# A Prospective 8-Week Comparison of Cost-Effectiveness of two Antidepressants: Escitalopram and Milnacipran at Tertiary Heath Care Center

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**Abstract**
**Background:** *Depression is a prevalent psychiatric disorder that is responsible for considerable societal and economic burden. This prospective study aims to generate and compare the data on cost effectiveness of the antidepressants Escitalopram and Milnacipran.*

**Methods:** *All consenting adults (n =120) diagnosed with depression were treated with open label Escitalopram (10–20 mg) or Milnacipran (50-100mg) for a duration of 8 weeks. The cost effectiveness was calculated by the average rupee cost per responder in both the groups who completed 8 weeks of entire study period without discontinuing medication.*

**Results:** *In Escitalopram group, the average cost of medication in responders (83.3%) was 579.1 rupees whereas in Milnacipran group, the average cost in responders (75.6%)who completed 8 weeks of treatment was 593.5 rupees.*

**Conclusion:** *Escitalopram is more cost-effective than Milnacipran.*

**Keywords:** *Escitalopram, Milnacipran, responders, cost-effectiveness.*

## Introduction

Depression is a common and most prevalent psychiatric disorder in India.[1] The incidence of depression has shown an uphill trend since the early 20th century and it is expected to become the second largest cause of disease or disability worldwide by the year 2020.[2] India emerging as a developing country and expecting attainment of development by 2020, the incidence of depression also appear on the rise.

Depression leads to huge financial burden on the society. The economic costs of depression are $53 billion each year in the United States.[3] It includes direct treatment costs, indirect economic costs arising from increase in mortality due to suicides and the most important are the economic losses due to reduced productivity while at work and depression related absenteeism.

Rising cost of antidepressant therapy on one hand and limited health care resources on the other, raises an increasing need for pharmacoeconomic evaluation to assess the cost-effectiveness of antidepressants. The most important characteristic of pharmacoeconomic studies is that their findings and benefits are country specific. That's why many pharmacoeconomic studies on antidepressants are being performed in various parts of the world.[4,5,6]

Newer antidepressants, although costly, prove to be better tolerated than older ones. But their benefits need to be proved in terms of cost effectiveness for better allocation of limited health care resources.

Therefore, this study was designed to assess and compare the cost-effectiveness of antidepressants – Escitalopram which is a selective serotonin reuptake inhibitor with Milnacipran which is a dual reuptake inhibitor.

## Methods

The present study is a prospective , open -labelled, pharmacoeconomic comparison of antidepressants Escitalopram and Milnacipran, for a duration of 8 weeks. It was approved by Institutional ethics committee. The outpatients of depression (as diagnosed by ICD-10 criteria having score of ≥8 on the 21-item Hamilton Depression Rating Scale (HDRS)) who agreed to give written informed consent to participate, were included in the study. The enrolled patients were randomly assigned to receive Escitalopram 10-20 mg (group A) and Milnacipran 50-100 mg (group B) for 8 weeks with follow up at 2, 4 & 8 weeks. The comparison of cost-effectiveness of the two antidepressants was done by calculating the average rupee cost incurred per subject who achieved clinical response to treatment and who completed 8 weeks of entire study duration without discontinuing medication in each group.

## Results

Out of 120 enrolled patients, 31 patients in both the groups dropped out from the study. After excluding drop outs ,a total of 48 patients received Escitalopram10-20 mg (Group A)and 41 patients received Milnacipran 50-100 mg (Group B) and completed the study period of 8 weeks.40 patients in Group A and 31 patients in Group B achieved clinical response defined by a decrease of ≥50% in the HDRS Scores.

## Pharmacoeconomics of escitalopram and Milnacipran-(Table-1)

### Group A (Escitalopram)

Escitalopram 10-20 mg daily was prescribed to the patients in Group A for a total duration of 8 weeks. The cost of a strip containing 10 tablets of Escitalopram 10 mg is Rs 63.75/-,cost/tablet being Rs 6.37. Out of 48 patients, 31 patients were prescribed Escitalopram 20 mg daily i.e. 2 tablets/day for total duration of 8 weeks. So, the overall cost of treatment for 31 patients was Rs 23696/-.11 patients were prescribed Escitalopram 10 mg daily for 2 weeks then 20 mg daily from 2nd week up to 8 weeks. So, the overall cost of treatment for 11 patients was Rs 7356.8/-.6 patients were prescribed Escitalopram 10 mg daily i.e. 1 tablet/day for total duration of 8 weeks .So, the overall cost of treatment for 6 patients was Rs 2293.2/-. The overall cost of treatment for total 48 patients was Rs 33346/-.The average cost/patient was Rs 695/- .

