

# The Use of Medical Cannabis in the Treatment of Comorbid Anxiety and Depression

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## Objective & Study Design

**Objective**  
The purpose of this study is to assess medical cannabis' (MC) efficacy, reported adverse effects (AE), and dosages used in the treatment of patients with Comorbid Anxiety and Depression.

**Study Design**  
A retrospective chart review analysis was conducted on 884 patients, of which 101 met our inclusion/exclusion criteria. These subjects were diagnosed with comorbid anxiety and depression and were currently being treated with MC through New York State's Medical Marijuana program. Patients who utilized MC from a NYS dispensary for at least one month and were followed at an outpatient, tertiary neurologic facility in Buffalo, NY. Electronic health records of patients were reviewed for the following information: patient-reported efficacy, MC dosing, serotonin reuptake inhibitor(SSRI) or serotonin-norepinephrine reuptake inhibitor(SNRI) and Benzodiazepine(Benzo) medications, and Adverse events (AE's) which were then analyzed for this study.

### Inclusion/ Exclusion

- Certified for New York State MC by UCNS board certified physicians or their nurse practitioner/physicians assistant team.
- Were taking MC for at least one month treatment
- Were not utilizing opioid medications
- At least 21 years of age

### Subjects

- 101 patients diagnosed with comorbid depression and anxiety and were certified for MC were included
- 81.19% were female, 18.81% were male
- 783 patients were excluded due to lack of follow-up, inability to initiate MC treatment, opioid use
- The average age was 53.6 years old, ranging from 23 to 87

### Study Population

- 101 patients met inclusion criteria and initiated MC treatment
- Reasons for failure to initiate MC treatment included:
  - Financial barriers
  - Employment restrictions

Approved by the Western Institutional Review Board (WIRB)

