```
from google.colab import files

# Upload the file
uploaded = files.upload()
```

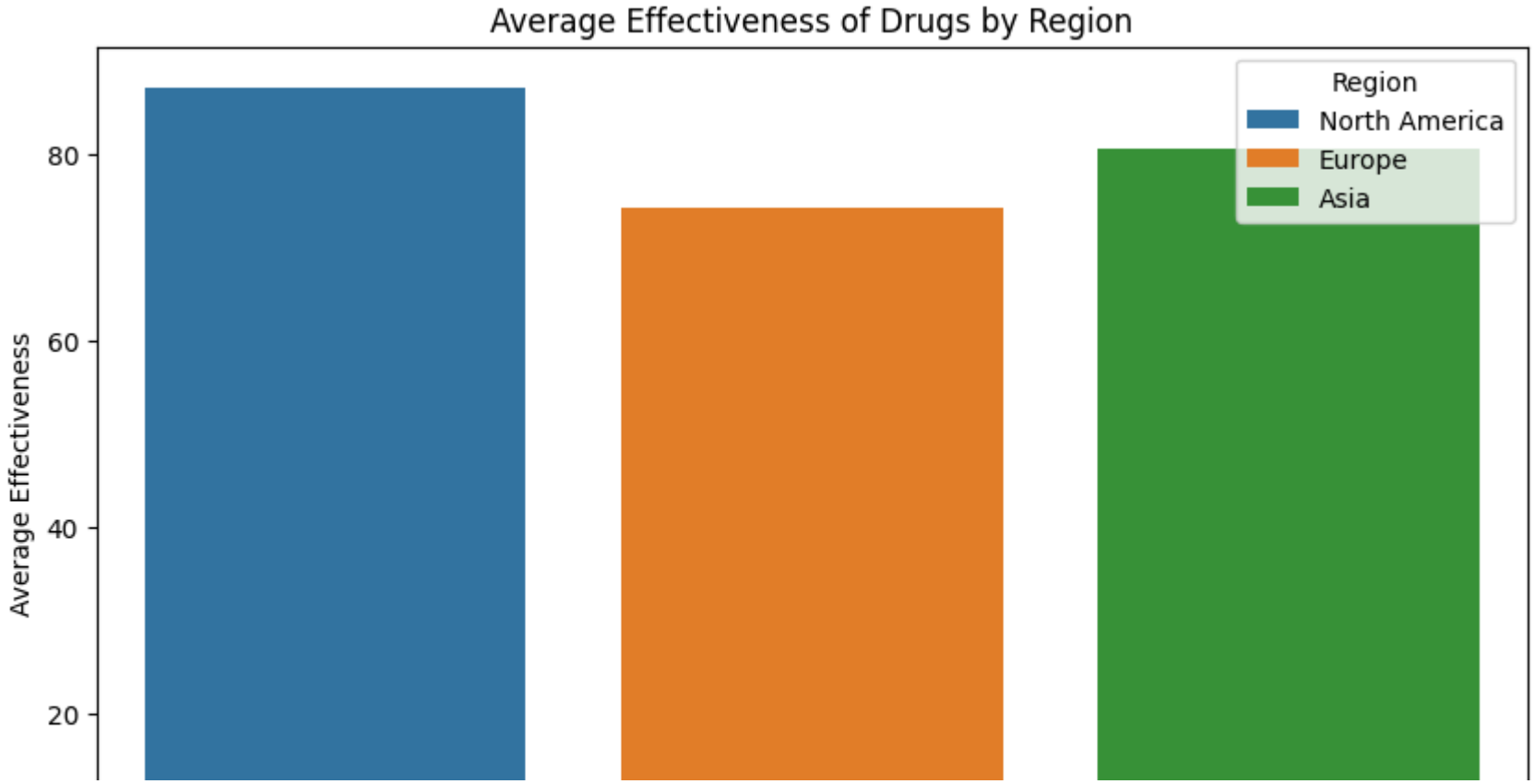
Choose Files Day_14_Ph…a_data.csv

- **Day_14_Pharma_data.csv**(text/csv) - 679 bytes, last modified: 1/24/2025 - 100% done

```
Saving Day_14_Pharma_data.csv to Day_14_Pharma_data.csv
```

