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April 12, 2025

A Collection of 120 Psychology Patients with 17 Essential Symptoms to Diagnose Mania Bipolar Disorder, Depressive Bipolar Disorder, Major Depressive Disorder, and Normal Individuals. The dataset contains the 17 essential symptoms psychiatrists use to diagnose the described disorders. The behavioral symptoms are considered the levels of patients Sadness, Exhaustness, Euphoric, Sleep disorder, Mood swings, Suicidal thoughts, Anorexia, Anxiety, Try-explaining, Nervous breakdown, Ignore & Move-on, Admitting mistakes, Overthinking, Aggressive response, Optimism, Sexual activity, and Concentration in a Comma Separated Value (CSV) format. The Normal category refer to the individuals using therapy time for specialized counseling, personal development, and life skill enrichments. While such individuals may also have minor mental problems, they differ from those suffering from Major Depressive Disorder and Bipolar Disorder.

[ ]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

[ ]:
```
data = pd.read_csv('Dataset-Mental-Disorders.csv')
data.head()
```

[ ]:

	Patient Number	Sadness	Euphoric	Exhausted	Sleep dissorder	Mood Swing	Suicidal thoughts	Anorxia	Authority Respect	Try-Explanation	Aggressive Response	Ignore & Move-On	Nervous Break-down	Admit Mistakes
0	Patiant-01	Usually	Seldom	Sometimes	Sometimes	YES	YES	NO	NO	YES	NO	NO	YES	YES
1	Patiant-02	Usually	Seldom	Usually	Sometimes	NO	YES	NO	NO	NO	NO	NO	NO	NO
2	Patiant-03	Sometimes	Most-Often	Sometimes	Sometimes	YES	NO	NO	NO	YES	YES	NO	YES	YES
3	Patiant-04	Usually	Seldom	Usually	Most-Often	YES	YES	YES	NO	YES	NO	NO	NO	NO
4	Patiant-05	Usually	Usually	Sometimes	Sometimes	NO	NO	NO	NO	NO	NO	NO	NO	NO

```
4                  NO               NO                YES            YES

  Overthinking Sexual Activity Concentration  Optimisim Expert Diagnose
0          YES       3 From 10     3 From 10  4 From 10  Bipolar Type-2
1           NO       4 From 10     2 From 10  5 From 10      Depression
2           NO       6 From 10     5 From 10  7 From 10  Bipolar Type-1
3           NO       3 From 10     2 From 10  2 From 10  Bipolar Type-2
4          YES       5 From 10     5 From 10  6 From 10          Normal
```

[ ]:
```
data.describe()
```

[ ]:
```
       Patient Number  Sadness Euphoric  Exhausted Sleep dissorder Mood Swing  \
count             120      120      120        120              120        120
unique            120        4        4          4                4          2
top        Patiant-01  Usually   Seldom  Sometimes       Sometimes         NO
freq                1       42       46         38               44         63

       Suicidal thoughts Anorxia Authority Respect Try-Explanation  \
count                120     120               120              120
unique                 3       2                 2                2
top                   NO      NO                NO               NO
freq                  63      74                73               63

       Aggressive Response Ignore & Move-On Nervous Break-down Admit Mistakes  \
count                  120              120                120            120
unique                   2                2                  2              2
top                     NO               NO                YES             NO
freq                    62               70                 62             61

       Overthinking Sexual Activity Concentration  Optimisim Expert Diagnose
count           120             120           120        120             120
unique            2               9             8          9               4
top             YES       5 From 10     4 From 10  6 From 10  Bipolar Type-2
freq             65              22            33         21              31
```

[ ]:
```
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 120 entries, 0 to 119
Data columns (total 19 columns):
 #   Column              Non-Null Count  Dtype
---  ------              --------------  -----
 0   Patient Number      120 non-null    object
 1   Sadness             120 non-null    object
 2   Euphoric            120 non-null    object
 3   Exhausted           120 non-null    object
 4   Sleep dissorder     120 non-null    object
```

```
 5   Mood Swing           120 non-null    object
 6   Suicidal thoughts    120 non-null    object
 7   Anorxia              120 non-null    object
 8   Authority Respect    120 non-null    object
 9   Try-Explanation      120 non-null    object
 10  Aggressive Response  120 non-null    object
 11  Ignore & Move-On     120 non-null    object
 12  Nervous Break-down   120 non-null    object
 13  Admit Mistakes       120 non-null    object
 14  Overthinking         120 non-null    object
 15  Sexual Activity      120 non-null    object
 16  Concentration        120 non-null    object
 17  Optimisim            120 non-null    object
 18  Expert Diagnose      120 non-null    object
dtypes: object(19)
memory usage: 17.9+ KB
```