## Results

Figure 1. Study participants by sex

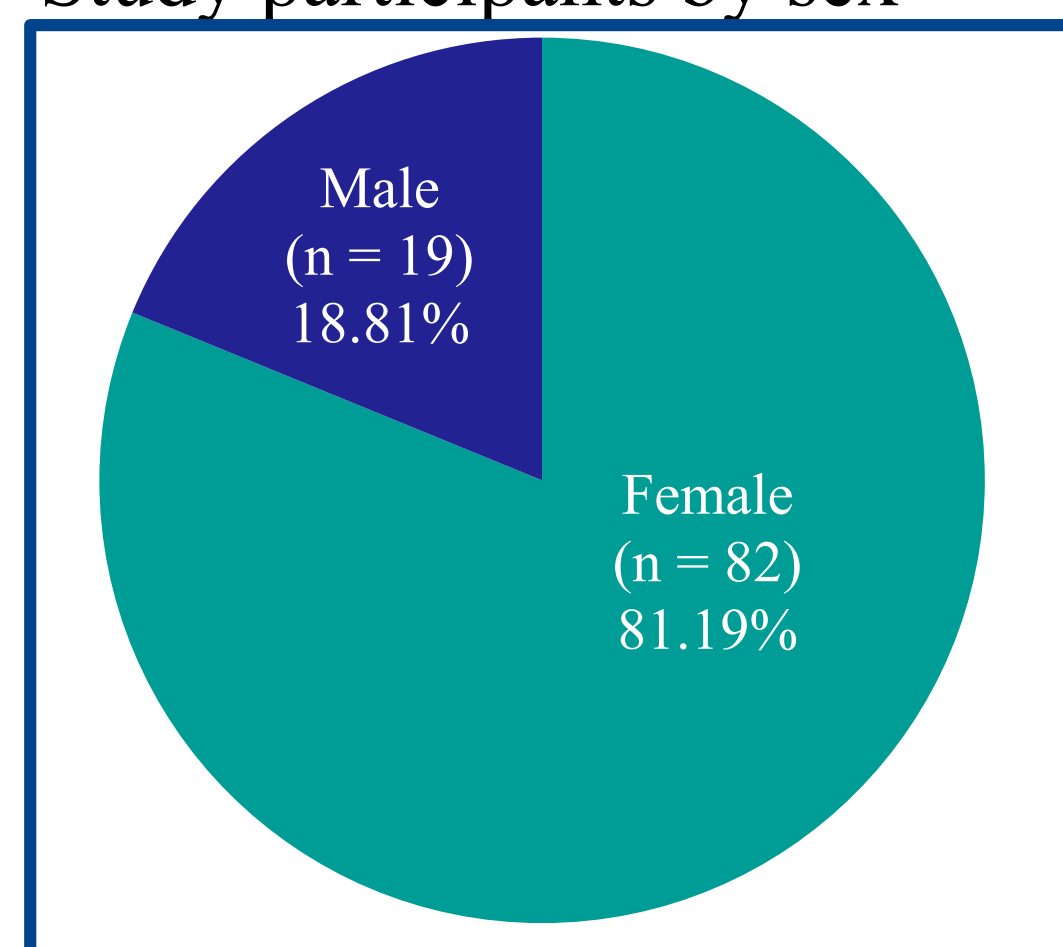


