TECHNICAL COMMENTARY

Psychosocial treatment cost

Introduction

Bipolar disorder is one of the leading causes of disability due to having a mental illness. A range of pharmacological and psychological interventions are effective in the management and prevention of acute episodes of bipolar disorder. However, these incur considerable costs, as well as productivity losses due to time off work. This topic presents the economic costs of psychosocial treatments.

Method

We have included only systematic reviews (systematic literature search, detailed methodology with inclusion/exclusion criteria) published in full text, in English, from the year 2010 that report results separately for people with a diagnosis of bipolar or related disorders. Reviews were identified by searching the databases MEDLINE, EMBASE, and PsycINFO. When multiple copies of review topics were found, only the most recent and/or comprehensive version was included. Reviews with pooled data are prioritised for inclusion.

Review reporting assessment was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist, which describes a preferred way to present a meta-analysis[1]. Reviews rated as having less than 50% of items checked have been excluded from the library. The PRISMA flow diagram is a suggested way of providing information about studies included and excluded with reasons for exclusion. Where no flow diagram has been presented by individual reviews, but identified studies have been described in the text, reviews have been checked for this item. Note that early reviews may have been guided by less stringent reporting checklists than the PRISMA, and that some reviews may have been limited by journal guidelines.

Evidence was graded using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group approach where high quality evidence such as that gained from randomised controlled trials (RCTs) may be downgraded to moderate or low if review and study quality is limited, if there is inconsistency in results, indirect comparisons, imprecise or sparse data and high probability of reporting bias. It may also be downgraded if risks associated with the intervention or other matter under review are high. Conversely, low quality evidence such as that gained from observational studies may be upgraded if effect sizes are large or if there is a dose dependent response. We have also taken into account sample size and whether results are consistent, precise and direct with low associated risks (see end of table for an explanation of these terms)[2]. The resulting table represents an objective summary of the available evidence, although the conclusions are solely the opinion of staff of NeuRA (Neuroscience Research Australia).

Results

We found two systematic reviews that met our inclusion criteria[3, 4].

- Moderate to low quality evidence finds the cost of the Bipolar Disorders Program is around PPP-INT$3,879 per person, a group structured psychoeducation is around PPP-INT$1,727 per person, a hospital-based psychosocial care plus lithium or valproic acid is around PPP-INT$1,091 to PPP-INT$9,627 per person, a community-based psychosocial care plus lithium or valproic acid is around PPP-INT$719 to PPP-INT$5,599 per person, a Joint Crisis Plan is around PPP-INT$2,286 per person, a specialized out-patient clinic of pharmacological, psychotherapy, and group psychoeducation costs around PPP-INT$4,036 per person, cognitive behavioural therapy costs around PPP-INT$2,881 per person, structured psychoeducation costs around PPP-INT$5,626 per person, and a multicomponent psychoeducation and support intervention costs around PPP-

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INT$1,846 per person. All of these interventions were cheaper in the long-term compared to standard care as they reduced hospitalisation costs.

- Moderate to low quality evidence suggests the cost of cognitive therapy for bipolar disorder is around USD2,530 per person with a cost-effectiveness probability of 80%. The cost of group psychoeducation is around USD1,635 per person with a cost-effectiveness probability of 99%.

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Kraiss JT, Wijnen B, Kupka RW, Bohlmeijer ET, Lokkerbol J

Economic evaluations of non-pharmacological interventions and cost-of-illness studies in bipolar disorder: A systematic review

Journal of Affective Disorders 2020; 276: 388-401

View review abstract online

Comparison	**Costs of psychosocial treatments for bipolar disorder in PPP-INT (purchasing power parities international) which is comparable to what a USD would buy in the USA.**
Summary of evidence	**Moderate to low quality evidence (small to medium-sized samples, direct, unable to assess consistency or precision) suggests the cost of the Bipolar Disorders Program is around PPP-INT$3,879 per person, a group structured psychoeducation is around PPP-INT$1,727 per person, ahospital-based psychosocial care plus lithium or valproic acid is around PPP-INT$1,091 to PPP-INT$9,627 per person, a community-based psychosocial care plus lithium or valproic acid is around PPP-INT$719 to PPP-INT$5,599 per person, a Joint Crisis Plan is around PPP-INT$2,286 per person, a specialized out-patient clinic of pharmacological, psychotherapy, and group psychoeducation costs around PPP-INT$4,036 per person, cognitive behavioural therapy costs around PPP-INT$2,881 per person, structured psychoeducation costs around PPP-INT$5,626 per person, and a multi-component psychoeducation and support intervention costs around PPP-INT$1,846 per person.**

Economic outcomes

1 study (N = 330) assessed the Bipolar Disorders Program (a collaborative care program including enhancement of patient skills in self-managing the illness by psychoeducation) and found the incremental cost per person was PPP-INT$3,879, which was lower than treatment as usual over the study period of 3 years (PPP-INT$79,901 versus PPP-INT$83,780).

