 9. Overall level of functioning ranged from a mean of 1.96 in the NMI group to 2.67 in the CMI group on a possible 6-point scale. The anova test revealed a significant overall group effect ($F(3,502) = 27.0$, $P \leq 0.0001$). Between group tests indicated that overall level of symptomatology did not differ for subjects in the NMI (1.96) and MMD (2.10) groups, but that the NMI group had fewer symptoms and were functioning with less impairment than were subjects who were currently healthy, but had a significant history of mental illness (CNMI) (2.20). Subjects who were currently ill (CMI) (2.67) were functioning with a significantly greater level of impairment than were subjects in any of the other three groups.

4. Discussion

This investigation assessed perceived quality of life in a sample of subjects who were not in treatment for a psychiatric disorder. The findings demonstrate that an individual's current quality of life is strongly related to the extent of his or her history of mental illness. Subjects with no history of mental disorders (NMI) reported significantly greater life satisfaction across a wide range of areas in comparison to subjects who were currently healthy, but had a clinically significant history of mental illness (CNMI). Subjects who had only minimal histories of psychiatric disorder (MMD) were almost indistinguishable from those with no history of mental illness and expressed greater life satisfaction across the board than subjects with a more significant history (CNMI). The degree of life satisfaction expressed by the CNMI group was intermediate between that reported by the healthiest subjects (NMI, MMD), and those who were mentally ill at the time of the evaluation (CMI).

The results further suggest that for currently healthy individuals one's past history of mental illness may be reflected in one's current level of psychiatric symptomatology. Although overall level of functioning was not distinguishable in the two healthiest groups (NMI, MMD), current functioning was significantly higher in subjects who were never mentally ill (NMI) than in currently healthy subjects with a strong past history of mental illness (CNMI).

Finally, the results support the proposition that although current levels of symptomatology and functioning are related to current levels of quality of life, the two measures are not redundant. Degree of life satisfaction was negatively related to degree of impaired functioning such that, in general, individuals who reported greater life satisfaction had lower levels of impairment. However, the broad distribution of quality of life scores at each level of impairment indicated quality of life should be considered a separate and important outcome measure. These findings are consistent with treatment studies that demonstrated symptomatic improvement is associated with improved quality of life (Pearlstein et al., 2000; Russell et al., 2001; Schneider et al., 2001; Koran et al., 2002; Carpenter et al., 2002; Halbreich et al., 2002; Rapaport et al.,

2002; Liebowitz et al., 2003; Ritsner et al., 2003), and with evidence that symptom severity explains only a small portion of the variance of quality of life scores (Rapaport et al., 2005).

It should be noted that the rates of mental illness and levels of quality of life found in the current sample are not intended to be indicative of those in the local community and are not generalizable to the population because this was not an epidemiologic study. Ideally we would have been able to provide national norm data, but restricted funding precluded this possibility. The Centralized Recruitment Program for controls provided a large pool of well-characterized individuals who received a full diagnostic evaluation for lifetime history of mental illness. The resulting categorization of subjects into well-characterized diagnostic groups enabled the CRP to assess quality of life as a function of the degree of current and lifetime history of mental illness.

Treatment studies often use the short-form of the Q-LES-Q, which is identical to the General Activities subscale of the larger instrument. Depressed women over 60 treated with sertraline and estrogen raised their Q-LES-Q score from 63% to 74% of the scale (Schneider et al., 2001). Patients with chronic major depression and significant anxiety improved their Q-LES-Q score from 54% to 79% after treatment with sertraline (Russell et al., 2001). Chronically depressed patients who had not responded to a trial of standard monotherapy increased their score on the General Activities subscale of the Q-LES-Q from 41% to 74% after their treatment was augmented with mirtazepine (Carpenter, 2002). Bipolar patients in remission reported a Q-LES-Q score of 70% (Chand et al., 2004). Dysthymic patients in remission after treatment with an antidepressant raised their Q-LES-Q score from 52% to 74%, whereas patients in the same trial who did not achieve remission scored only 55% at the end of the trial (Kocsis et al., 1997). Patients with anxiety related disorders have reported post-treatment Q-LES-Q scores of 75% for socially phobic patients (Liebowitz et al., 2003), 65–75% for patients with post-traumatic stress disorder (Brady et al., 2000; Rapaport et al., 2002), 74% for those with obsessive-compulsive disorder (Koran et al., 2002), and 72–76% for panic disorder patients (Pollack et al., 1998; Rapaport et al., 1998). Schizophrenic patients whose symptoms were clinically stable reported a Q-LES-Q score of only 59% (Chand et al., 2004).