Figure 2. Self-reported improvement

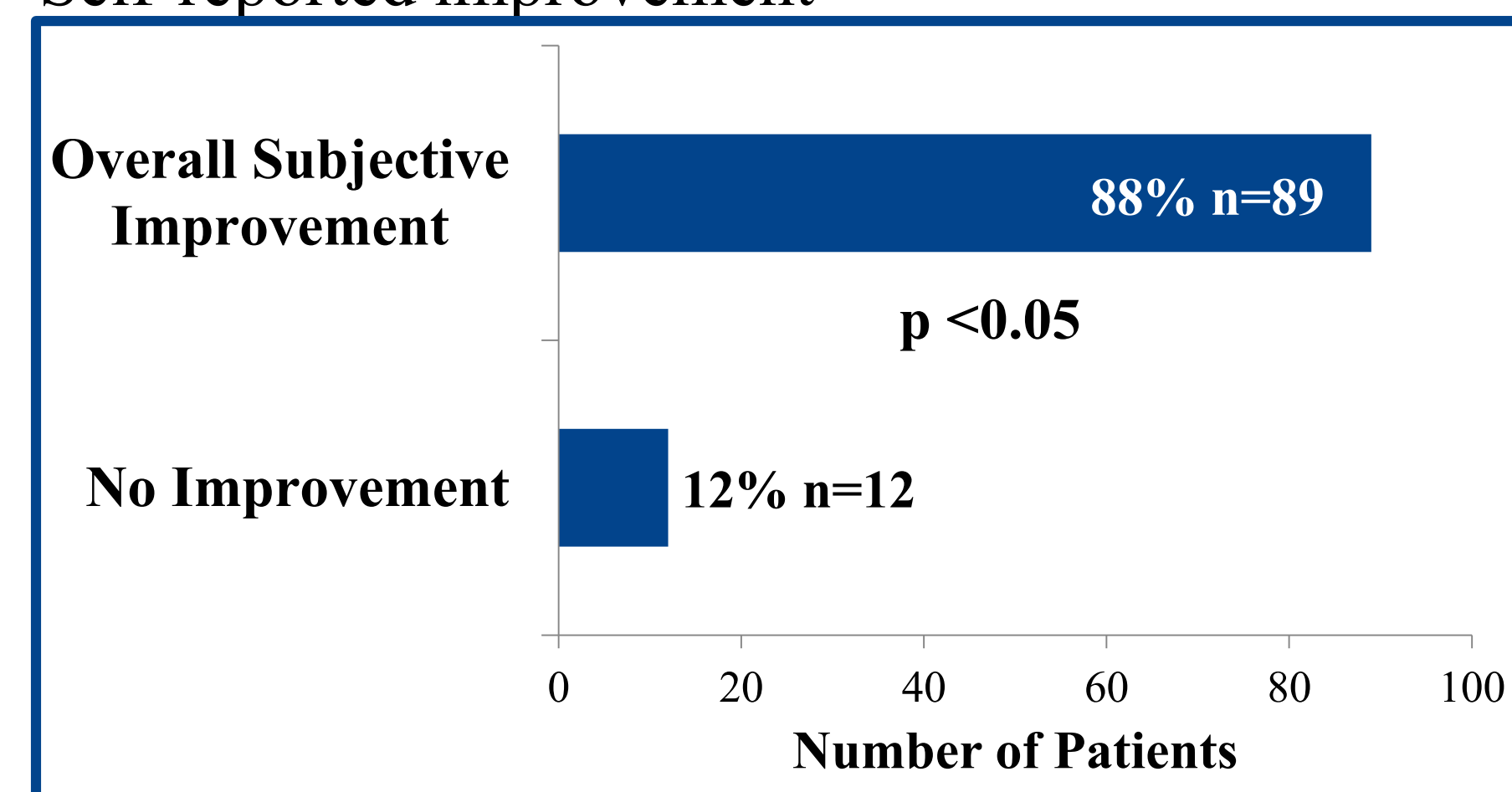
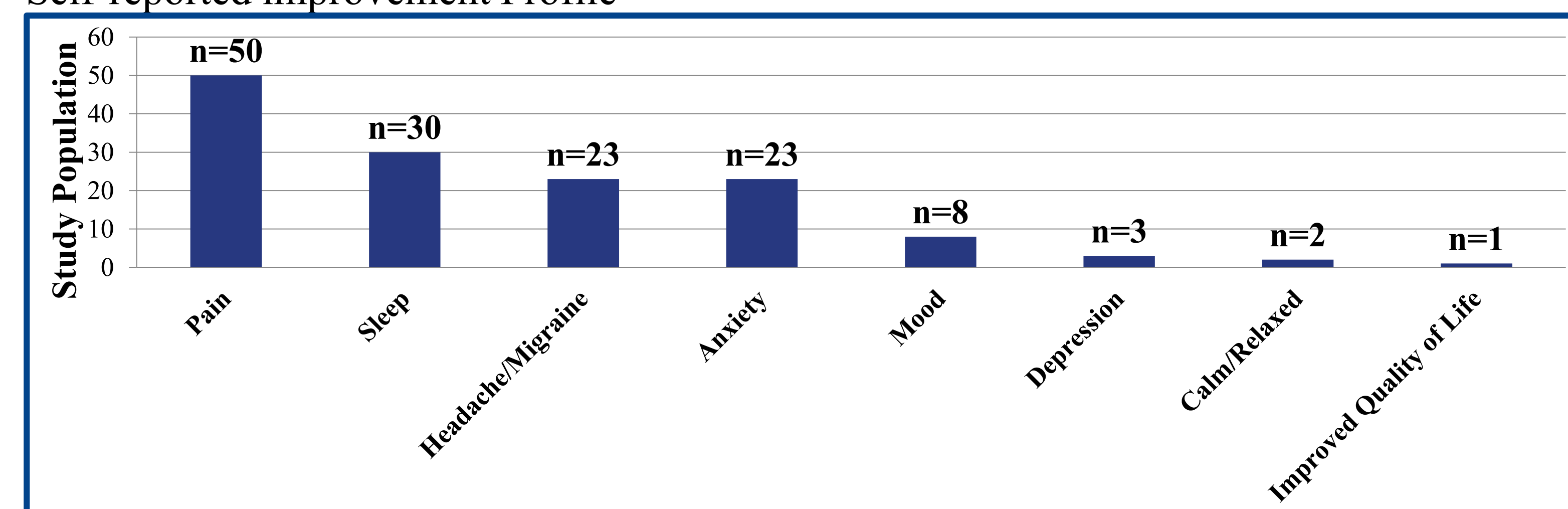