[ ]:
```
data.isnull().sum()
```

[ ]:
```
Patient Number         0
Sadness                0
Euphoric               0
Exhausted              0
Sleep dissorder        0
Mood Swing             0
Suicidal thoughts      0
Anorxia                0
Authority Respect      0
Try-Explanation        0
Aggressive Response    0
Ignore & Move-On       0
Nervous Break-down     0
Admit Mistakes         0
Overthinking           0
Sexual Activity        0
Concentration          0
Optimisim              0
Expert Diagnose        0
dtype: int64
```

[ ]:
```
data.duplicated().sum()
```

[ ]:
```
np.int64(0)
```

[ ]:
```
data.shape
```

[ ]:
```
(120, 19)
```

[ ]:
```
data.columns
```

[ ]:
```
Index(['Patient Number', 'Sadness', 'Euphoric', 'Exhausted', 'Sleep dissorder',
       'Mood Swing', 'Suicidal thoughts', 'Anorxia', 'Authority Respect',
       'Try-Explanation', 'Aggressive Response', 'Ignore & Move-On',
       'Nervous Break-down', 'Admit Mistakes', 'Overthinking',
       'Sexual Activity', 'Concentration', 'Optimisim', 'Expert Diagnose'],
      dtype='object')
```

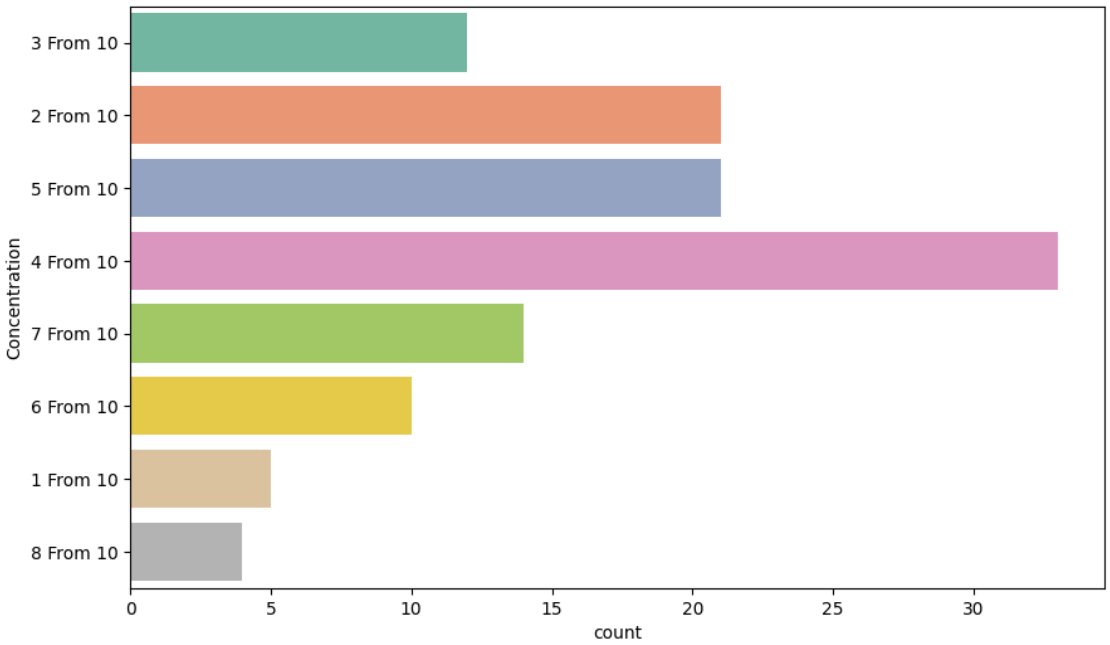
[ ]:
```
data_num = data.select_dtypes(include=np.number)
data_num.columns
```

