Using the Longitudinal Interval Follow-up Evaluation (LIFE) to Assess Outcomes in Bipolar Disorder: in Bipolar Disorder: Reliability, Validity, and Utility

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Abstract

Introduction: The Longitudinal Interval Follow-up Evaluation (LIFE) is a semi-structured interview and rating system for assessing the longitudinal course of psychiatric illness using a retrospective weekly rating system. Few studies have used this instrument, which offers great promise. The LIFE is the primary outcome measure for a study comparing the effects of cognitive-behavioral therapy vs. psycho-education in Bipolar Disorder (BD). This presentation will describe the variation in symptom profiles and course among patients with BD, evaluate LIFE validity and reliability, and discuss implementation issues.

Method: The first 147 bipolar subjects in the study have been interviewed every three months using the LIFE, producing 4 weekly ratings each month for depressive and another 4 for manic symptoms. To assess the validity of these ratings on the LIFE, depressive symptom ratings were compared against Hamilton Depression Rating Scale (HAM-D 29) scores on the same months, while manic symptom ratings were compared against concurrent ratings on the Clinician Administered Rating Scale – Mania (CARS-M).

Results: Data will show that Bipolar patients spend a great deal of time affected by mood symptoms despite being treated with medications for BD. The LIFE depression and mania ratings will be shown to be positively related to the HAM-D and CARS-M scores, respectively. The utility of using the LIFE versus other measures prospectively will be discussed.

Introduction

Background of the Study

- The purpose of the study was to examine the relative merits and costs of adding cognitive-behavioural therapy or psychoeducation (in conjunction with regular medication) in bipolar disorder
- N = 210 patients, Bipolar I or II, randomly assigned to psychoeducation or cognitive-behavioural therapy
- This is a multi-site study including 4 sites across Canada. Each site will enroll approximately 25 subjects per year for two years
- Single-blind (outcome), with an 18 month study follow-up period
- A pragmatic study, with broad inclusion criteria, diverse outcome measures and naturalistic medication use

Primary Hypotheses

1. CBT will result in greater improvement in manic & depressive symptoms (LIFE; HAM-D; CARS-M) as compared to psycho-education
2. Fewer disability days (LIFE/SAS-IIB) will be found with the CBT group as compared to psychoeducation

What is the LIFE? Why Use It?

- The Longitudinal Internal Follow-up Evaluation (LIFE) was developed in the 1980's by Martin Keller et al. (1987; Archives of Gen Psych, 44, 540-548)
- It is the "gold standard" semi-structured interview and rating system for assessing longitudinal course and morbidity of psychiatric illness
- Interviews are done with the client on a quarterly basis (for our study)
- Clients are prompted for their retrospective recollections of DSM-IV symptoms of depression and hypomania/mania over the previous 12 weeks.
- Clients provide sufficient detail to enable researchers to…..
  - Date the onset and offset individual episodes & subsyndromal symptoms
  - Have an established way of ranking severity on a week-by-week basis using "psychiatric status ratings" (PSR); the rater uses a 6-point anchored scale to rate symptoms
  - Precisely calculate time to recovery, length of wellness intervals and time to subsequent relapse or recurrence

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Method

How do you use the LIFE?

- Participants are reminded of the beginning and end point dates which are referred to throughout the interview when asking about psychiatric symptoms
- Interviewers use samples of DSM-IV diagnostic criteria to review with clients when clients indicate that they may have some initial symptoms
- After thorough review of the severity, frequency and duration of these symptoms, clients are rated for each week according to the degree to which they meet full syndromal criteria where:
  - 1 = no symptoms at all
  - 2 = very few symptoms, or several sx but lasting for a very short duration (e.g., 2 days of intermittent sad mood only)
  - 3 = partial symptoms
  - 4 = not quite full symptoms, but still bothersome or significant interference
  - 5= full criteria for syndrome are met; moderate severity
  - 6 = full criteria met; very severe.

Evaluating Reliability and Validity

- To evaluate the validity and reliability of the LIFE in measuring depressed and manic symptomatology, we compared it against the Clinicians Administered Rating Scale for Mania (CARS-M) and the Hamilton Depression Rating Scale - 17 (HAM-D 17) at two different time points.
- Both the CARS-M and HAM-D 17 are well-known, standardized measures for manic and depressive symptoms respectively, and have been shown to have excellent validity and reliability.