Figure 3. Self-reported improvement Profile



## Results

Figure 4. THC:CBD Ratios Product (all products)

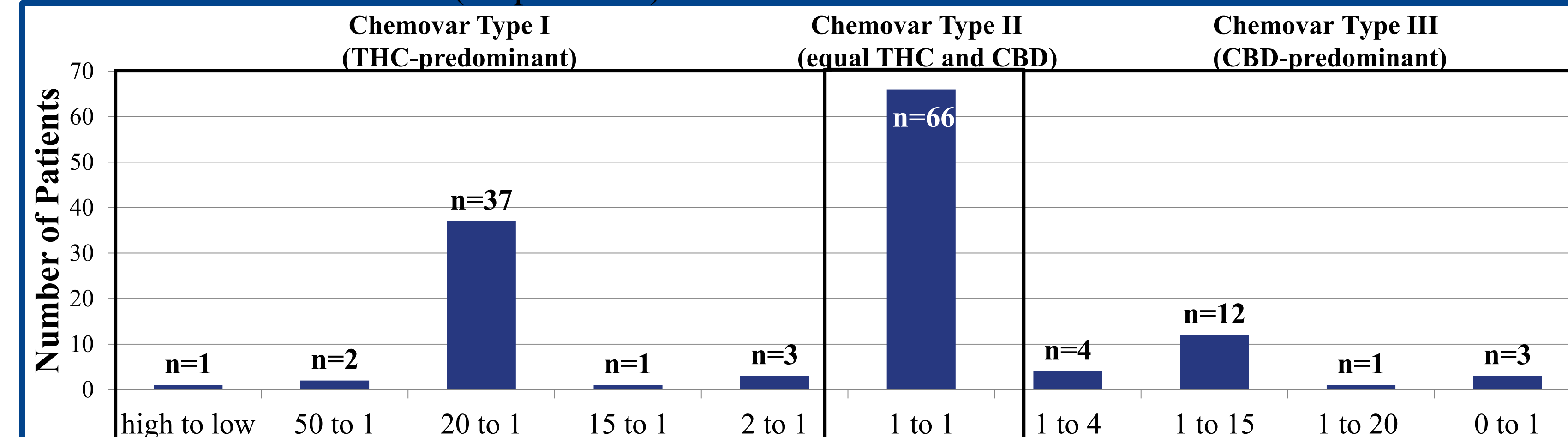


Figure 5. Number of MC products used by patients

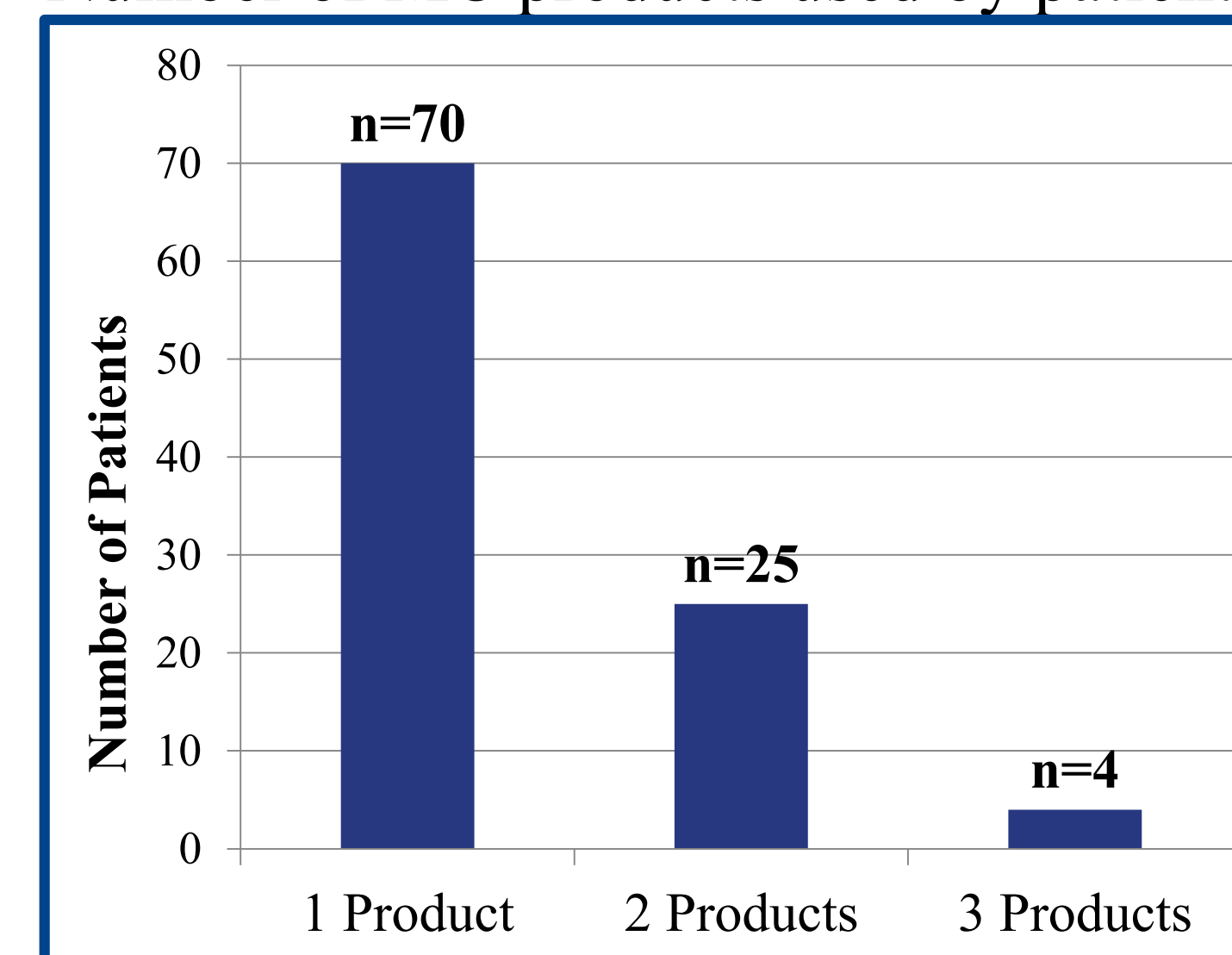


Figure 6. MC treatment modality (all products)

