Psychosocial Functioning in Women With Premenstrual Dysphoric Disorder Before and After Treatment With Sertraline or Placebo

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Background: The objective of this study was to evaluate the pretreatment psychosocial functioning of women with premenstrual dysphoric disorder (PMDD) and the effect of sertraline treatment on psychosocial functioning in these patients.

Method: Two hundred forty-three women recruited from 12 university-affiliated sites and meeting DSM-IV criteria for PMDD completed 1 cycle of single-blind placebo and were randomly assigned to flexible dose sertraline or placebo for 3 cycles. Psychosocial functioning was assessed by the Daily Record of Severity of Problems (DRSP), the Social Adjustment Scale (SAS), and the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q).

Results: SAS scores during the follicular phase were similar to SAS scores of community norms, whereas the pretreatment SAS and Q-LES-Q scores during the luteal phase were similar to scores of women with depressive disorders. Sertraline was significantly more effective than placebo in improving psychosocial functioning as measured by the SAS, the Q-LES-Q, and the 3 DRSP items of impaired productivity, interference with social activities, and interference with relationships with others. Improvement in psychosocial functioning assessed by SAS and Q-LES-Q correlated with improvement in symptomatology assessed by the Clinical Global Impressions-Improvement (CGI-I) scale and the Hamilton Rating Scale for Depression (HAM-D). Remitters (CGI-I score of 1) were more likely to function better at baseline and showed larger improvements in functioning and quality of life with treatment compared with nonremitters.

Conclusion: Sertraline was superior to placebo in improving psychosocial functioning in women with PMDD as reflected by SAS, Q-LES-Q, and DRSP measures. Functional improvement correlated with improvement in premenstrual symptomatology and was apparent by the second cycle of treatment. Comparison of pretreatment SAS scores in women with PMDD with the scores of other populations of women documents the degree of luteal phase functional impairment in women with PMDD and a relative absence of follicular phase impairment.

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The DSM-IV criteria for premenstrual dysphoric disorder (PMDD) requires premenstrual impairment in interpersonal and role functioning in addition to the documentation of specific symptoms by prospective daily charting and the absence of concurrent disorders that are premenstrually exacerbated.[1] Impaired functioning is one of the features that defines PMDD at the "severe" end of the continuum of emotional, behavioral, and physical symptoms described as premenstrual syndrome (PMS). DSM-IV does not suggest specific measures for assessing impaired social and role functioning in PMDD or other Axis I disorders, and the assessment of functioning is often determined by the clinician's judgment based on interview. The functioning component of the multiaxial assessment described in DSM-IV is designed to help measure the psychosocial impact of a psychiatric disor-

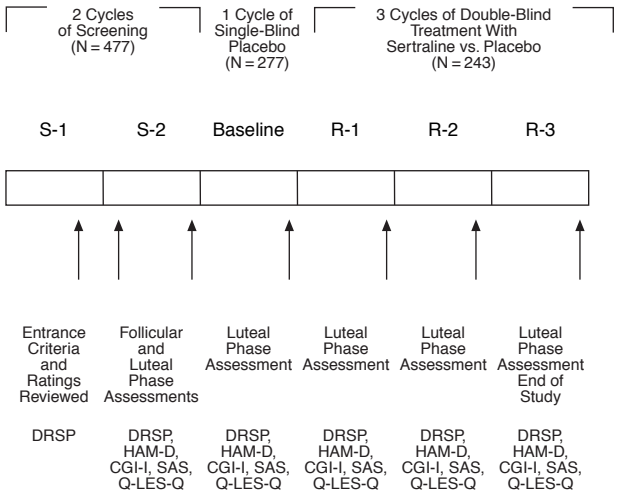
der, assist in treatment planning, and serve as a treatment outcome measure.[1] The documentation of improvement in functioning and quality of life by clinician-rated and self-report measures has become an important recent focus of treatment studies.