1 study (N = 304) assessed 21 weekly sessions of group structured psychoeducation plus treatment as usual and found the incremental cost per person was PPP-INT$1,727. The costs for one additional quality adjusted life year gained at PPP-INT$75,106 and one relapse free year at PPP-INT$13,187 for bipolar group structured psychoeducation and TAU compared to unstructured peer-supported psychoeducation and TAU.

1 population study assessed hospital-based psychosocial care plus lithium or valproic acid and found the incremental cost per person was between PPP-INT$1,091 to PPP-INT$9,627, which was similar to lithium alone (INT$1,068 to INT$9,493) or valproic acid alone (PPP-INT$1,181 to PPP-INT$9,235). Costs were also similar between community-based psychosocial care plus lithium or

valproic acid (PPP-INT$719 to PPP-INT$5,599) and community-based lithium alone (PPP-INT$697 to PPP-INT$5,465) or valproic acid alone (PPP-INT$821 to PPP-INT$5,344).

1 study (N = 160) assessed two sessions of a Joint Crisis Plan (formulating a set of statements of what to do in a crisis) plus treatment as usual and found the incremental cost per person was PPP-INT$2,286, which was cheaper and more effective than standardized service information plus treatment as usual.

1 study (N = 158) assessed a specialized out-patient clinic offering three group sessions of combined evidence-based pharmacological treatment and group psychoeducation and psychotherapy for 2 years. The study found the incremental cost per person was PPP-INT$4,036, but as it resulted in fewer hospitalisations, it was cheaper and more effective than treatment as usual.

1 study (N = 103) assessed 12 to 18 sessions plus two 'booster' sessions of cognitive behavioural therapy and found the incremental cost per person was PPP-INT$2,881. This resulted in lower total costs over 30 months compared to treatment as usual.

1 study (N = 120) assessed 21 sessions of structured psychoeducation plus treatment as usual and found the incremental cost per person was PPP-INT$5,626, which was cheaper and more effective than unstructured psychoeducation plus treatment as usual over the 5-year study period due to reduced relapses and hospitalizations.

1 study (N = 441) assessed a systematic care program for bipolar disorder which is a 24-month multicomponent intervention aimed at care planning, structured monthly telephone calls, feedback to the mental health treatment team, structured group psychoeducation, as-needed support, education, and care coordination. The incremental cost per person was PPP-INT$1,846, which was higher than treatment as usual but resulted in less manic symptoms. There were no differences in depressive symptoms.

Consistency in results‡	Unable to assess, no measure of consistency is reported.
Precision in results§	Unable to assess, no measure of precision is reported.
Directness of results‖	Direct

Shields GE, Buck D, Elvidge J, Hayhurst KP, Davies LM

Cost-Effectiveness Evaluations of Psychological Therapies for Schizophrenia and Bipolar Disorder: A Systematic Review

International Journal of Technology Assessment in Health Care 2019; 35: 317-26

View review abstract online

Comparison	**Costs of psychosocial treatments for bipolar disorder.**
Summary of evidence	**Moderate to low quality evidence (small to medium-sized samples, direct, unable to assess consistency or precision)**

	suggests the cost of cognitive therapy for bipolar disorder is around USD2,530 per person with a cost-effectiveness probability of 80%. The cost of group psychoeducation is around USD1,635 with a cost-effectiveness probability of 99%.
Economic outcomes	
1 study (N = 103) assessing cognitive therapy plus standard care vs. standard care reported 110 fewer bipolar episode days with cognitive therapy. The incremental cost per patient was USD2,530, with the probability of cost-effectiveness being 80%. 1 study (N = 304) assessing group psychoeducation vs. group peer support reported reduced relapses with psychoeducation. The incremental cost per patient was USD1,635, with the probability of cost-effectiveness being 99%.	
Consistency in results	Unable to assess, no measure of consistency is reported.
Precision in results	Unable to assess, no measure of precision is reported.
Directness of results	Direct

Explanation of technical terms

* Bias has the potential to affect reviews of both RCT and observational studies. Forms of bias include; reporting bias – selective reporting of results; publication bias - trials that are not formally published tend to show less effect than published trials, further if there are statistically significant differences between groups in a trial, these trial results tend to get published before those of trials without significant differences; language bias – only including English language reports; funding bias - source of funding for the primary research with selective reporting of results within primary studies; outcome variable selection bias; database bias - including reports from some databases and not others; citation bias - preferential citation of authors. Trials can also be subject to bias when evaluators are not blind to treatment condition and selection bias of participants if trial samples are small[5].