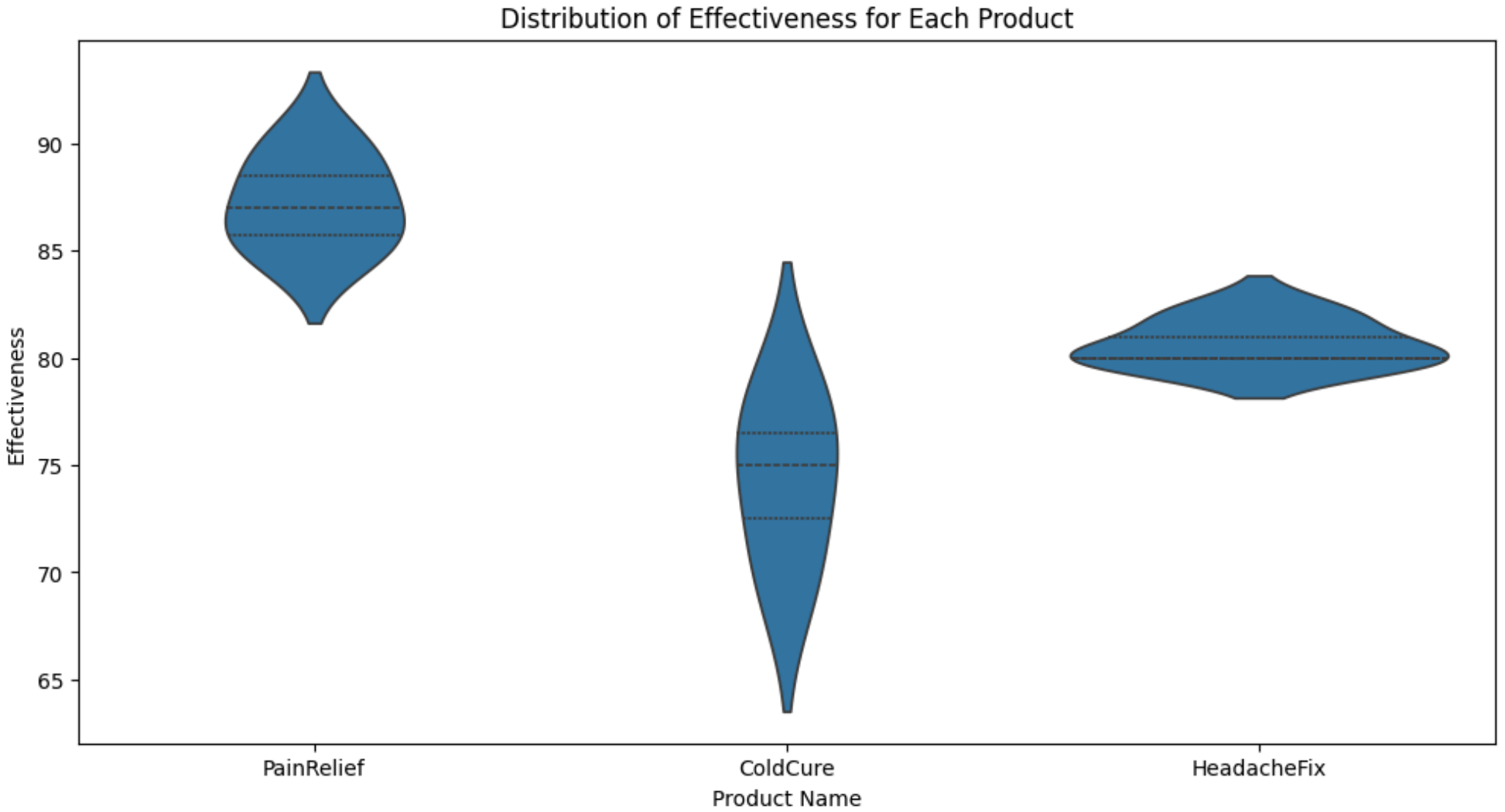
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
fp='Day_14_Pharma_data.csv'
Pharma_data=pd.read_csv(fp)