There is no clinician-rated or self-report instrument that is widely regarded as a fully satisfactory measure of psychosocial functioning and quality of life. One criticism of many existing rating scales of quality of life is that the scales reflect the concerns of physicians or social scientists rather than the concerns of patients.[2] The World Health Organization has emphasized the subjective nature of quality of life and that quality of life reflects patients' internal experience, the context of their culture, and their own values and goals.[3] Moreover, in patients with psychiatric disorders, self-report measures of functioning and quality of life may be influenced by affective state and other symptoms, cognitions, or recent life events.[4]

Few studies have prospectively documented the degree of functional impairment in women with PMDD before or after treatment. Functional impairment has been reported to correlate with mood symptoms more than with somatic symptoms in women with PMDD[5] and with severity of symptoms in women with prospectively confirmed PMS.[6] Even though women may have the perception that their cognitive abilities are impaired during the luteal phase, recent studies failed to document luteal changes in attention, memory, or learning in women with PMDD.[7,8] Several studies in women with retrospectively defined PMS report an adverse impact on marital and family relationships.[9–11] Women with prospectively confirmed PMS described greater conflict in their families compared with non-PMS controls,[12] and decreased marital satisfaction has been confirmed by husbands during the luteal phase.[13] Studies suggest that relationship problems may be perceived as more problematic to women with premenstrual symptoms than work impairment.[12,14] A study[15] of 1045 community-based women in the United States, United Kingdom, and France also reported that functional impairment was more significant at home than in social, school, and occupational situations. This study also suggested that women who reported more severe symptoms experienced more functional impairment. One previous study[16] reported an increased number of sick days in women with self-described PMS. However, other studies of nonclinical populations of women with self-described premenstrual symptoms have failed to demonstrate decreased premenstrual work performance or increased premenstrual absenteeism.[14,17–21]

Two small studies reported that individual cognitive therapy was superior to wait-list control in improving social functioning in 23 women with PMS[22] and that fluoxetine (flexible dose, 20–60 mg/day) was superior to placebo in improving functional impairment as assessed by visual analog scales for work efficiency and social activity in 19 subjects with PMDD.[23] A large study[24] of 320 subjects with severe PMS reported that fluoxetine, 20 or 60 mg/day, was superior to placebo in improving the social impairment subtotal score on the Premenstrual Tension Syndrome scale. A recent study[25] comparing sertraline, desipramine, and placebo reported that sertraline was superior to both desipramine and placebo in improving functioning and quality of life on 2 self-report measures in 167 women with severe PMS or PMDD. Sertraline had previously been reported to be effective for premenstrual symptoms in a multicenter, randomized, double-blind, placebo-controlled study of 243 women with stringently defined PMDD,[26] and this study is the largest study to date that has monitored psychosocial functioning in women with PMDD. During the follicular and luteal phases of the pretreatment cycle and during the luteal phase of 3 treatment cycles, women monitored their functioning and quality of life by 3 self-report measures. The present study examines the baseline functioning and quality of life in this sample of 243 women with PMDD, the effect of treatment on functioning and quality of life, the predictors of functional improvement, and the correlation of functional improvement with symptomatic improvement.

Figure 1. Study Design and Flow[a]



[a]Adapted from Yonkers et al.,[26] with permission. S-1 and S-2 are screening cycles; R-1 through R-3 are double-blind treatment cycles. Abbreviations: CGI-I = Clinical Global Impressions-Improvement scale, DRSP = Daily Record of Severity of Problems, HAM-D = Hamilton Rating Scale for Depression, Q-LES-Q = Quality of Life Enjoyment and Satisfaction Questionnaire, SAS = Social Adjustment Scale.

PATIENTS AND METHOD

This study was a multicenter, randomized clinical trial comparing sertraline and placebo in women meeting DSM-IV criteria for PMDD carried out in 12 university-affiliated centers in the United States. As shown in Figure 1, 2 cycles of screening were followed by a single-blind

Table 1. Characteristics of the Sample[a]

Characteristic	Sertraline (N = 121)	Placebo (N = 122)
Age, y		
Mean ± SD	36.8 ± 4.8	36.5 ± 5.0
Range	23–45	25–45
Duration of PMDD, y		
Mean ± SD	9.6 ± 6.3	10.9 ± 6.8
Range	1–33	1–34
Final (endpoint) dose, mg/d		
Mean ± SD	100.8 ± 36.5	124.2 ± 34.2
Range	50–150	50–150
No. of pregnancies		
Mean ± SD	1.6 ± 1.1	1.5 ± 1.2
History of postpartum depression		
N (%)	27 (28.4)	25 (26.9)
History of major depressive disorder		
N (%)	39 (32.2)	40 (32.8)
Previous psychotropic drug use		
N (%)	43 (36)	44 (36)

[a]Abbreviation: PMDD = premenstrual dysphoric disorder.

placebo cycle, and placebo nonresponders were then randomly assigned to flexible dosing of sertraline (up to 150 mg per day) or placebo for 3 cycles. The demographic characteristics of the sample and the mean dose of study drug achieved for each group are shown in Table 1. The specific inclusion and exclusion criteria, assessment procedures, and overall study design have been described in the previous treatment outcome article.[26] Psychosocial functioning was measured by the Daily Record of Severity of Problems (DRSP), the Social Adjustment Scale-Self Report (SAS), and the short form of the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q).