In this investigation, the results from the GA subscale indicate that the healthiest subjects reported mean scores of 82% (NMI) and 84% (MMD) of the total score. Currently healthy subjects with a significant history of psychiatric disorder reported a mean score of 78% (CNMI). This group of subjects is similar to patients in treatment studies of mood and anxiety disorders who achieved full remission of their symptoms. Subjects in the CNMI group did not meet criteria for a current mental illness, but had a history that primarily included major depression, minor depression, hypomania, or generalized anxiety disorder. None of the individuals in the CNMI group had a history of a psychotic disorder.

Future treatment studies that include a measure of quality of life may wish to assess their findings separately for patients who achieve full remission of their disorder in addition to endpoint analyses for intent to treat patients, completers, and those who achieve partial remission. Individuals whose symptoms reach full remission would be consistent with those in the CNMI group. Very few investigators who have used the Q-LES-Q have reported their data in this manner. In one such study, Rapaport et al. (2000) found that full responders to treatment with sertraline for panic disorder reported a Q-LES-Q score of 87%. However, dysthymic patients who no longer met DSM-III-R criteria for dysthymia reported a total Q-LES-Q score of only 74% (Kocsis et al., 1997). In addition, studies wishing to compare post-treatment findings to those from the CNMI group will need to calculate Q-LES-Q scores as maximum percent of scale scores as defined in this report rather than as raw means.

Subjects who were mentally ill at the time of the evaluation (CMI) reported a mean score on the General Activities subscale of 73%. This score is higher than the baseline scores of patients in treatment for depression or anxiety which have tended to range from the mid 50s to the mid to high 60s (Kocsis et al., 1997; Pollack et al., 1998; Rapaport et al., 1998; Brady et al., 2000; Russell et al., 2001; Schneider et al., 2001; Koran et al., 2002; Liebowitz et al., 2003). It is not surprising that the CMI score was higher than those reported by patients in treatment, but significantly lower than that from the CNMI group. Although subjects in the CMI group met criteria for a current mental illness, the fact that these individuals had not chosen to seek treatment suggests the severity of their symptoms was not as great as that experienced by individuals who volunteered for treatment studies. Subjects in the CMI group on average reported minimal to mild symptoms and generally were functioning well. The small number of subjects who reported at least a moderate level of symptoms or who were functioning with some difficulty scored 64% on the General Activities subscale of the Q-LES-Q, a score which is consistent with patients in treatment studies for mood and anxiety disorders.

The results of this investigation highlight the importance of considering how subjects are selected to serve as 'normal' controls for psychiatric research. Currently healthy subjects differ significantly as a function of their past history of mental illness both with regard to their current levels of illness defining symptomatology and their perceived quality of life enjoyment and satisfaction. Investigators conducting treatment research may use the current findings to assess the degree to which treated patients achieve a quality of life that is consistent with untreated individuals who have different lifetime histories of mental illness. Investigators conducting biological studies may use the current findings to guide their selection of 'normal' controls.

Acknowledgements

This investigation was supported in part by National Institute of Mental Health grants MH-30906 and MH-61274, and by the New York State Department of Mental Health. We also gratefully acknowledge the contributions made by Shelly Lebovitch, Tracey Strasser, Ph.D., Tara Singer, Ph.D., Gina McSheffrey, Jennifer Kuperman, M.S., and Christa Santangelo, Ph.D. during the data collection phase of the project.