df = pd.DataFrame(Pharma_data)


plt.figure(figsize=(10, 6))
sns.barplot(data=df, x='Product_Name', y='Effectiveness', hue='Region', ci=None)
plt.title('Average Effectiveness of Drugs by Region')
plt.ylabel('Average Effectiveness')
plt.xlabel('Product Name')
plt.legend(title='Region')
plt.show()
```

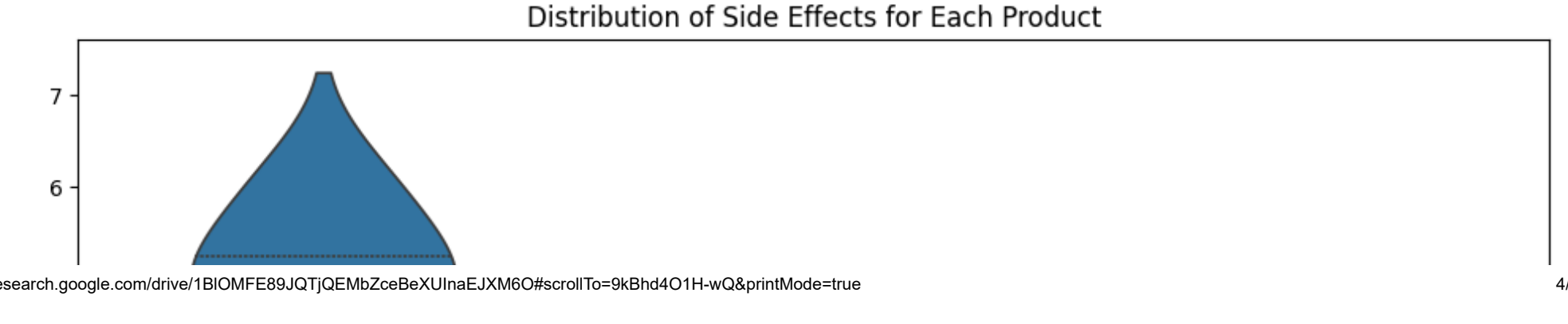
```
<ipython-input-4-46f19e2a675f>:2: FutureWarning:

The `ci` parameter is deprecated. Use `errorbar=None` for the same effect.