[ ]:
```
Index([], dtype='object')
```

[ ]:
```
data['Patient Number'].dropna(inplace=True)
```

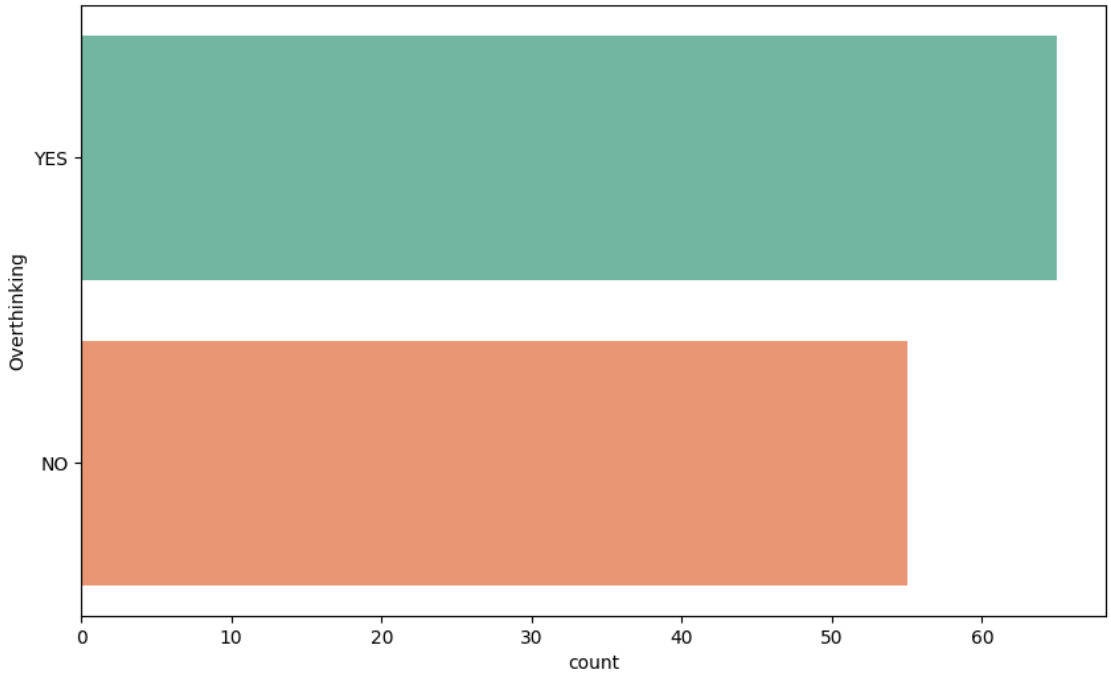
[ ]:
```
plt.figure(figsize=(10,6))
sns.countplot(data['Concentration'], palette='Set2')
plt.show()
```

```
<ipython-input-11-d3dcfafd98f6>:2: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in
v0.14.0. Assign the `y` variable to `hue` and set `legend=False` for the same
effect.

  sns.countplot(data['Concentration'], palette='Set2')
```



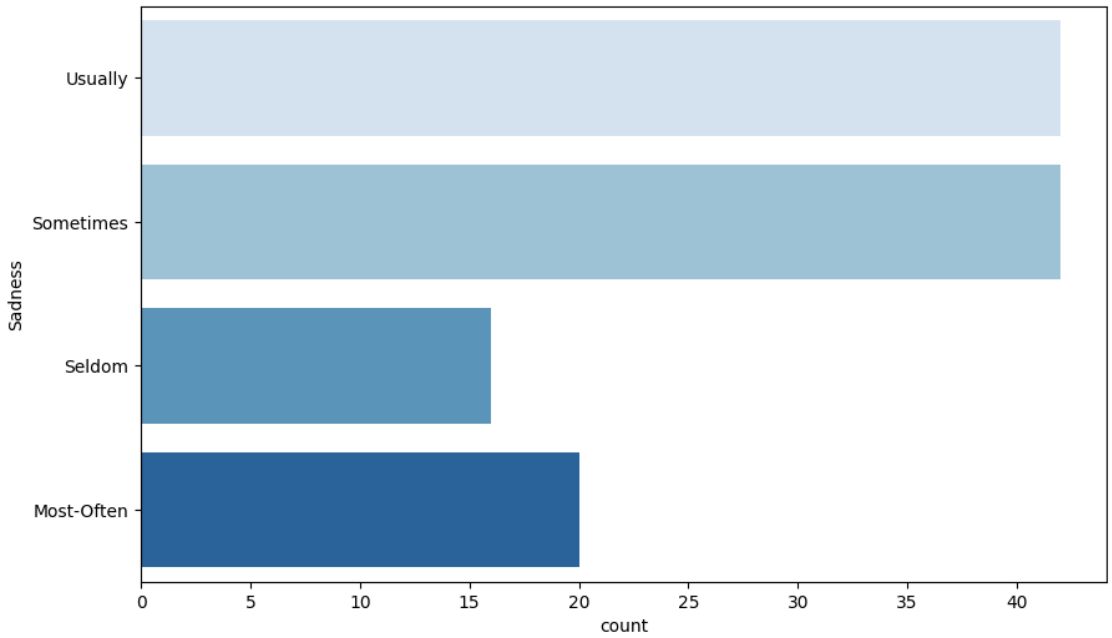
[ ]:
```
plt.figure(figsize=(10,6))
sns.countplot(data['Overthinking'], palette='Set2')
plt.show()
```

```
<ipython-input-12-aa40cfd88e4e>:2: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in
v0.14.0. Assign the `y` variable to `hue` and set `legend=False` for the same
effect.

  sns.countplot(data['Overthinking'], palette='Set2')
```