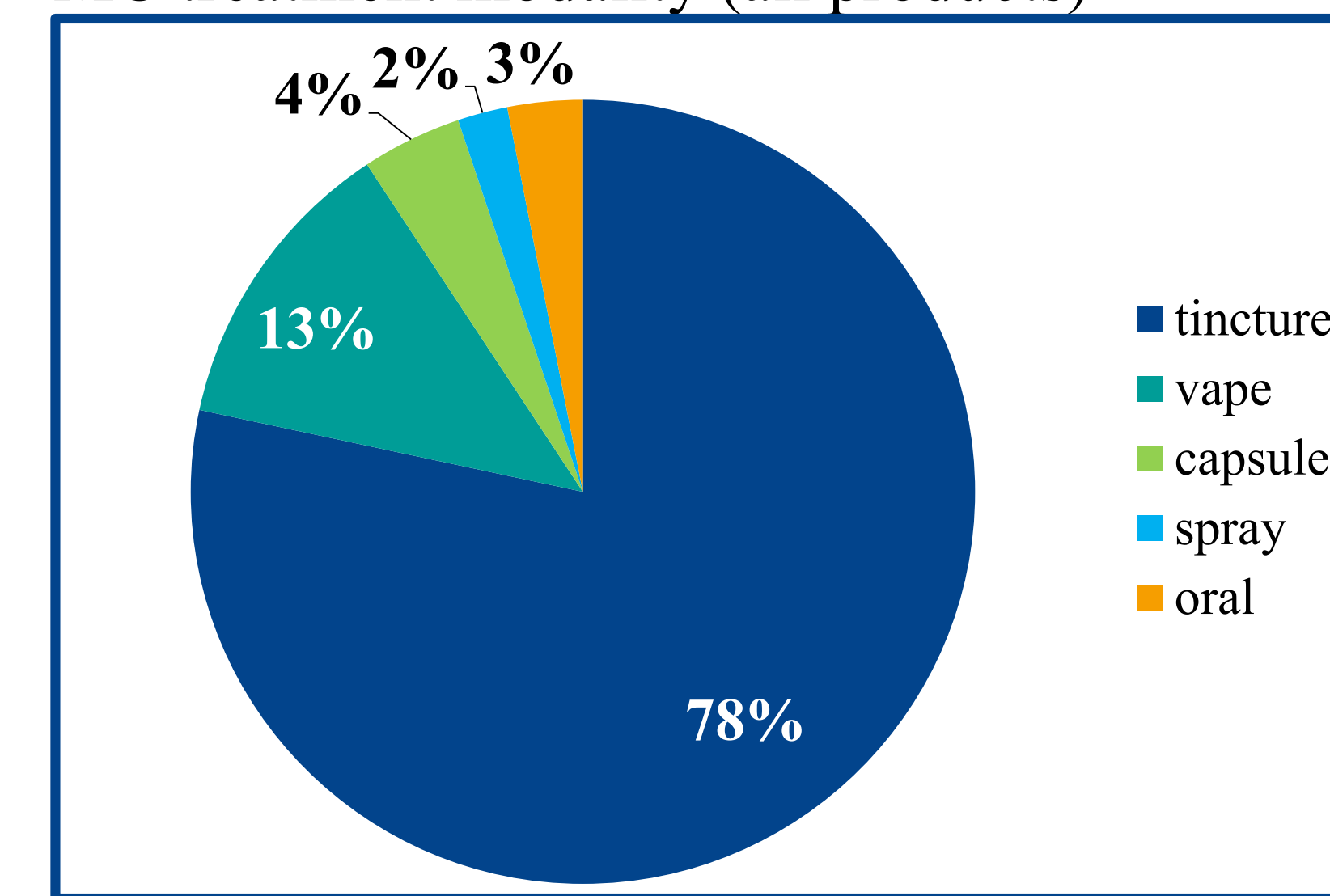


Figure 7. Patient-reported AE Profile

