

# Migraines & Cannabis Relief: Online Survey Results from Users in Legal States

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## Background

Cultural attitudes toward cannabis in the United States are becoming more liberal, with more Americans self-medicating cannabis for a number of ailments, including migraines<sup>1,2</sup>. Both chronic and episodic migraines pose a major public concern when left untreated by negatively impacting health<sup>3</sup> however the field is in the preliminary stages of describing and understanding relationships between cannabis consumption and migraine relief.

Using the anonymous "Cannabis and Health" online survey, basic demographic information, cannabis use profiles, migraine prevalence, percent relief from cannabis and non-cannabis treatments, and additional factors are described. This exploratory report lends strong support for further investigation into cannabis use and migraines, where blood cannabinoid levels, and use patterns can be targeted for migraine type and relief duration and intensity.

Understanding how patterns of cannabis use mitigates migraine symptoms is imperative to promoting the health and well-being of migraineurs and is an important first step in determining the risks and benefits of cannabis as an effective migraine treatment.

## Materials, Methods & Demographics

### Procedure

- Voluntary, anonymous "Cannabis and Health" survey: <https://www.change/cannahealth>
- Data collection Jan 2017-June 2018; additional detail in publications<sup>4a,b</sup>
- Reviewed & approved by IRB at CU Boulder

### Recruitment

- Advertisements: Facebook (67%), Colorado dispensaries (11%), integrative clinic (22%)
- Targeting: Individuals aged 21-70, CA., CO., NV., OR., WA. residents (cannabis legal)

### Inclusion criteria

- Electronic informed consent, over 21 years, and endorsed cannabis use and migraines

### Primary Outcome Measures

- Demographics & Other Cannabis Use Characteristics (Table 1)
- Migraine Prevalence & Interference
- Migraine Treatment Relief: Non-Cannabis (NC; e.g. OTC pain medication) & Cannabis (C) Products
- Cannabis Use Patterns:
  - Cannabis Forms: flower, concentrates/dabbing, edibles, topical
  - Cannabis Frequency: Per month (m), day (d), & drag/hit
  - Cannabis Content (%), mg): 9-delta-tetrahydrocannabinol (THC); cannabidiol (CBD)

### Statistical Approach

- Data collection in Qualtrics; SPSS for analysis ( $p < 0.05$ )
- Statistical tests: Repeated measures and Uni/Multivariate ANOVA, Correlations,  $\chi^2$  tests

Table 1. Demographics & Other Cannabis Information		
	Non-Migraine	Migraine
Total (N, %)	426, 70	180, 30
*Age (Yrs ± SD)	38.6 ± 16.7	35.3 ± 13.1
*Gender (%)		
Male	60	38
Female	40	62
Race (%)		
White	79	83
Black	2	4
Asian	2	2
Native American	5	4
Native Hawaiian	1	0
No Response	9	5
N/A	1	2
Cannabis Related		
Medical Card (%)	42	46
*Start as Rec, Med, Both (%)	62, 10, 28	54, 18, 28
*Avg Spent on Cannabis/Week (\$ ± SD)	36.4 ± 36.6	47.7 ± 63.1
Start Age Regular Use (Yrs ± SD)	21.9 ± 12.3	22.3 ± 11.7