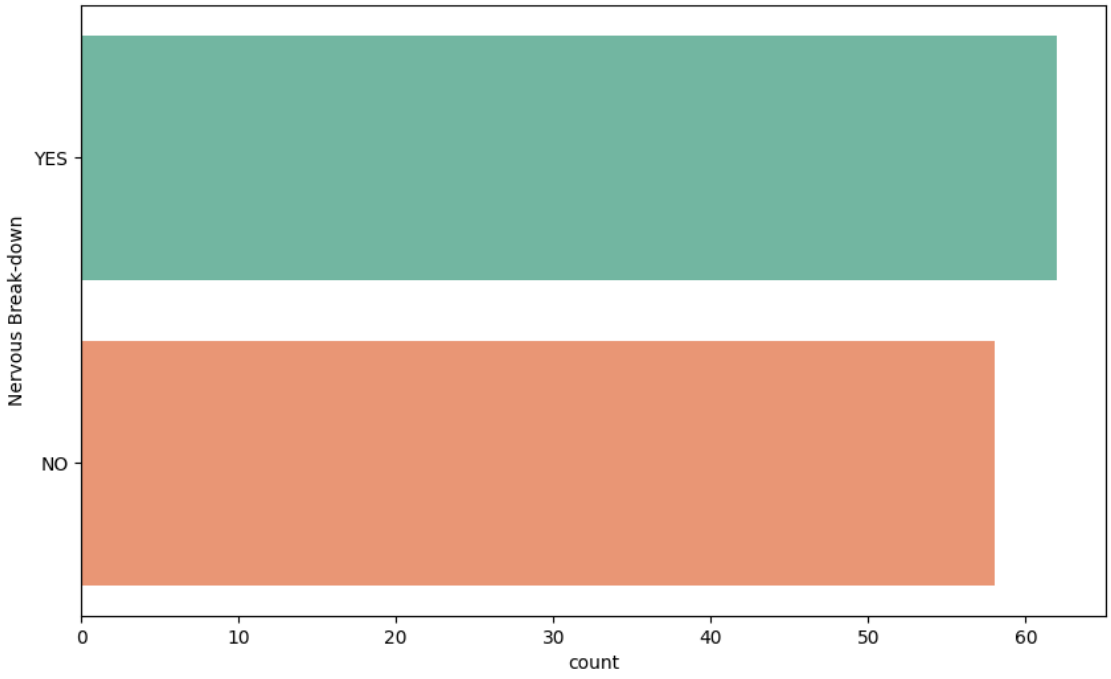
[ ]:
```
plt.figure(figsize=(10,6))
sns.countplot(data['Sadness'], palette='Blues')
plt.show()
```

```
<ipython-input-13-adc2df694be2>:2: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in
v0.14.0. Assign the `y` variable to `hue` and set `legend=False` for the same
effect.

  sns.countplot(data['Sadness'], palette='Blues')
```