  sns.barplot(data=df, x='Product_Name', y='Effectiveness', hue='Region', ci=None)
```



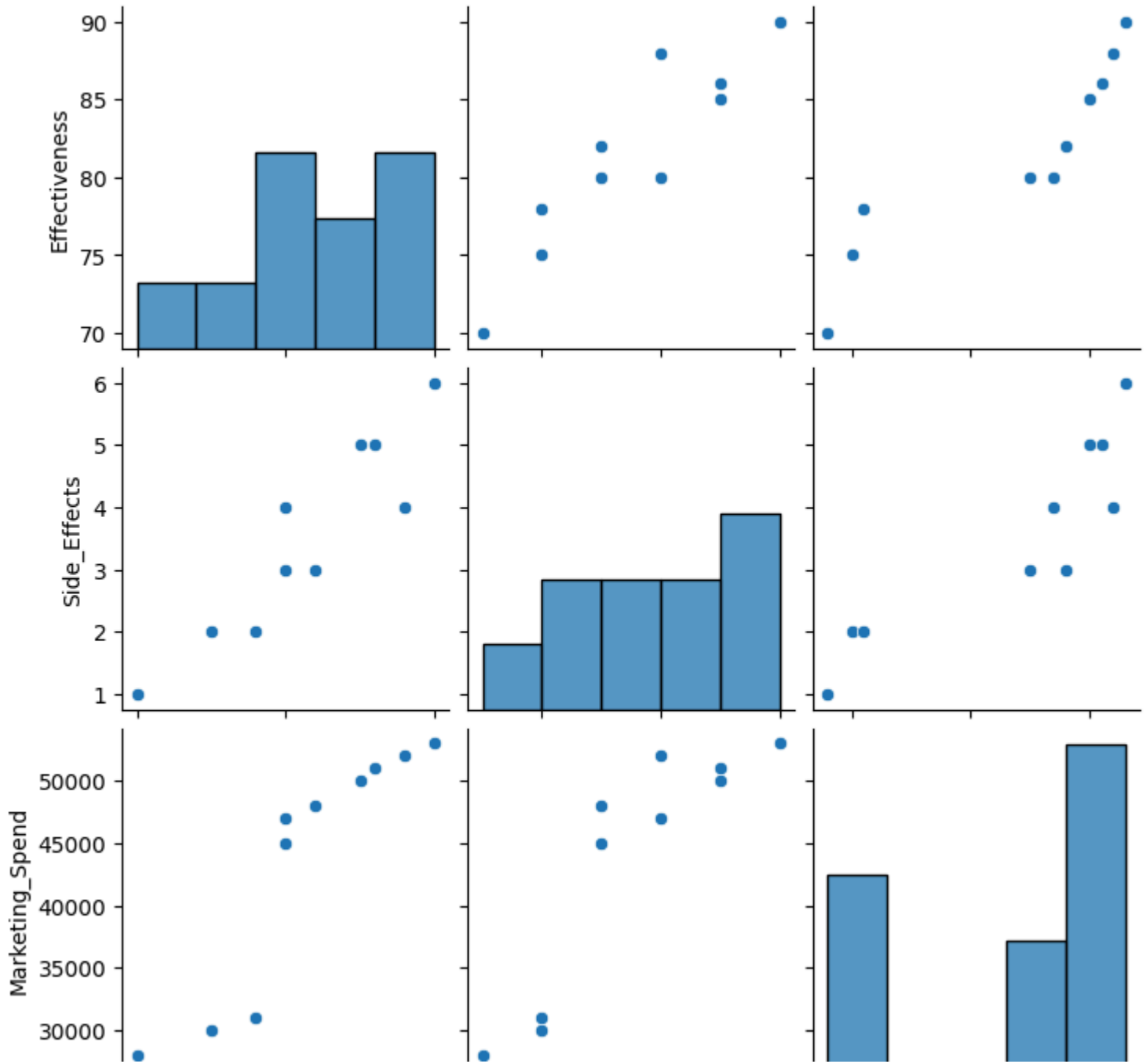

```
plt.figure(figsize=(12, 6))
sns.violinplot(data=df, x='Product_Name', y='Effectiveness', inner='quartile')
plt.title('Distribution of Effectiveness for Each Product')
plt.ylabel('Effectiveness')
plt.xlabel('Product Name')
plt.show()