## Results

### 1 Cannabis Relief Greater than Non-Cannabis Relief & Weakly Correlates to Cannabis Use Patterns

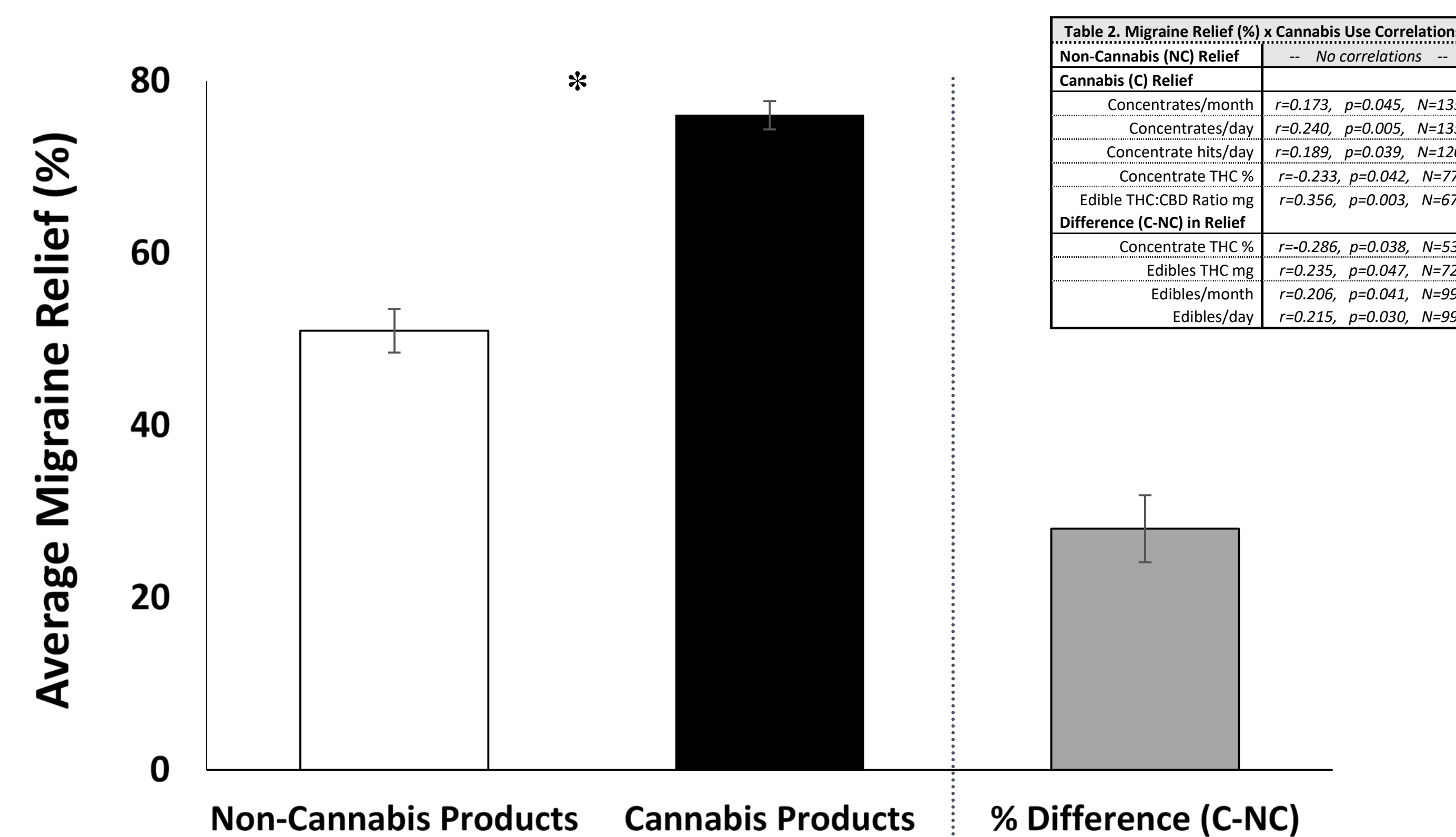


Figure 1. Average ( $\pm$ SEM) relief from Non-cannabis (NC) and Cannabis (C) products and the difference between C and NC relief shown in gray. Correlations (Pearson coefficient, p-value, and sample N) between migraine relief and cannabis use patterns by form, frequency, and content (inset Table 2).