The DRSP[27] is a 24-item daily rating form that incorporates all of the psychological and physical symptoms included in the DSM-IV PMDD criteria as well as 3 items that measure functioning: (1) impaired productivity at work, home, or school; (2) interference with hobbies or social activities; and (3) interference with relationships with others. Women completed the DRSP daily throughout the study, rating each item from 1 (absent) to 6 (extreme). The mean DRSP scores on each item for the 5 days preceding menses were compared with the mean item scores for days 6 through 10 of the follicular phase. Subjects had to exhibit a 75% luteal increase on at least 5 DSM-IV PMDD symptoms, with a low follicular average (< 3) on each symptom. To qualify for participation in the trial, women also had to demonstrate impaired functioning by rating a 4, 5, or 6 (moderate, severe, or extreme) on at least 1 of the 3 DRSP functioning items for at least 2 luteal days of each screening cycle.

The main treatment outcome measure of the sertraline trial was the total DRSP score of the endpoint cycle, which was an average of the 21 psychological and physical symptom mean scores over 5 luteal days. Depressive, anger/irritability, and physical symptom subgroups were clinically defined from the DRSP. The 3 DRSP items of functioning were considered in separate analyses. As previously reported,[26] significant improvement with sertraline compared with placebo was noted for the total DRSP score; the depressive, anger/irritability, and physical symptom DRSP subgroup scores; and each of the 3 functional impairment items.

The SAS is a widely used self-report version of the Social Adjustment Scale.[28] The scale is composed of a total adjustment score, work and housework factor scores, a social/leisure factor score, and interpersonal factor scores assessing marital and family roles. Lower scores reflect higher functioning. Women completed the SAS during the follicular and luteal assessments during screening and at the luteal visit during each of the 3 treatment cycles. Published SAS norms exist for various outpatient populations,[29] and the female cohort of the major depression and community populations were used in data analyses.

The baseline and endpoint SAS luteal scores of the PMDD sample were also compared with the baseline and endpoint SAS scores of women who had participated in 2 other 12-week controlled trials with sertraline. These included women who had participated in a multisite chronic major depression trial (sertraline vs. imipramine) who received sertraline[30] and women who had participated in a multisite dysthymia trial (sertraline vs. imipramine vs. placebo) who received sertraline or placebo.[31] Women who met criteria for the chronic major depression study had either double depression (major depression and dysthymia) or chronic major depression without remission. Although menstrual cycle phase was not accounted for in these comparison cohorts, the women selected from the 2 cohorts approximated the age and sample size of the PMDD sample.

The Q-LES-Q is a self-report measure that asks subjects to rate various aspects of quality of life.[32] The Q-LES-Q in this study refers to the short form, or the general activities subscale, of the full measure, which has been shown to detect treatment effects in studies of mood and anxiety disorders.[25,30,31,33] Each item is rated from 1 (very poor) to 5 (very good). Results are presented as the total score, which is a percentage of total maximum possible score, and as an average of the single overall assessment item, with higher scores representing better quality of life. The Q-LES-Q was completed by subjects during the follicular and luteal visits during screening and at the luteal visit during each of the 3 treatment cycles. Q-LES-Q data for a community sample suggested that a percentage of total score of 70 or higher represents "normal" quality of life (J.E., personal observations).