[ ]:
```
plt.figure(figsize=(10,6))
sns.countplot(data['Nervous Break-down'], palette='Set2')
plt.show()
```

```
<ipython-input-14-f3f9d3936e73>:2: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in
v0.14.0. Assign the `y` variable to `hue` and set `legend=False` for the same
effect.

  sns.countplot(data['Nervous Break-down'], palette='Set2')
```

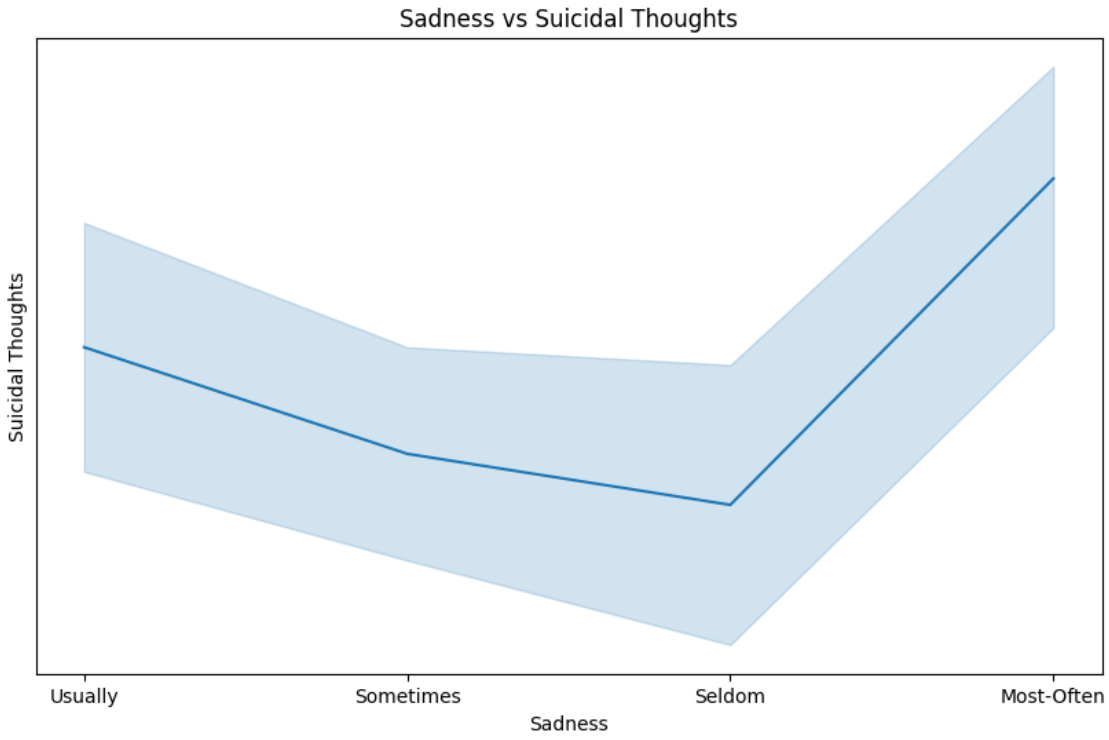


[ ]:
```
data.columns
```

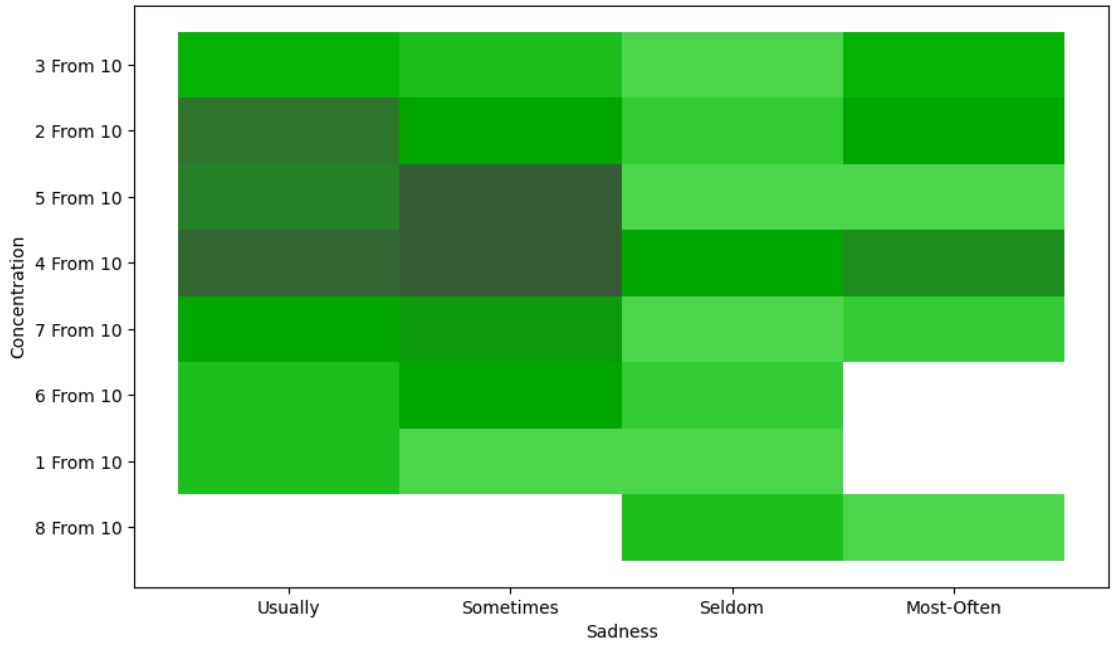
[ ]:
```
Index(['Patient Number', 'Sadness', 'Euphoric', 'Exhausted', 'Sleep dissorder',
       'Mood Swing', 'Suicidal thoughts', 'Anorxia', 'Authority Respect',
       'Try-Explanation', 'Aggressive Response', 'Ignore & Move-On',