### 2A Migraine Respondents Use more Edibles than Non-Migraine Respondents

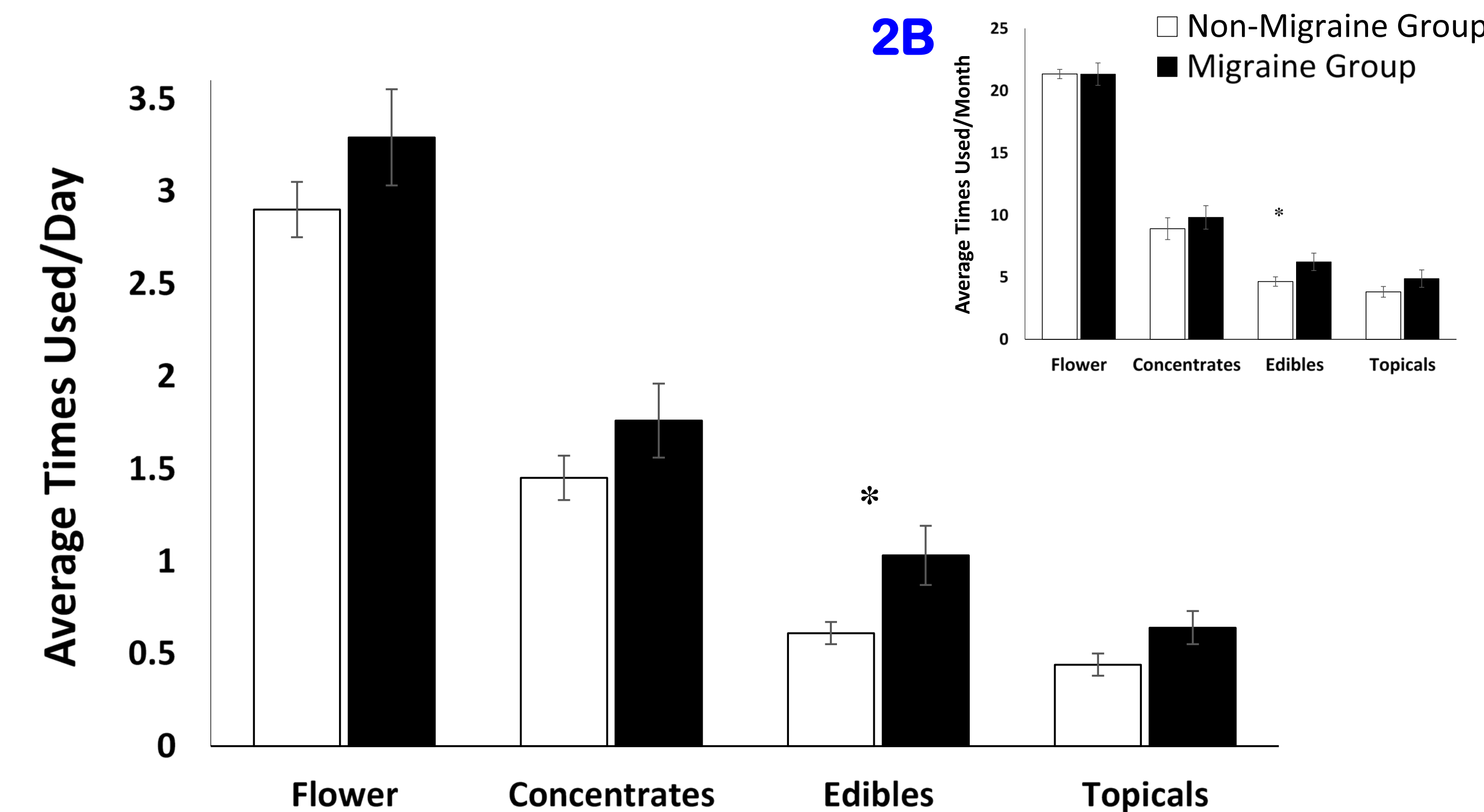


Figure 2. Average ( $\pm$ SEM) frequency of flower, concentrate, edible, and topical forms of cannabis used per day (Figure 2A) and month (inset Figure 2B).