† Different effect measures are reported by different reviews.

Prevalence refers to how many existing cases there are at a particular point in time. Incidence refers to how many new cases there are per population in a specified time period. Incidence is usually reported as the number of new cases per 100,000 people per year. Alternatively some studies present the number of new cases that have accumulated over several years against a person-years denominator. This denominator is the sum of individual units of time that the persons in the population are at risk of becoming a case. It takes into account the size of the underlying population sample and its age structure over the duration of observation.

Reliability and validity refers to how accurate the instrument is. Sensitivity is the proportion of actual positives that are correctly identified (100% sensitivity = correct identification of all actual positives) and specificity is the proportion of negatives that are correctly identified (100% specificity = not identifying anyone as positive if they are truly not).

Weighted mean difference scores refer to mean differences between treatment and comparison groups after treatment (or occasionally pre to post treatment) and in a randomised trial there is an assumption that both groups are comparable on this measure prior to treatment. Standardised mean differences are divided by the pooled standard deviation (or the standard deviation of one group when groups are homogenous) which allows results from different scales to be combined and compared. Each study's mean difference is then given a weighting depending on the size of the sample and the variability in the data. 0.2 represents a small effect, 0.5 a medium effect, and 0.8 and over represents a large effect[5].

Odds ratio (OR) or relative risk (RR) refers to the probability of a reduction (< 1) or an increase (> 1) in a particular outcome in a treatment group, or a group exposed to a risk factor, relative to the comparison group. For example, a RR of 0.75 translates to a reduction in risk of an outcome of 25% relative to those not receiving the treatment or not exposed to the risk factor. Conversely, a RR of 1.25 translates to an increased risk of 25% relative to those not receiving treatment or not having been exposed to a risk factor. A RR or OR of 1.00 means there is no difference between groups. A medium effect is considered if RR > 2 or < 0.5 and a large effect if RR > 5 or < 0.2[6]. lnOR stands for logarithmic OR where a lnOR of 0 shows no difference between groups. Hazard ratios measure the effect of an explanatory variable on the hazard or risk of an event.

Correlation coefficients (eg, r) indicate the strength of association or relationship between variables. They can provide an

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indirect indication of prediction, but do not confirm causality due to possible and often unforseen confounding variables. An r of 0.10 represents a weak association, 0.25 a medium association and 0.40 and over represents a strong association. Unstandardized (*b*) regression coefficients indicate the average change in the dependent variable associated with a 1 unit change in the independent variable, statistically controlling for the other independent variables. Standardised regression coefficients represent the change being in units of standard deviations to allow comparison across different scales.

‡ Inconsistency refers to differing estimates of effect across studies (i.e. heterogeneity or variability in results) that is not explained by subgroup analyses and therefore reduces confidence in the effect estimate. I^2 is the percentage of the variability in effect estimates that is due to heterogeneity rather than sampling error (chance) - 0% to 40%: heterogeneity might not be important, 30% to 60%: may represent moderate heterogeneity, 50% to 90%: may represent considerable heterogeneity and over this is considerable heterogeneity. I^2 can be calculated from Q (chi-square) for the test of heterogeneity with the following formula[5];

$$I^2 = \left(\frac{Q - df}{Q}\right) \times 100\%$$

§ Imprecision refers to wide confidence intervals indicating a lack of confidence in the effect estimate. Based on GRADE recommendations, a result for continuous data (standardised mean differences, not weighted mean differences) is considered imprecise if the upper or lower confidence limit crosses an effect size of 0.5 in either direction, and for binary and correlation data, an effect size of 0.25. GRADE also recommends downgrading the evidence when sample size is smaller than 300 (for binary data) and 400 (for continuous data), although for some topics, these criteria should be relaxed[7].

‖ Indirectness of comparison occurs when a comparison of intervention A versus B is not available but A was compared with C and B was compared with C, which allows indirect comparisons of the magnitude of effect of A versus B. Indirectness of population, comparator and/or outcome can also occur when the available evidence regarding a particular population, intervention, comparator, or outcome is not available and is therefore inferred from available evidence. These inferred treatment effect sizes are of lower quality than those gained from head-to-head comparisons of A and B.

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