       'Nervous Break-down', 'Admit Mistakes', 'Overthinking',
       'Sexual Activity', 'Concentration', 'Optimisim', 'Expert Diagnose'],
      dtype='object')
```

[ ]:
```
# sadness vs suicidal thoughts
sadness_suicidal_thoughts = data.groupby('Sadness')['Suicidal thoughts'].
 ↪value_counts().unstack()
sadness_suicidal_thoughts
plt.figure(figsize=(10,6))
# Corrected the column name for the y-axis to match the DataFrame
sns.lineplot(x= 'Sadness', y='Suicidal thoughts', data=data)
plt.xlabel('Sadness')
plt.ylabel('Suicidal Thoughts')
plt.title('Sadness vs Suicidal Thoughts')
```

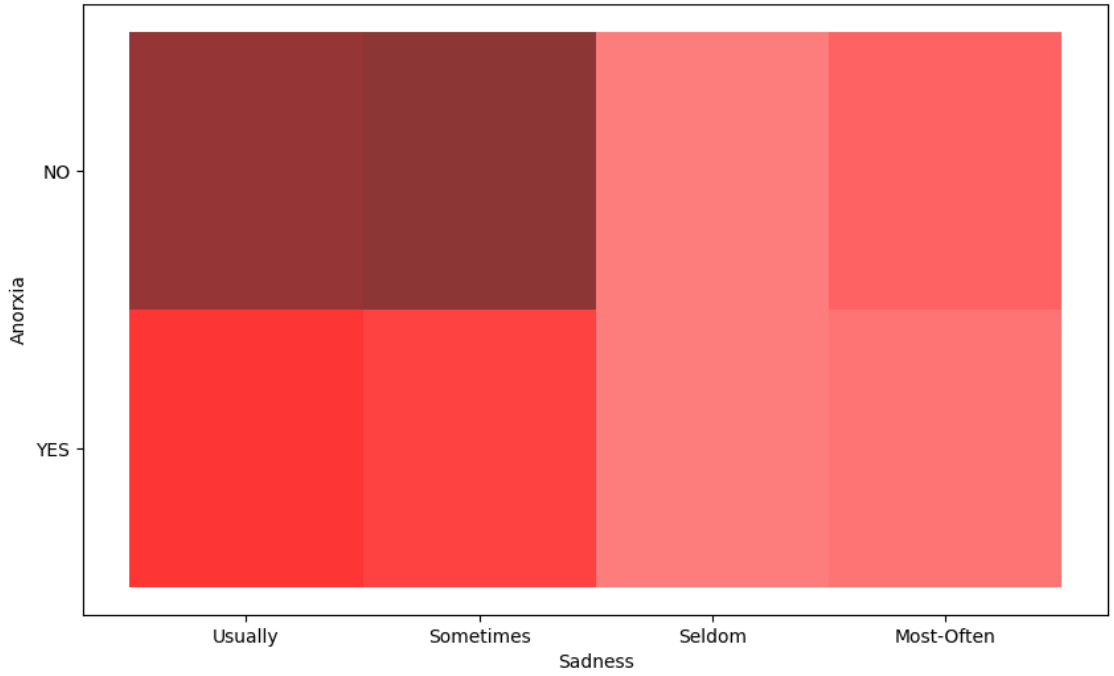
[ ]:
```
Text(0.5, 1.0, 'Sadness vs Suicidal Thoughts')
```