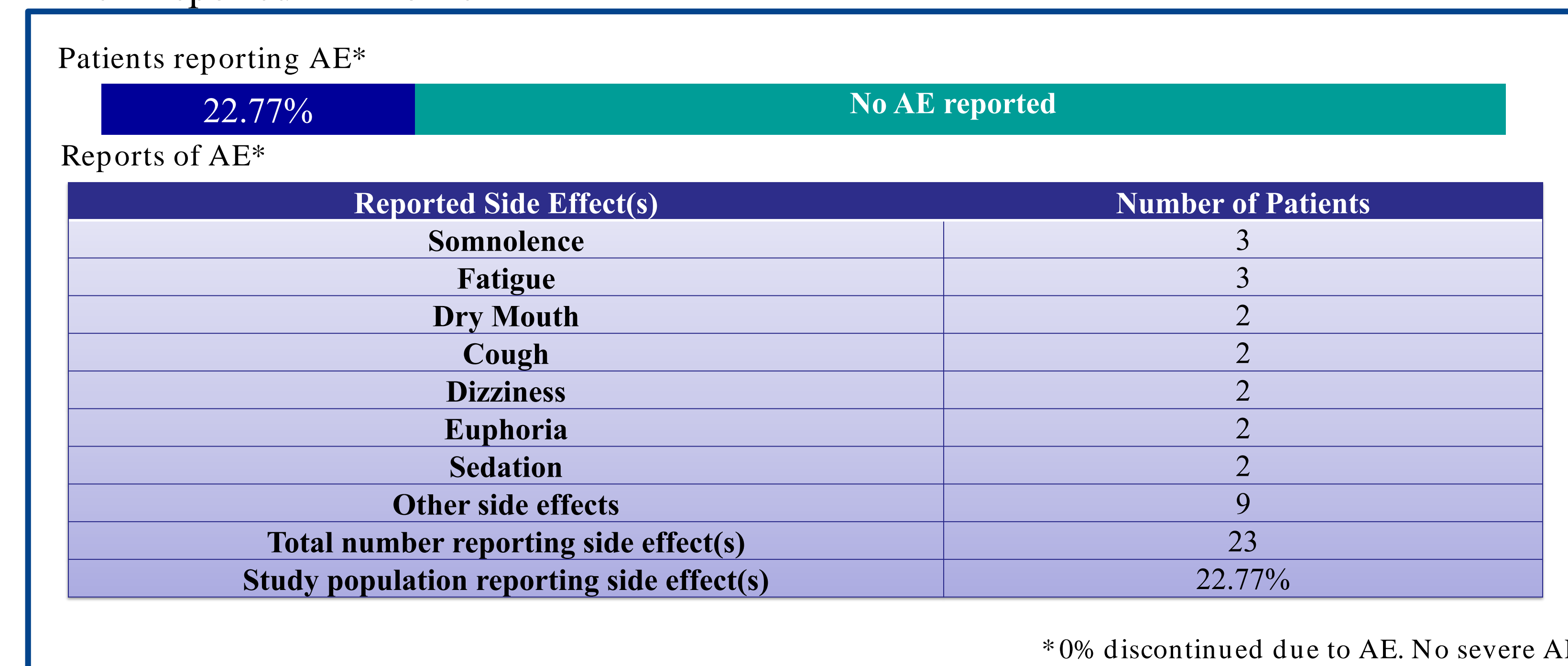


Figure 8. Reported SSRI/SNRI Usage