References

- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4. American Psychiatric Association Press; Washington, DC: 1994.
- Brady K, Pearlstein T, Asnis GM, Baker D, Rothbaum B, Sikes CR, Farfel GM. Efficacy and safety of sertraline treatment of posttraumatic stress disorder: A randomized controlled trial. *Journal of the American Medical Association* 2000;283:1837–1844. [PubMed: 10770145]
- Carpenter LL, Yasmin S, Price LH. A double-blind, placebo-controlled study of antidepressant augmentation with mirtazapine. *Biological Psychiatry* 2002;51:183–188. [PubMed: 11822997]
- Chand PK, Mattoo SK, Sharan P. Quality of life and its correlates in patients with bipolar disorder stabilized on lithium prophylaxis. *Psychiatry and Clinical Neurosciences* 2004;58:311–318. [PubMed: 15149299]
- Endicott J, Spitzer RL. A diagnostic interview, The Schedule for Affective Disorders and Schizophrenia. *Archives of General Psychiatry* 1978;35:837–844.
- Endicott J, Nee J, Harrison W, Blumenthal R. Quality of Life Enjoyment and Satisfaction Questionnaire: A new measure. *Psychopharmacology Bulletin* 1993;29:321–326. [PubMed: 8290681]
- Freeman EW, Rickels K, Sondheimer SJ, Polansky M. Differential response to antidepressants in women with premenstrual syndrome/premenstrual dysphoric disorder. *Archives of General Psychiatry* 1999;56:932–939. [PubMed: 10530636]
- Gelfin Y, Gorfine M, Lerer B. Effect of clinical doses of fluoxetine on psychological variables of healthy volunteers. *American Journal of Psychiatry* 1998;155:290–292. [PubMed: 9464215]
- Halbreich U, Bergeron R, Yonkers KA, Freeman E, Stout AL, Cohen L. Efficacy of intermittent, luteal phase sertraline treatment of premenstrual dysphoric disorder. *Obstetrics and Gynecology* 2002;100:1219–1229. [PubMed: 12468166]