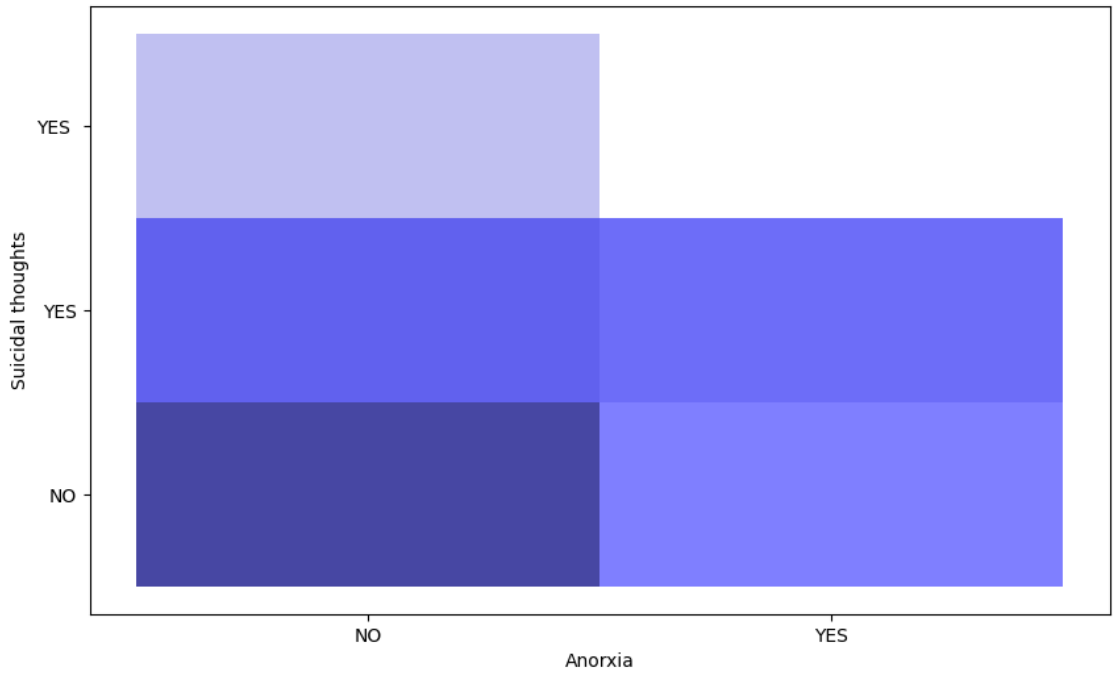
[ ]:
```
# sadness vs concentration

plt.figure(figsize=(10,6))
sns.histplot(x = data['Sadness'],y=data['Concentration'], color='g')
plt.show()
```