plt.figure(figsize=(12, 6))
sns.violinplot(data=df, x='Product_Name', y='Side_Effects', inner='quartile')
```

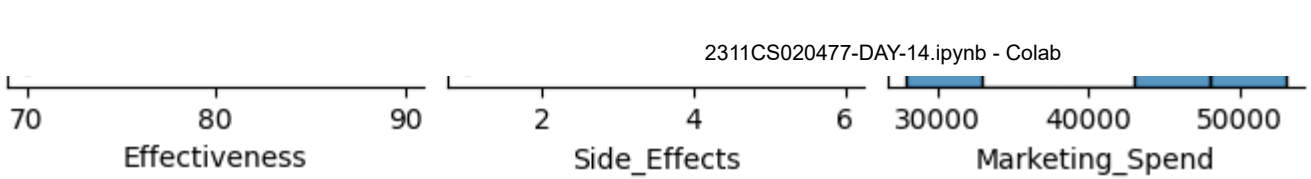
```
    plt.title('Distribution of Side Effects for Each Product')
    plt.ylabel('Side Effects')
    plt.xlabel('Product Name')
    plt.show()
```

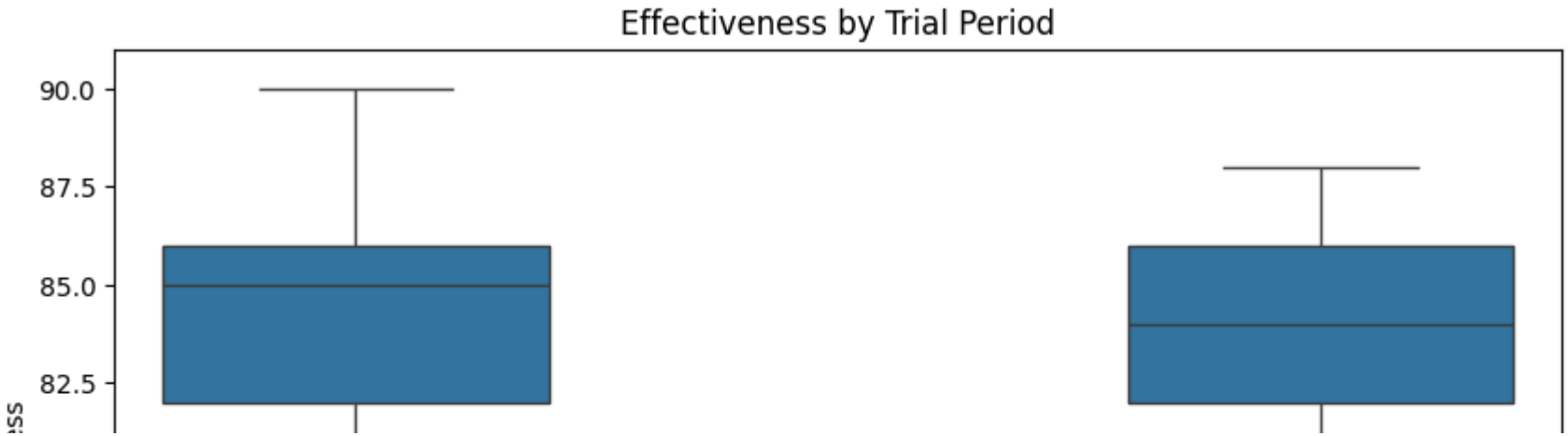

Distribution of Effectiveness for Each Product
Effectiveness
90
85
80
75
70
65
PainRelief
ColdCure
HeadacheFix
Product Name


Distribution of Side Effects for Each Product
7
6

```
sns.pairplot(df[['Effectiveness', 'Side_Effects', 'Marketing_Spend']])
plt.suptitle('Pairplot of Effectiveness, Side Effects, and Marketing Spend', y=1.02)
plt.show()

# Visualization 4: Boxplot comparing Effectiveness for different trial periods
plt.figure(figsize=(10, 6))
sns.boxplot(data=df, x='Trial_Period', y='Effectiveness')
plt.title('Effectiveness by Trial Period')
plt.ylabel('Effectiveness')
plt.xlabel('Trial Period')
plt.show()
```


Effectiveness
Side_Effects
Marketing_Spend
90
85
80
75
70
6
5
4
3
2
1
50000
45000
40000
35000
30000


70
80
90
Effectiveness
2
4
6
Side_Effects
30000
40000
50000
Marketing_Spend


Effectiveness by Trial Period
90.0
87.5
85.0
82.5