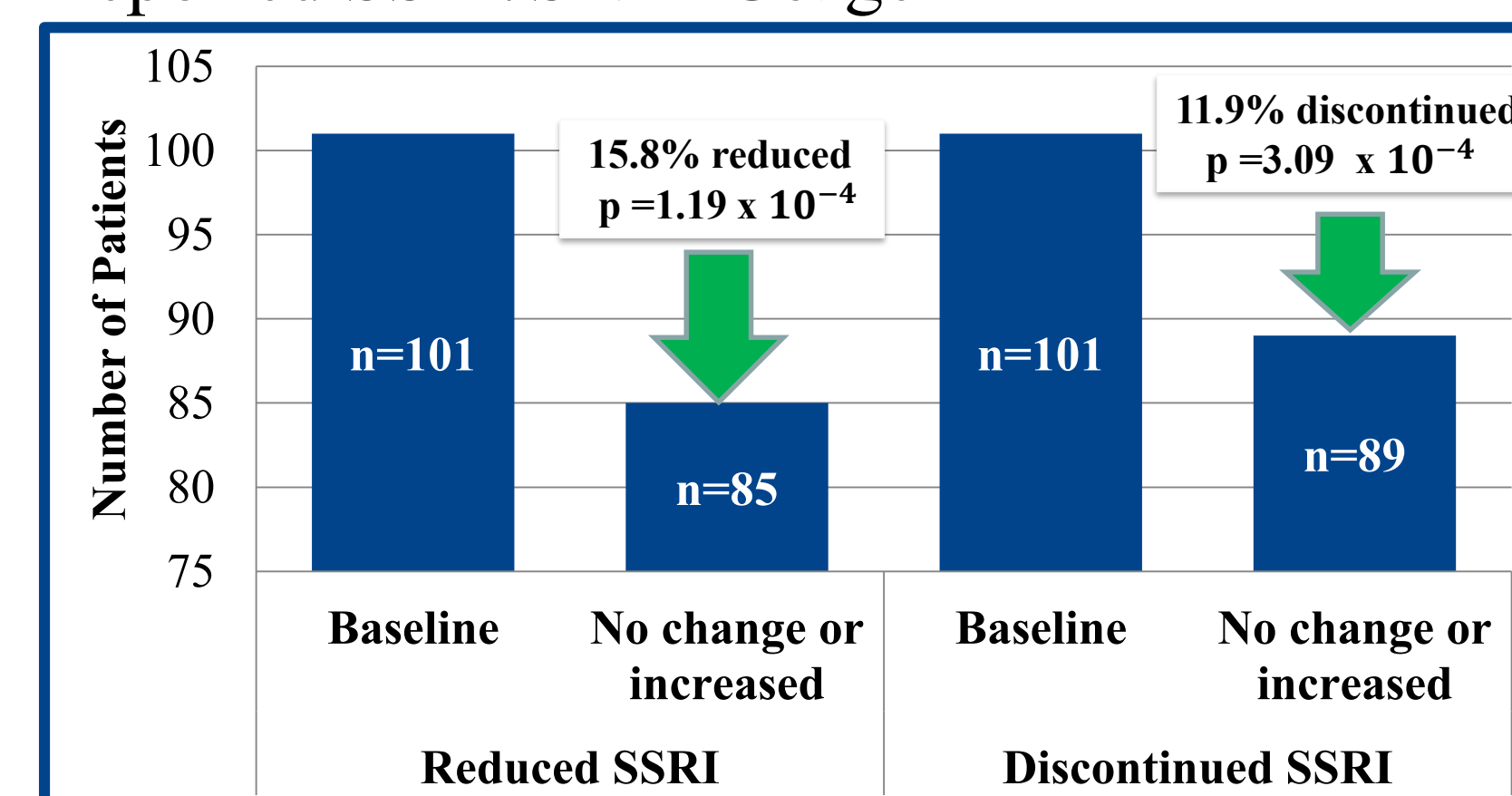
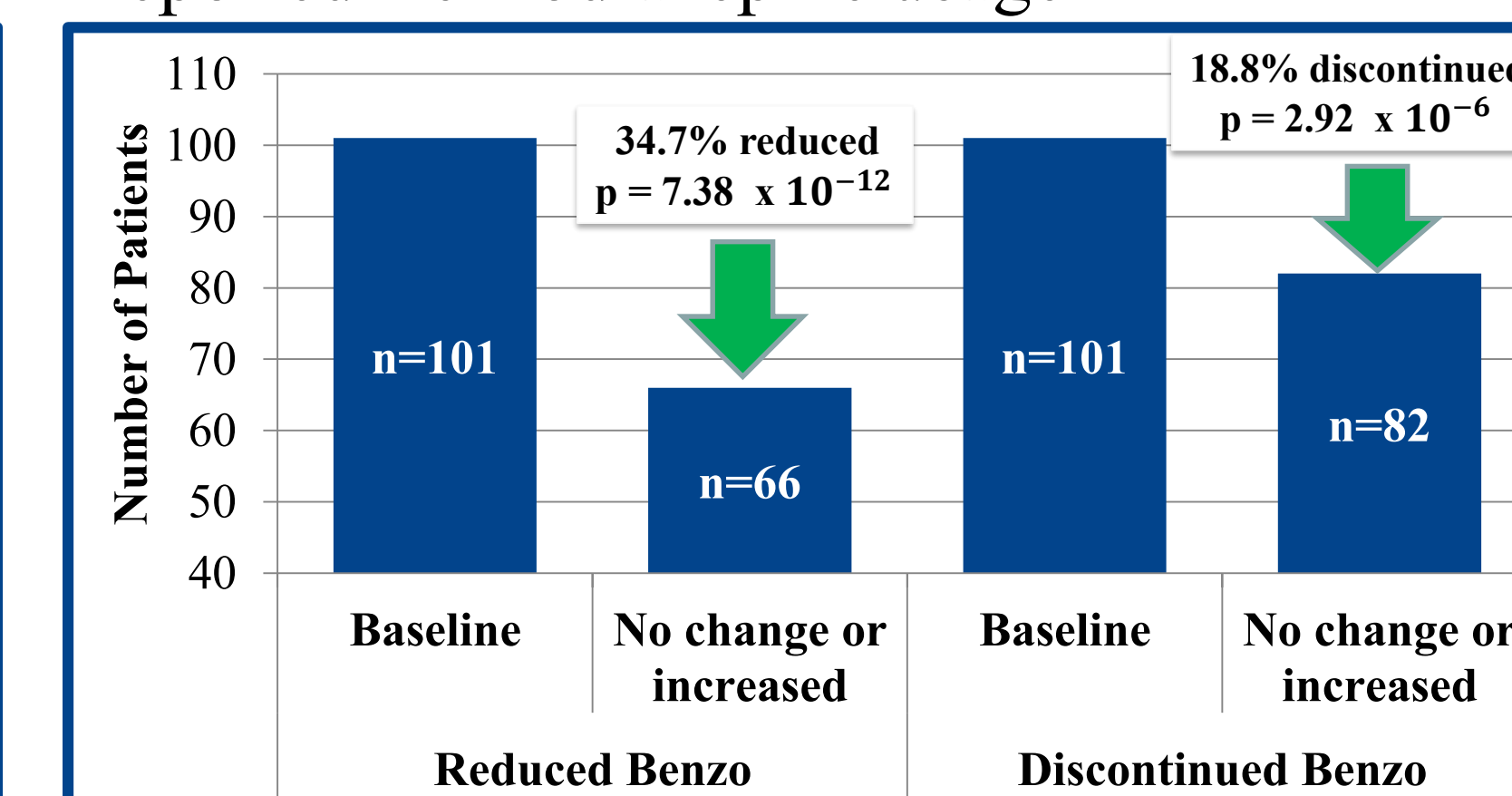