Statistical Method

The statistical methods were performed using the Statistical Analysis System (versions 6.11 and 6.12).[34] An intent-to-treat perspective was used consisting of data

Table 2. Pretreatment Follicular and Luteal Social Adjustment Scale and Quality of Life Scores

	Follicular Phase			Luteal Phase			
Scale	N	Mean	SD	N	Mean	SD	p[a]
SAS factor[b]							
Total score	242	1.78	0.35	241	2.39	0.47	< .001
Work	196	1.42	0.36	192	1.98	0.61	< .001
Housework	129	1.84	0.47	133	2.61	0.74	< .001
Social/leisure	239	2.30	0.51	231	3.05	0.68	< .001
Marital	163	1.82	0.52	158	2.49	0.68	< .001
Parental	150	1.72	0.49	150	2.47	0.70	< .001
Family unit	213	1.86	0.64	213	2.56	0.80	< .001
Q-LES-Q[c]							
Total score	242	81.04	10.01	241	60.02	11.52	< .001
Overall assessment item	225	4.00	0.65	224	2.69	0.80	< .001

[a]Based on paired t test.
[b]Lower number indicates better functioning.
[c]Higher number indicates better quality of life.

Table 3. Pretreatment Follicular Social Adjustment Scale Scores Versus Community Sample

	Follicular Phase			Community Norm[a]			
SAS Factor	N	Mean	SD	N	Mean	SD	p[b]
Total score	242	1.78	0.35	277	1.61	0.34	< .001
Work and housework	196	1.53	0.37	272	1.46	0.50	NS
Social/leisure	239	2.30	0.51	277	1.83	0.53	< .001
Marital	163	1.82	0.52	191	1.77	0.49	NS
Parental	150	1.72	0.49	175	1.43	0.43	< .001
Family unit	213	1.86	0.64	270	1.54	0.62	< .001

[a]Data from Weissman et al.[29]
[b]Based on analysis of variance.

from all subjects regardless of patient compliance with the protocol. The primary outcome measures of functioning were the SAS total and factor scores, the Q-LES-Q percentage of total score and overall assessment item score, and the 3 DRSP functioning items. Analyses of the SAS and Q-LES-Q scores were conducted for the follicular and luteal phase visits during screening and for the luteal phase visits during each treatment cycle and at endpoint, with the last visit carried forward for each patient. The DRSP items were analyzed for the follicular and luteal phase during both screening and each treatment cycle.

For comparisons of treatment or remission subgroups based on a change from baseline to endpoint, analysis of covariance models were used with baseline values as the covariate. The significance of within-group changes was determined using paired t tests. Screening, baseline, and endpoint comparisons between the PMDD cohort and other clinical cohorts and between remission subgroups were performed using analysis of variance models. Correlation of functional improvement with symptomatic improvement based on time to predefined improvement was determined using a Pearson product moment correlation coefficient. Baseline predictors of functioning outcome were determined using a logistic regression model having a binary response (attaining or not attaining improvement during the study). The odds ratio (OR) for the baseline parameter was estimated and used to test if the parameter appeared to be a predictor. All tests were 2-sided and a .05 level of significance was used throughout the analyses.

RESULTS

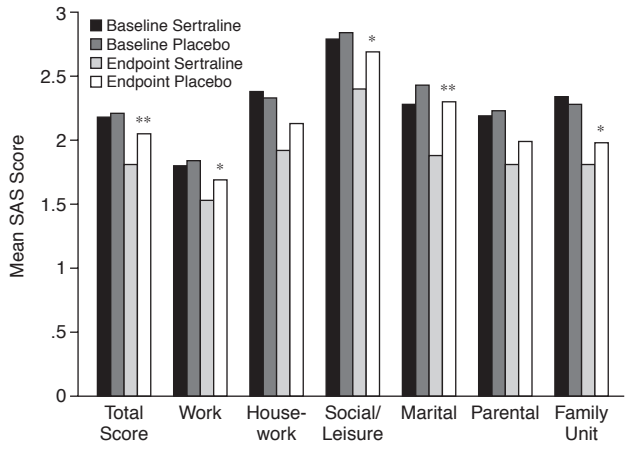
Baseline Psychosocial Functioning

Table 2 shows the comparison of SAS total and factor scores for all subjects at the follicular and luteal phases of screening (pretreatment). Significant luteal impairment was evident on the total and each SAS factor, confirming premenstrual decrease in social and role functioning in the sample as a whole. With the exception of the social/leisure factor, all follicular mean SAS scores were below 2, indicating minimal impairment. However, when these follicular scores were compared with the scores of the female cohort of a community sample,[29] PMDD subjects showed significantly more impairment on the total, social/leisure, parental, and family unit factors (Table 3). The follicular functioning of the PMDD sample did not differ from the community sample on the work/housework and marital factors.