- Kocsis JH, Zisook S, Davidson J, Shelton R, Yonkers K, Hellerstein DJ, Rosenbaum J, Halbreich U. Double-blind comparison of sertraline, imipramine, and placebo in the treatment of dysthymia: psychosocial outcomes. *American Journal of Psychiatry* 1997;154:390–395. [PubMed: 9054788]
- Koran LM, Hackett E, Rubin A, Wolkow R, Robinson D. Efficacy of sertraline in the long-term treatment of obsessive-compulsive disorder. *American Journal of Psychiatry* 2002;159:88–95. [PubMed: 11772695]
- Liebowitz MR, DeMartinis NA, Weihs K, Londborg PD, Smith WT, Chung H, Fayyad R, Clary CM. Efficacy of sertraline in severe generalized social anxiety disorder: Results of a double-blind, placebo-controlled study. *Journal of Clinical Psychiatry* 2003;64:785–792. [PubMed: 12934979]
- Miller IW, Keitner GI, Schatzberg AF, Klein DN, Thase ME, Rush AJ, Markowitz JC, Schlager DS, Kornstein SG, Davis SM, Harrison WM, Keller MB. The treatment of chronic depression, part 3: Psychosocial functioning before and after treatment with sertraline or imipramine. *Journal of Clinical Psychiatry* 1998;59:608–619. [PubMed: 9862607]
- Pearlstein TB, Halbreich U, Batar ED, Brown CS, Endicott J, Frank E, Freeman EW, Harrison WM, Haskett RF, Stout AL, Yonkers KA. Psychosocial functioning in women with premenstrual dysphoric disorder before and after treatment with sertraline or placebo. *Journal of Clinical Psychiatry* 2000;61:101–109. [PubMed: 10732657]
- Pollack MH, Otto MW, Worthington JJ, Manfro GG, Wolkow R. Sertraline in the treatment of panic disorder: A flexible-dose multicenter trial. *Archives of General Psychiatry* 1998;55:1010–1016. [PubMed: 9819070]
- Rapaport MH, Wolkow RM, Clary CM. Methodologies and outcomes from the sertraline multicenter flexible-dose trials. *Psychopharmacology Bulletin* 1998;34:183–189. [PubMed: 9640998]
- Rapaport MH, Pollack M, Wolkow R, Mardekian J, Clary C. Is placebo response the same as drug response in panic disorder? *American Journal of Psychiatry* 2000;157:1014–1016. [PubMed: 10831487]
- Rapaport MH, Endicott J, Clary CM. Posttraumatic stress disorder and quality of life: Results across 64 weeks of sertraline treatment. *Journal of Clinical Psychiatry* 2002;63:59–65. [PubMed: 11838628]
- Rapaport MH, Clary C, Fayyad R, Endicott J. Quality of life impairment in depressive and anxiety disorders. *American Journal of Psychiatry* 2005;162:1171–1178. [PubMed: 15930066]
- Ritsner M, Kurs R, Gibel A, Hirschmann S, Shinkarenko E, Ratner Y. Predictors of quality of life in major psychoses: A naturalistic follow-up study. *Journal of Clinical Psychiatry* 2003;64:308–315. [PubMed: 12716273]
- Russell JM, Koran LM, Rush J, Hirschfeld RMA, Harrison W, Friedman ES, Davis S, Keller M. Effect of concurrent anxiety on response to sertraline and imipramine in patients with chronic depression. *Depression and Anxiety* 2001;13:18–27. [PubMed: 11233456]
- Schechter D, Lebovitch R. Normal controls are expensive to find: Methods to improve cost-effectiveness of the screening evaluation. *Psychiatry Research* 2005;136:69–78. [PubMed: 16023733]
- Schechter D, Strasser TJ, Santangelo C, Kim E, Endicott J. ‘Normal’ control subjects are hard to find: A model for centralized recruitment. *Psychiatry Research* 1994;53:301–311. [PubMed: 7870850]
- Schechter D, Singer TM, Kuperman J, Endicott J. Selection of “normal” control subjects for psychiatric research: Update on a model for centralized recruitment. *Psychiatry Research* 1998;79:175–185. [PubMed: 9705055]
- Schneider LS, Small GW, Clary CM. Estrogen replacement therapy and antidepressant response to sertraline in older depressed women. *American Journal of Geriatric Psychiatry* 2001;9:393–399. [PubMed: 11739065]
- Spitzer RL, Endicott J, Robins E. Research Diagnostic Criteria: Rationale and reliability. *Archives of General Psychiatry* 1978;35:773–782. [PubMed: 655775]

Table 1

Exclusion criteria for telephone screen

Exclusion criteria	
1	Age less than 18 years
2	Not fluent in English
3	Pregnant/nursing within past 6 months
4	Current medical condition with psychiatric concomitance
5	Current use of psychotropic medication
6	Current psychotherapy/counseling
7	Mood during past week rated as poor: rating of 5 or 6 on a 6 point scale for a negative moods (depressed, anxious, irritable, confused), or rating of 1 or 2 for a positive moods(happy, sociable).
8	Current Agoraphobia, Social Phobia or multiple Simple Phobias

Table 2
Test-retest reliability and internal consistency of the Q-LES-Q summary scores

Q-LES-Q sections	Intraclass Correlation Coefficients	Internal Consistency Coefficients
Physical	0.73	0.90
Feeling	0.69	0.90
Work (n=49)	0.74	0.93
Household	0.60	0.93
School (n=15)	0.89	0.90
Leisure	0.58	0.82
Social	0.71	0.88
General	0.86	0.90

Table 3
 Pearson Correlation Coefficients for Q-LES-Q Subscales (correlation; p value; n)