Figure 9. Reported Benzodiazepine usage



## Discussion

The results of this study suggest that incorporating MC into a comprehensive treatment plan of those patients with underlying comorbid anxiety and depression may be beneficial. An overwhelming majority (88.12%) of patients analyzed reported subjective improvement in anxiety and depression symptoms, with 69.31% of patients reporting these benefits while utilizing only one MC product during the course of treatment. The most commonly reported product utilized by patients was a 1:1 ratio oral tincture. Average total daily mg exposures of THC and CBD were 13.94 mg and 13.73 mg respectively. There was no significant difference in treatment outcomes when comparing use of one product to use of multiple products; similarly, no significant difference was found when comparing the three available treatment administration routes: tincture, vaporized inhalation, or capsule. All MC products are obtained by patients through licensed NYS dispensaries and are paid for out of pocket in full by patients, with an average monthly out of pocket cost of \$171.89, and over 18% of patients reporting difficulty affording treatment.

MC has several known mechanism of actions which can exhibit anxiolytic and antidepressant effects, including agonist effect on 5-HT1a [1], increase in anandamide uptake by inhibiting the intercellular degradation of anandamide [2], and anxiolytic action in limbic and paralimbic brain areas [3]. The absence of guidelines for MC treatment forces physicians to practice within a large clinical evidence gap to avoid risks associated with MC treatment.

Of patients examined for this study 22.77% reported side effects with somnolence and fatigue being the most common. No subject elected to discontinue MC treatment as a result of an AE, and no serious AEs were reported, indicating that MC is generally tolerated by patients.

## Conclusion

The results of this study suggest that MC is generally well-tolerated in the treatment of comorbid anxiety and depression, with 88% of patients reporting improvement(s) in symptomology. The findings also suggests that MC may play a role in one's ability to reduce benzodiazepine and or SSRI/SNRI medication dosage. The most commonly reported efficacious ratio among patients was a 1:1 ratio of THC to CBD taken via oral tincture. While these results are promising, future randomized placebo-controlled trials are needed to determine MC's place the comprehensive treatment plans of those with comorbid anxiety and depression.

## Acknowledgements & References

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**Author Disclosures:**  
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All other authors report no disclosures.