The degree of baseline luteal functional impairment on the SAS of the women in the PMDD sample was compared with the baseline SAS scores of 3 cohorts of women. The luteal baseline functioning of women with PMDD who received sertraline was significantly better than that of women with chronic major depression who received sertraline[30] on the SAS total score, work, housework, marital, and family unit factors (each $p < .01$), but luteal impairment in the PMDD sample on the social/leisure and parental factors was not different from that of women with chronic major depression. Comparison of the luteal baseline SAS scores of the full PMDD sample with the published major depression female cohort[29] gave similar findings on total, work/housework, and family unit factors (each $p < .001$), except that the marital factor comparison was not significantly different. The SAS total and factor scores did not differ between the women with dysthymia[31] at baseline and women with PMDD at luteal baseline, with the exception of increased impairment on the parental factor ($p < .05$) in women with PMDD.

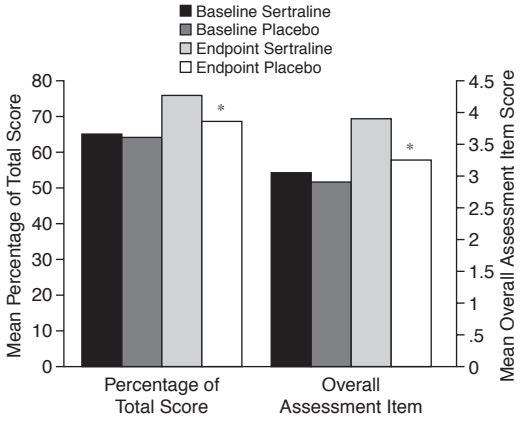
Both the total score of the Q-LES-Q and the overall assessment item of the Q-LES-Q of the full sample were compared between the follicular and luteal phases of screening (see Table 2). Both Q-LES-Q scores showed significant luteal impairment compared to follicular Q-LES-Q scores. Similar to the SAS results, the luteal baseline Q-LES-Q scores in women with PMDD were significantly higher than the pretreatment total Q-LES-Q scores of women with chronic major depression ($p < .001$), but not significantly higher than scores in women with dysthymia at baseline.

Figure 2. SAS Total and Factor Scores for Patients With PMDD Treated With Sertraline or Placebo[a]



[a]p Values based on adjusted mean change from baseline treatment comparison.
**p < .001.
*p < .05.

Figure 3. Q-LES-Q Scores for Patients With PMDD Treated With Sertraline or Placebo[a]

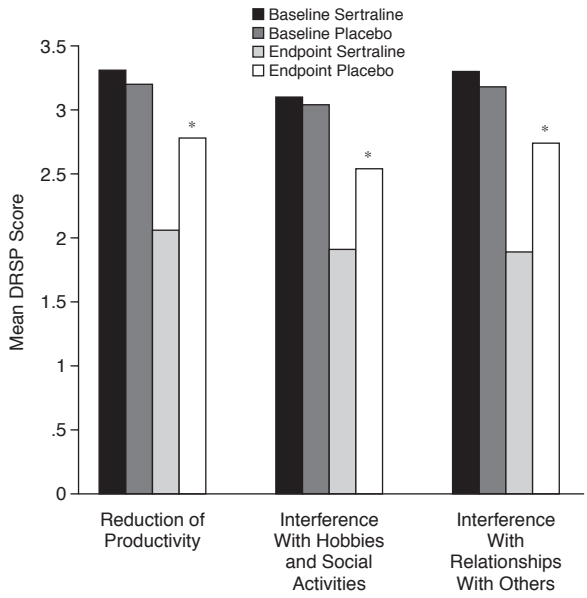


[a]p Value based on adjusted mean change from baseline treatment comparison.
*p < .001.

Functional Improvement With Treatment

No significant differences were found on SAS, Q-LES-Q, or the 3 DRSP functioning items between the sertraline and placebo groups at luteal baseline. The total, work, social/leisure, marital, and family unit SAS factor scores showed significantly greater improvement with sertraline compared with placebo at endpoint (Figure 2). Both the total Q-LES-Q score and overall assessment score showed significantly greater improvement with sertraline compared with placebo at endpoint (Figure 3). Significantly greater improvement with sertraline compared with placebo at endpoint was also evident for the 3 DRSP items that measured functioning: reduction of productivity, interference with hobbies and social activities, and interference with relationships with others (Figure 4).