Results

Validity Check for LIFE: Correlations for LIFE with HAM-D 17 and CARS-M at 1 and 3 months

- Correlations between the HAM-D 17 and LIFE-Depression as well as the CARS-M and LIFE-Mania (at month 1 & 3) demonstrate that the LIFE is appropriately highly positively related to both standardized measures! (see correlation tables below)
- This lends strong support to the validity and reliability of the LIFE as a measure of manic and depressive symptoms in bipolar disorder.

Correlations: LIFE-Depression with HAM-D 17 (at month 1 & 3)

	r	sig.	N
month 1	0.613	0.000	145
month 3	0.636	0.000	102

Correlations: LIFE-Mania with CARS-M (at month 1 & 3)

	r	sig.	N
month 1	0.741	0.000	146
month 3	0.454	0.000	102

Average LIFE PSR Scores for Depression and Mania: Months 1 - 4

LIFE - DEPRESSION: at 1, 2, 3, & 4 months (4 week avg.)

	N	Mean	Std. Deviation
LIFE depression at 1 month	145	2.49	1.27
LIFE depression at 2 months	105	2.53	1.40
LIFE depression at 3 months	104	2.46	1.32
LIFE depression at 4 months	99	2.25	1.23

LIFE - MANIA: at 1, 2, 3, & 4 months (4 week avg.)

	N	Mean	Std. Deviation
LIFE mania at 1 month	146	1.35	0.74
LIFE mania at 2 months	105	1.43	0.93
LIFE mania at 3 months	104	1.44	0.84
LIFE mania at 4 months	99	1.41	0.92

Results (cont'd)

Means for HAM-D 17 & CARS-M

Mean Hamilton Depression Rating Scale (HAM-D 17-item) scores at 1 month (baseline) and 3 months

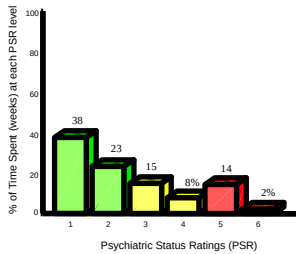
	N	Mean	Std. Deviation
HAM-D 17 (1 month)	147	6.66	4.86
HAM-D 17 (3 months)	102	5.91	5.52

Mean Clinician Administered Rating Scale - Mania (CARS-M) scores at 1 month (baseline) and 3 months

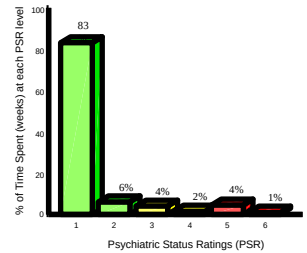
	N	Mean	Std. Deviation
CARS-M (1 month)	147	2.24	3.35
CARS-M (3 months)	102	3.15	5.34

Proportion of Time Spent at Different Levels of Symptom Morbidity

LIFE Depression Psychiatric Status Ratings



LIFE Mania Psychiatric Status Ratings



Legend - Psychiatric Status Ratings
1 = no symptoms
2 = minimal symptoms
3 = partial symptoms
4 = clinically significant partial / (almost full symptoms)
5 = full symptoms - moderate
6 = full symptoms - severe

Conclusions

- The LIFE is a longitudinal assessment tool to assess psychiatric symptoms. It solves most of the typical limitations of research which uses cross-sectional designs. It can be used successfully in longitudinal research with bipolar patients.
- Based on our data collected over a 4 month period, the LIFE showed that:
  - ***the average bipolar person suffered with partial or significant symptoms of depression (LIFE PSR ≥ 3) for more than 39% of the time.***
  - ***That is equivalent to about 12 days per month of symptoms of depression!***
- Similarly, this same group ***on average suffered with partial or significant symptoms of mania/hypomania (LIFE PSR ≥ 3) for 11% of the time.***
  - ***This translates into almost ½ week per month of symptoms of mania/hypomania!***
- Thus, based on our sample (N=147),
  - ***the total estimate of illness burden from both depressive and manic symptoms adds up to about 2 weeks out of every month (not including weeks of mixed mood states).***

This accounts for about 50% of the time for bipolar patients!

- The LIFE is highly correlated with known measures of depression and mania in this sample at 1 month and 3 months (i.e., HAM-D 17 & CARS-M). It can therefore be accepted as a reliable and valid measure in the bipolar population. The data presented about the severity of the symptoms in bipolar disorder, attests to the utility of the LIFE in bipolar research!