Q-LES-Q Subscales	Physical	Feelings	Work	Household	School	Leisure	Social
Physical Health	1.0	0.63 <.0001	0.33 <.0001	0.40 <.0001	0.43 <.0001	0.33 <.0001	0.31 <.0001
Subjective Feelings	0.63 <.0001	1.0	0.51 <.0001	0.46 <.0001	0.44 <.0001	0.38 <.0001	0.47 <.0001
Work	0.33 <.0001	0.51 <.0001	1.0	0.32 <.0001	0.42 <.0001	0.26 <.0001	0.33 <.0001
Household Duties	0.40 <.0001	0.46 <.0001	0.32 <.0001	1.0	0.25 <.0001	0.32 <.0001	0.44 <.0001
School	0.43 <.0001	0.44 <.0001	0.42 <.0001	0.25 <.0001	1.0	0.26 <.0001	0.38 <.0001
Leisure Activities	0.33 <.0001	0.38 <.0001	0.26 <.0001	0.32 <.0001	0.26 <.0001	1.0	0.44 <.0001
Social Relationships	0.31 <.0001	0.47 <.0001	0.33 <.0001	0.44 <.0001	0.38 <.0001	0.44 <.0001	1.0
General Activities	0.62 <.0001	0.70 <.0001	0.41 <.0001	0.49 <.0001	0.45 <.0001	0.43 <.0001	0.58 <.0001
	530	529	367	519	256	527	527

Table 4

Social demographic characteristics

	NMI (n=130)		MMD (n=49)		CNMI (n=225)		CMI (n=125)		
Sex	%		%		%		%		
Male	43.1		56.7		47.1		35.2		χ^2 5.4
Female	56.9		63.3		52.9		64.8		
Age	Mean		Mean		Mean		Mean		F
	32.3		30.6		32.8		35.0		1.5
	%		%		%		%		χ^2 23.6
Education									
> 16 years	42.3		44.9		33.3		32.0		
4 year college	37.7		38.8		48.0		35.2		
1-3 years college	16.2		12.2		16.4		23.2		
12 years	3.1		4.1		2.2		7.2		
10-11 years	0.0		0.0		0.0		0.0		
7-9 years	0.8		0.0		0.0		1.6		
≤ 6 years	0.0		0.0		0.0		0.8		
Ethnicity	%		%		%		%		
Caucasian	65.4		63.3		69.8		56.0		χ^2 21.7
Black	11.5		10.2		12.0		18.4		
Hispanic	7.7		8.2		6.2		14.4		
Asian	13.8		14.3		10.2		8.8		
Other/Missing	1.6		4.1		1.8		2.4		
Marital Status	%		%		%		%		
Never Married	56.9		59.2		57.8		53.6		
Married/Living w/Mate	30.8		32.7		31.1		28.8		
Divorced	9.2		6.1		6.2		12.0		
Separated	0.0		2.0		1.8		4.8		
Widowed	3.1		0.0		3.1		0.8		

Table 5
Q-LES-Q means expressed as a percent of maximum possible total score when age and sex were controlled

Q-LES-Q subscales	SD	NMI Mean % N	MMD Mean % N	CNMI Mean % N	CMI Mean % N	F	P <	Between Group Comparisons @ P ≤ .05
Physical Health	13.5	80.3 130	81.1 49	75.7 225	71.3 125	11.7	0.0001	NMI>CNMI, CMI MMD>CNMI, CMI CNMI>CMI
Subjective Feelings	10.8	84.7 130	87.4 49	81.6 224	77.9 125	12.8	0.0001	NMI>CNMI, CMI MMD>CNMI, CMI CNMI>CMI
Work ^a	12.4	82.8 79	85.7 34	80.4 164	78.7 91	3.4	0.02	NMI>CMI MMD>CNMI, CMI
Household Duties ^a	16.8	77.7 127	79.4 49	72.4 218	71.8 123	5.0	0.002	NMI>CNMI, CMI MMD>CNMI, CMI
School ^a	16.6	77.8 68	76.3 30	73.2 102	69.9 54	2.7	0.05	MMD>CNMI, CMI NMI>CMI
Leisure Activities	13.5	79.5 129	79.8 49	76.9 224	72.7 124	6.2	0.0005	NMI>CMI MMD>CMI CNMI>CMI
Social Relationships	12.8	77.6 129	83.2 49	76.7 223	72.1 124	9.4	0.0001	NMI<MMD; NMI>CMI MMD>CNMI, CMI CNMI>CMI
General Activities	11.3	81.8 130	83.4 48	78.4 224	72.7 125	17.6	0.0001	NMI>CNMI, CMI MMD>CNMI, CMI CNMI>CMI

^a Scored only if activities ordinarily would be expected of the subject.