Figure 4. DRSP Scores for Patients With PMDD Treated With Sertraline or Placebo[a]



[a]p Value based on adjusted mean change from baseline treatment comparison.
*p < .001.

Functional improvement in subjects was compared with symptomatic improvement by observer ratings, i.e., a Clinical Global Impressions-Improvement Score (CGI-I)[35] of 1 or 2 and a luteal Hamilton Rating Scale for Depression, 21-item version (HAM-D)[36] score less than or equal to 7. Functional improvement was arbitrarily defined (based on the authors' previous clinical experience with women with PMDD) as the time to improvement from luteal baseline of subjects with (1) SAS scores within 15% of community norm values, (2) a total Q-LES-Q score of at least 70, and (3) a 50% decrease luteally compared with luteal baseline for the 3 DRSP functioning items. A Pearson product moment correlation coefficient was estimated for each pair of the above-mentioned parameters. A subsequent test of no correlation was made. The SAS total score correlated with a HAM-D less than 7 ($r = 0.53$, $p < .001$, $N = 123$) and a CGI-I score of 1 or 2 ($r = 0.38$, $p < .001$, $N = 120$). The SAS total score also correlated with improvement on the total Q-LES-Q ($r = 0.60$, $p < .001$, $N = 139$). Improvement on the total Q-LES-Q score correlated with improvement on the HAM-D ($r = 0.33$, $p < .001$, $N = 146$) and the CGI-I ($r = 0.21$, $p = .02$, $N = 138$). Thus, functional improvement on SAS and Q-LES-Q measures was shown to correlate with symptomatic improvement on HAM-D and CGI-I measures.

Significant improvement in functioning with sertraline compared with placebo was evident by the second randomized treatment cycle on 4 of 7 SAS factors, the Q-LES-Q measures, and the 3 DRSP functioning items. Improvement in functioning with treatment was evident one cycle later than the premenstrual symptomatic improvement noted by DRSP scores,[26] yet improvement in functioning was noted prior to the third cycle endpoint.

Logistic regression modeling was performed to determine whether demographic variables, psychiatric history variables, or baseline SAS, Q-LES-Q, DRSP, or HAM-D scores predicted improvement in functioning on the SAS and Q-LES-Q. Functional improvement was again defined using the earlier time to improvement definitions. Functional improvement on the total SAS score appeared to be significantly predicted by baseline HAM-D scores (OR = 0.926, p = .004), baseline Q-LES-Q scores (OR = 1.057, p = .000), baseline total DRSP scores (OR = 0.981, p = .003), baseline interference with hobbies and social activities DRSP functioning item (OR = 0.799, p = .020), baseline interference with relationships with others DRSP functioning item (OR = 0.801, p = .028), and baseline reduction of productivity DRSP functioning item (OR = 0.784, p = .016) scores. Functional improvement on the total Q-LES-Q score appeared to be significantly predicted by baseline HAM-D scores (OR = 0.934, p = .022), baseline total DRSP scores (OR = 0.983, p =.013), baseline SAS total scores (OR = 0.279, p = .000), and baseline interference with hobbies and social activities DRSP functioning item scores (OR = 0.765, p = .017).

Similar to the findings at baseline, on the basis of the last treatment visit for each patient (endpoint), improvement in SAS and Q-LES-Q scores was comparable in the women with PMDD and dysthymia[31] on all measures except the SAS parental factor, on which women with PMDD remained significantly more impaired ($p < .05$). The functioning of women with PMDD was significantly superior to that of women with chronic major depression[30] at endpoint on the SAS total ($p < .001$), housework ($p < .01$), and marital factor ($p < .01$) scores and both Q-LES-Q scores ($p < .001$).