### 3 Respondents with Higher Relief from Cannabis use Less Concentrated THC and Edible CBD

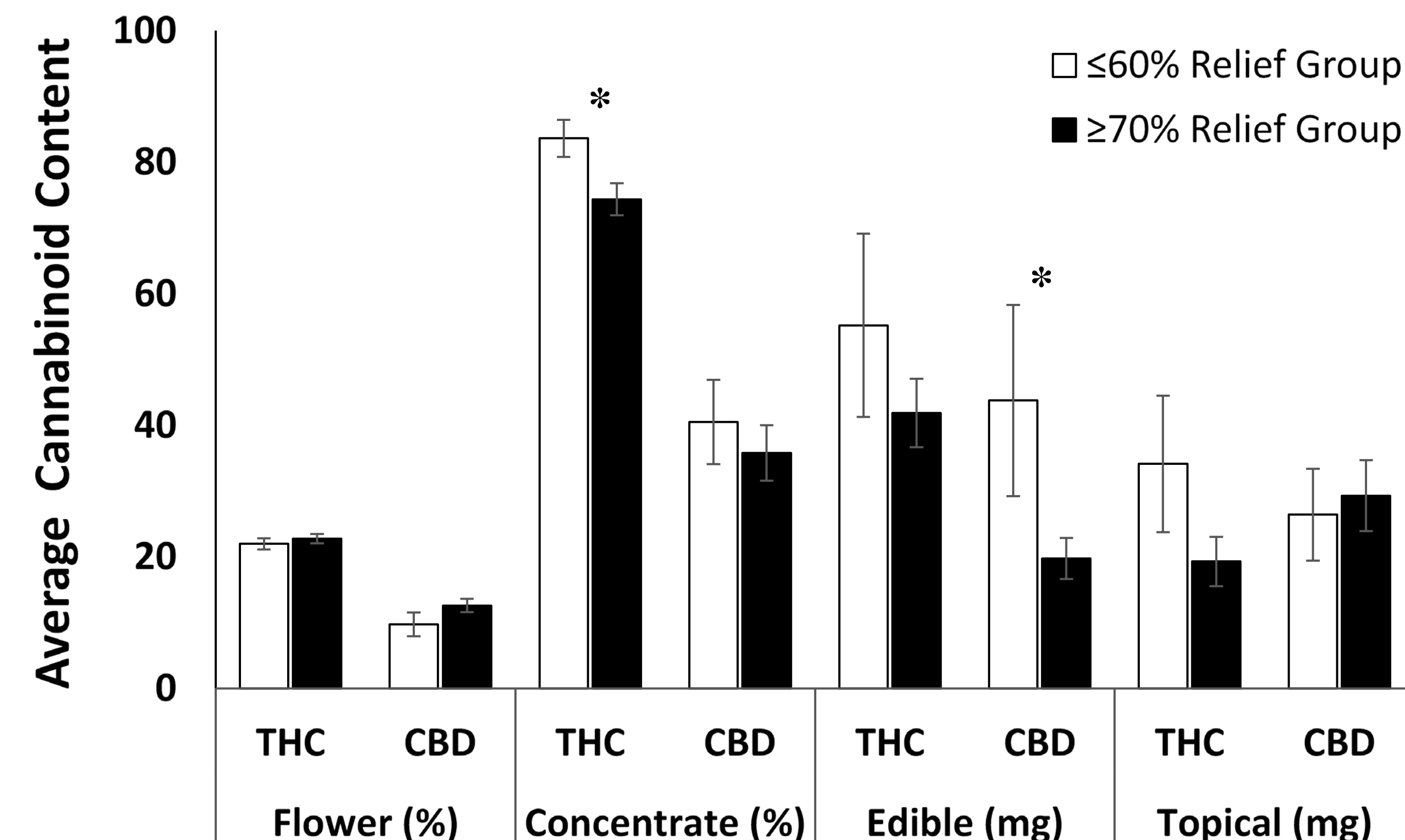


Figure 3. Average ( $\pm$ SEM) cannabinoid content/strength used by Migraineurs with higher (at least 70% relief) and lower (less than 60%) cannabis relief. Percent 9-delta-tetrahydrocannabinol (THC) and cannabidiol (CBD) reported for flower and concentrated forms of cannabis and milligrams reported for edible and topical forms.