Table 6

Lifetime RDC diagnoses

RDC diagnoses	NMI (n=130) %	MMD (n=49) %	CNMI (n=225) %	CMI (n=125) %
Schizo-affective, manic	0.0	0.0	0.0	0.0
Schizo-affective, depressed	0.0	0.0	0.0	0.0
Schizophrenia	0.0	0.0	0.0	0.0
Unspecified Functional Psychosis	0.0	0.0	0.0	0.0
Manic Disorder	0.0	0.0	0.0	0.8
Hypomanic Disorder	0.0	8.2	26.7	24.8
Major Depressive Disorder	0.0	0.0	68.4	72.8
Bipolar with Mania	0.0	0.0	0.0	0.8
Bipolar with Hypomania	0.0	0.0	17.8	18.4
Minor Depressive Disorder	0.0	44.9	26.2	24.8
Panic Disorder	0.0	0.0	0.4	3.2
Generalized Anxiety Disorder	0.0	18.4	19.1	12.8
Obsessive-Compulsive Disorder	0.0	0.0	0.0	1.6
Phobic Disorder	0.0	20.4	1.3	44.8
Alcoholism	0.0	0.0	17.8	16.8
Drug Use Disorder	0.0	0.0	3.6	8.0
Briquet's	0.0	0.0	0.0	0.0
Cyclothymic Personality Disorder	0.0	0.0	0.0	3.2
Labile Personality Disorder	0.0	0.0	0.0	5.6
Antisocial Personality Disorder	0.0	0.0	0.0	0.8
Schizotypal Features	0.8	0.0	4.4	9.6
Other Psychiatric Disorders	0.0	6.1	12.4	22.4

Table 7
Current RDC diagnoses for the currently mentally ill group

RDC diagnoses	%
Schizo-affective, manic	0.0
Schizo-affective, depressed	0.0
Schizophrenia	0.0
Unspecified Functional Psychosis	0.0
Manic Disorder	0.0
Hypomanic Disorder	8.8
Major Depressive Disorder	13.6
Minor Depressive Disorder	3.2
Chronic Intermittent Depressive Disorder	4.0
Panic Disorder	0.0
Generalized Anxiety Disorder	4.0
Obsessive-Compulsive Disorder	0.8
Phobic Disorder ^a	43.2
Agoraphobic Subtype	6.7
Social Subtype	18.3
Simple Subtype	61.7
Mixed Subtype	13.3
Alcoholism	7.2
Drug Use Disorder	0.8
Other Psychiatric Disorders	17.6

^aSubtype information was missing for one subject.

Table 8
Relationship between Q-LES-Q General Activities Scale score and overall level of symptomatology/functioning

Level of functioning from SADS-L	N	Mean %	SD	Q-LES-Q Min. %	General Activities 25% Scale score	Median %	75%	Max%
1 = Absent/minimal symptoms, good functioning all areas, no impairment in functioning	40	85.7	10.3	65.4	77.7	89.0	94.2	98.2
2 = Absent/minimal symptoms, no more than slight impairment in functioning	333	79.9	10.4	41.1	75.0	80.4	87.5	100.0
3 = Some mild symptoms or some difficulty in several areas of functioning, generally functioning well	111	75.5	11.2	39.3	69.6	75.0	82.1	100.0
4 = Moderate symptoms or generally functioning with some difficulty	19	64.3	13.8	32.1	55.4	69.6	75.0	83.9
5 = Serious symptoms or serious impairment in functioning	0							
6 = Major impairment in several areas of functioning	1							

Table 9

Overall level of symptomatology and functioning across groups

Level of functioning from SADS-L	SD	NMI Mean N	MMD Mean N	CNMI Mean N	CMI Mean N	F	P <	Between Group Comparisons @ P ≤ 0.05
Sickest overall functioning in last month	0.61	1,96	2,10	2,20	2,67	27,0	0,0001	NMI<CNMI, CMI
		129	48	224	105			MMD<CMI CNMI<CMI