Remitter Characteristics

Further analyses were conducted to characterize the psychosocial functioning of the 63 subjects who were defined as remitters by premenstrual symptomatic improvement (CGI-I score of 1) at luteal endpoint. Although the full sample of women with PMDD was still significantly functionally impaired at endpoint compared with community women[29] on the SAS total score and each factor score, the functioning of remitters at endpoint was not more impaired than that of community women except for the social/leisure factor ($p < .001$). Remitters were noted to have significantly higher premenstrual functioning at baseline compared with nonremitters as evidenced on the total ($p < .005$), parental ($p < .001$), and family unit factor ($p < .05$) SAS scores; both Q-LES-Q measures (each $p < .05$); and the interference with social activities and relationships DRSP items (each $p < .05$). When remitters were compared with nonremitters at endpoint, remitters showed significantly greater improvement in all measures of psychosocial functioning: the SAS total and factor scores, both Q-LES-Q measures, and the 3 DRSP functioning items (Table 4). The improvement in luteal functioning achieved with treatment in remitters exceeded their follicular phase functioning measure at screening on the total, marital, parental, and family unit factor SAS scores and the overall assessment Q-LES-Q score (Table 5). Even though remitters had higher functioning prior to treatment, their luteal functioning improved significantly at endpoint on all SAS and Q-LES-Q measures (see Table 5).

Table 4. Comparison of Psychosocial Functioning of Remitters Versus Nonremitters at Endpoint[a]

	Remitters			Nonremitters			
Scale	N	Mean[b]	SE	N	Mean[b]	SE	p[c]
SAS factor							
Total	63	–0.56	0.04	172	–0.15	0.02	< .001
Work	49	–0.51	0.06	134	–0.09	0.03	< .001
Housework	34	–0.67	0.10	89	–0.20	0.06	< .001
Social/leisure	62	–0.65	0.06	164	–0.12	0.04	< .001
Marital	42	–0.60	0.08	117	–0.14	0.05	< .001
Parental	40	–0.61	0.07	106	–0.20	0.04	< .001
Family unit	58	–0.71	0.08	154	–0.31	0.05	< .001
Q-LES-Q							
Total score	62	18.77	1.35	172	3.42	0.80	< .001
Overall assessment item	61	1.38	0.09	156	0.29	0.06	< .001
DRSP							
Interference with social activities	62	–1.66	0.15	163	–0.52	0.09	< .001
Interference with relationships	61	–1.75	0.15	162	–0.61	0.09	< .001
Reduced productivity	62	–1.83	0.15	163	–0.44	0.09	< .001

[a]Remitters: CGI-I score = 1; nonremitters: CGI-I score > 1.
[b]Least square mean change from baseline to endpoint.
[c]Based on analysis of covariance.

DISCUSSION

Sertraline was superior to placebo in improving interpersonal and role functioning and quality of life in women with PMDD as monitored by 3 self-report measures: the total, work, social/leisure, marital, and family unit SAS factors; Q-LES-Q total and overall assessment item scores; and 3 DRSP functioning items. This is the largest study to date documenting psychosocial functioning on several measures in PMDD before and after treatment. It was of interest that improvement in functioning and qual-

ity of life was evident at the end of the second randomized treatment cycle, 1 cycle later than symptomatic improvement, yet prior to the endpoint cycle. Several treatment trials have documented the short onset of action of serotonergic antidepressants in relieving premenstrual symptoms within 1 cycle with continuous dosing[25,26,37–39] or within a few days with luteal phase dosing.[40–46] Although psychological and physical symptoms may resolve quickly, it is not surprising that the impact of recurrent, cyclical symptoms on social relationships and roles would take more than one cycle to resolve.

Table 5. Improvement of Psychosocial Functioning for Remitters (CGI-I = 1): Comparison of Luteal Phase Endpoint Scores With Follicular and Luteal Scores at Pretreatment Screening

	Follicular Screening			Luteal Baseline			Luteal Endpoint			Luteal Endpoint vs Luteal Baseline
Scale	N	Mean	SD	N	Mean	SD	N	Mean	SD	p
SAS factor										
Total	63	1.73	0.31	63	2.03	0.44	63	1.57	0.25†	< .001
Work	50	1.41	0.35	49	1.73	0.57	52	1.29	0.31	< .001
Housework	35	1.75	0.38	34	2.21	0.64	38	1.64	0.44	< .001
Social/leisure	63	2.23	0.45	62	2.68	0.67	63	2.12	0.38	< .001
Marital	48	1.90	0.55	42	2.17	0.62	50	1.69	0.42	< .001
Parental	42	1.72	0.48	40	1.88	0.45	44	1.44	0.31†	< .001
Family unit	58	1.81	0.60	58	2.13	0.68	58	1.53	0.47††	< .001
Q-LES-Q										
Total score	63	82.79	10.53	62	67.97	12.57	63	84.47	10.12	< .001
Overall assessment item	59	4.15	0.67	61	3.20	0.85	63	4.37	0.55††	< .001

†p < .001 luteal endpoint vs. follicular screening.
††p < .05 luteal endpoint vs. follicular screening.