### Group B (Milnacipran)

Milnacipran 50-100 mg was prescribed to the patients in Group B for a total duration of 8 weeks. The cost of a strip containing 10 tablets of Milnacipran 50 mg is Rs 72/-.cost/tablet being Rs 7.2/- . Out of 41 patients,26 patients were prescribed Milnacipran 100 mg daily i.e 2 tablets/day for total duration of 8 weeks (60 days).

So, the overall cost of treatment for 26 patients was Rs 22464/-.10 patients were prescribed Milnacipran 50 mg daily for 2 weeks then 100 mg daily from 2nd week upto 8 weeks. So, the overall cost of treatment for 10 patients was Rs 7560/-.5 patients were prescribed Milnacipran 50 mg daily i.e 1 tablet/day for total duration of 8 weeks. So, the overall cost of treatment for 5 patients was Rs 2160/-.

**Table no.1**

| Treatment | Cost(Rs) of a strip(10 tablets) | Cost(Rs)/ tablet | Dose | Duration | Total cost(Rs) | Average cost(Rs)/ patient | Average Cost(Rs) in responders (n) |
|---|---|---|---|---|---|---|---|
| Group A Escitalopram 10 -20mg | 63.75/- | 6.37/- | 10-20 mg | 60 days | 33346 (n=48) | 695/- | 579 (n=40/48, 83.3%) |
| Group B Milnacipran 50-100mg | 72/- | 7.2/- | 50-100 mg | 60 days | 32184 (n=41) | 785/- | 593.5 (n=31/41, 75.6%) |

The overall cost of treatment for total 41 patients was Rs 32184/-.The average cost/patient was Rs 785/-

**Analysis of cost-effectiveness of Escitalopram and Milnacipran**

Cost effectiveness was assessed by calculating average rupee cost incurred per responder in both the groups who completed 8 weeks of entire study duration without discontinuing medication.

In Escitalopram group, the average cost/patient was Rs 695/- and the total number of responders were 40(83.3%). So the average cost of medication in responders who completed 8 weeks of treatment came out to be 579.1 rupees.

In Milnacipran group, the average cost/patient was Rs 785/- and the total number of responders were 31(75.6%).So the average cost of medication in responders who completed 8 weeks of treatment came out to be 593.5 rupees.

So the average cost of medication in responders who completed 8 weeks of treatment came out to be greater for patients in group B who received Milnacipran.

**Discussion**

Pharmacoeconomics cannot be assessed by simply calculating the cost of medication. Several factors are taken into account while deriving pharmacoeconomic comparisons of drugs. Dose modifications are required to be done in the same subject at different points during the study period, that's why the average cost is calculated. Other factors which play important role in cost effective analysis is how well the treatment is tolerated, which will increase the compliance of the patients to complete the study. Cost effective analysis of

antidepressants relates the cost of treatment with the efficacy parameters like response achieved by the depressed patients.

Our study aimed to compare the cost- effectiveness of a commonly used SSRI, Escitalopram with that of a novel dual reuptake inhibitor, Milnacipran. Previous studies has reported comparable or superior efficacy[7,8,9] and better tolerability [10] of Escitalopram relative to other SSRI's and was also found to be non inferior and significantly better tolerated than the two SNRI's, Venlafaxine and Duloxetine.[11,12,13]

Previous studies[14,15] on cost efficacy analysis have reported that inspite of greater cost, newer generation antidepressants like SSRIs (escitalopram, sertraline, etc) and SNRIs (Venlafaxine, Duloxetine) appear to be more cost effective than older Tricyclic antidepressants (TCAs) because of greater tolerability hence increased compliance of the patient to complete the course of treatment.

In our study, Escitalopram was found to be more cost-effective because it showed less average cost of treatment with greater number of responders as compared to Milnacipran.

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