### 4 Respondents with the Highest Relief from Cannabis Experience Less Interference from Migraines

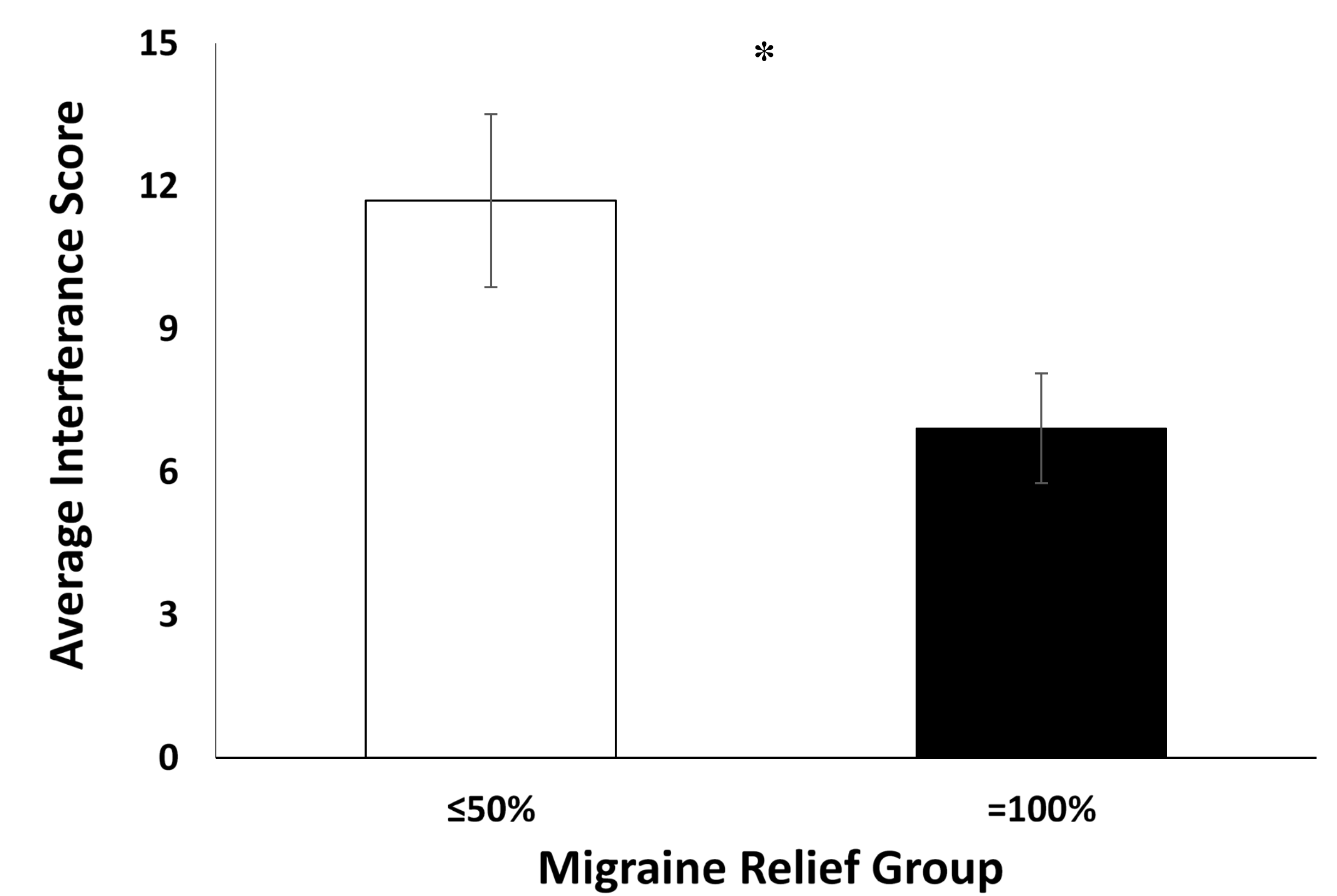


Figure 4. Average ( $\pm$ SEM) interference in Migraineurs with the Highest (100% Complete relief) and Lowest (50% or less) cannabis relief. Items summed for composite score from questions: "In the past week, how often have migraines interfered with your..." \*general activity, mood, \*locomotion, \*work, relations with people, \*sleep, quality of life" (\*significant item difference between groups).

## Conclusions

1. Migraineurs found more relief from cannabis compared to non-cannabis treatments, moderately correlating to frequency and cannabis strength patterns. These exploratory data indicate greater cannabis relief for migraines may be associated with use of low THC potency concentrates and high THC and low CBD potency edibles (Fig. 1).
2. Migraine and non-migraine groups have similar patterns of flower, concentrate, and topical use ( $p > 0.072$ ), yet migraineurs report more daily and monthly edible use (Fig. 2).
3. Lower relief ( $\leq 60\%$  group), used a lower average THC concentrate content by 10% and their edible CBD content was lower on average by 22 mg (Fig. 3).
4. Migraineurs who reported complete relief from cannabis for their migraines (100% group) compared to those with 50% or less relief, reported a lower impact from migraines on general activity, locomotion, work, and sleep, leading to nearly half the total interference on their life (Fig 4).