Prior to treatment, women with PMDD had significantly impaired psychosocial functioning during the luteal phase compared with the follicular phase on all SAS factors and the Q-LES-Q. Even during the follicular phase, when women are relatively asymptomatic, women were more impaired than a community sample on all SAS measures except for work and marital factors. However, with the exception of the social/leisure factor, all mean scores were below 2, indicating fairly high functioning in most domains during the follicular phase.

When luteal baseline SAS and Q-LES-Q scores in women with PMDD were compared with baseline SAS and Q-LES-Q scores of women with chronic major depression,[30] women with PMDD functioned better based on the Q-LES-Q scores and the total, work, marital, and family unit SAS factors, but not the parental or social/leisure factors. Similarly, the PMDD subjects functioned better at luteal baseline than women with major depression in the Weissman et al.[29] cohort on the total, work/housework, and family unit factors, but not the social/leisure, marital, and parental factors. These results indicate that premenstrual symptoms may have differentially greater impact on marital and parental roles and the ability to enjoy pleasurable activities than on work roles. This is consistent with previous reports[12,15] that family conflict is perceived as more stressful to women with PMS than occupational concerns. It is noteworthy that the luteal psychosocial functioning in PMDD is similar to that observed in dysthymia[31] (except that women with PMDD had more impairment in the parental role), but is less severe than that observed in major depression[30] on some measures. The greater functional impairment in the chronic depression sample may be a result of the inclusion of many subjects with double depression (dysthymia and major depression). It has been shown that functioning in double depression is significantly more impaired than functioning in dysthymia or episodic major depression.[47,48]

Remitters displayed significantly more functional improvement at endpoint compared with nonremitters on all SAS, Q-LES-Q, and DRSP functioning items. Remitters at luteal endpoint were only slightly more impaired than community women[29] on the social/leisure SAS factor. It was noted that even though remitters functioned better at pretreatment than nonremitters on most functioning measures, with treatment, the luteal functioning of remitters improved over baseline luteal functioning and even exceeded follicular functioning on several measures. The improvement with treatment over pretreatment follicular functioning is consistent with anecdotal reports from women with PMDD stating that after starting medication, they note relief from symptoms and improved functioning that exceeds their "good time of the month" (follicular phase) before treatment.

The results of this study are similar to those recently reported by Freeman and colleagues.[25] That sample of women differs from the current sample by including women (approximately 25% of the sample) who had severe PMS but did not meet criteria for PMDD. In their study,[25] women completed Patient Global Ratings of Functioning and Improvement (work, family life, and social activity items) and Q-LES-Q measures once a month, reporting on the previous premenstrual week, but many of these measures were obtained retrospectively during the early follicular phase. In the current study, all measures of premenstrual functioning were obtained during the luteal phase, and the DRSP scores represented the average of prospective daily ratings during the premenstrual week. The baseline premenstrual Q-LES-Q scores were similar in both studies, and both studies have shown a significant treatment effect of sertraline in improving quality of life as measured by Q-LES-Q scores.

As would be expected, improvement in psychosocial functioning was predicted by higher functioning and quality of life at baseline and milder premenstrual symptoms as indicated by lower HAM-D scores and lower total DRSP scores at baseline. The severity of pretreatment symptoms or psychosocial functioning might be significant prognostic indicators. This finding is similar to the results with sertraline in dysthymia[31] and chronic major depression.[30] Improvement in psychosocial functioning correlated with improvement of the emotional and physical premenstrual symptoms as rated by the clinicians on the CGI-I and HAM-D. Limitations of this study included the absence of a specific rating of functioning or quality of life by the clinician, although the clinician-rated CGI-I score should have reflected functioning. It would also be worthwhile in future studies to include corroboration of interpersonal functioning by the partners of subjects.

In conclusion, sertraline treatment of women with PMDD resulted in substantial improvements in psychosocial functioning and quality of life within 2 menstrual cycles.

Drug names: desipramine (Norpramin and others), fluoxetine (Prozac), sertraline (Zoloft).

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