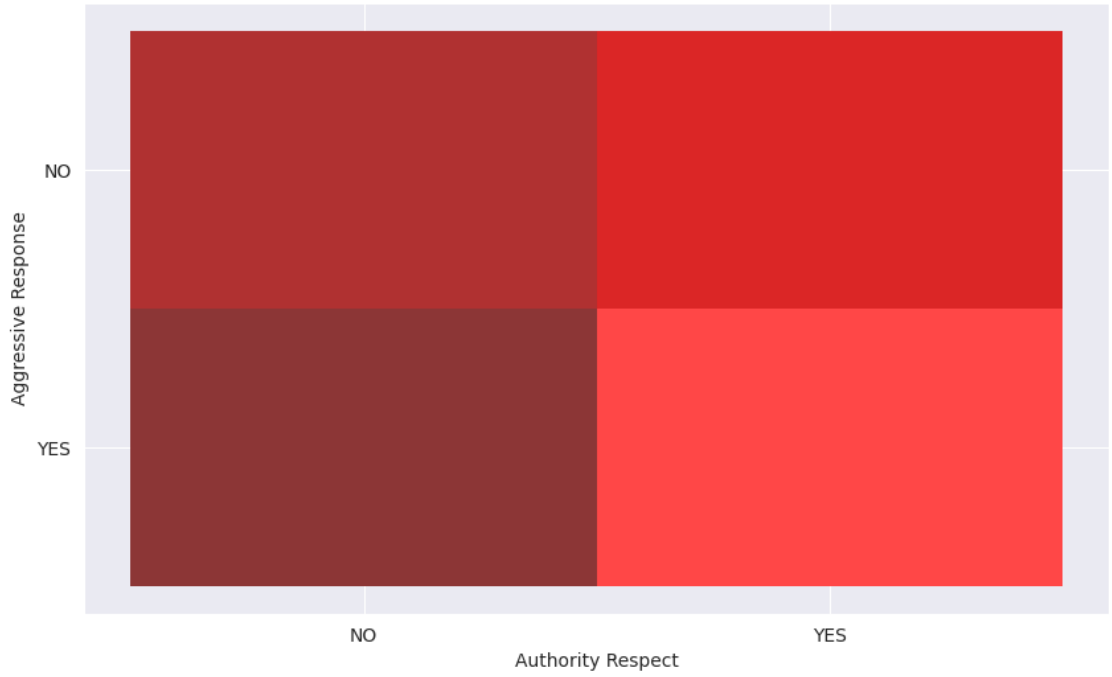
[ ]:
```
# sadness vs anorexia
plt.figure(figsize=(10,6))
sns.histplot(x = data['Sadness'],y=data['Anorxia'], color='r')
plt.show()
```



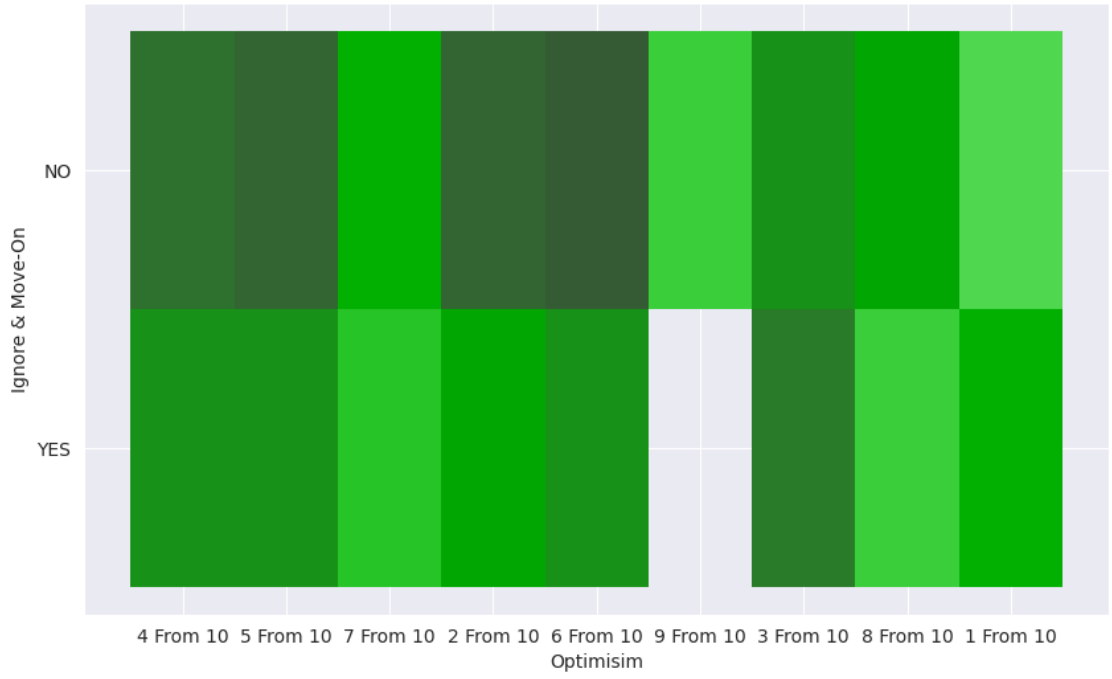
[ ]:
```
# anorexia vs suicidal thoughts
plt.figure(figsize=(10,6))
sns.histplot(x = data['Anorxia'],y=data['Suicidal thoughts'], color='b')
plt.show()
```



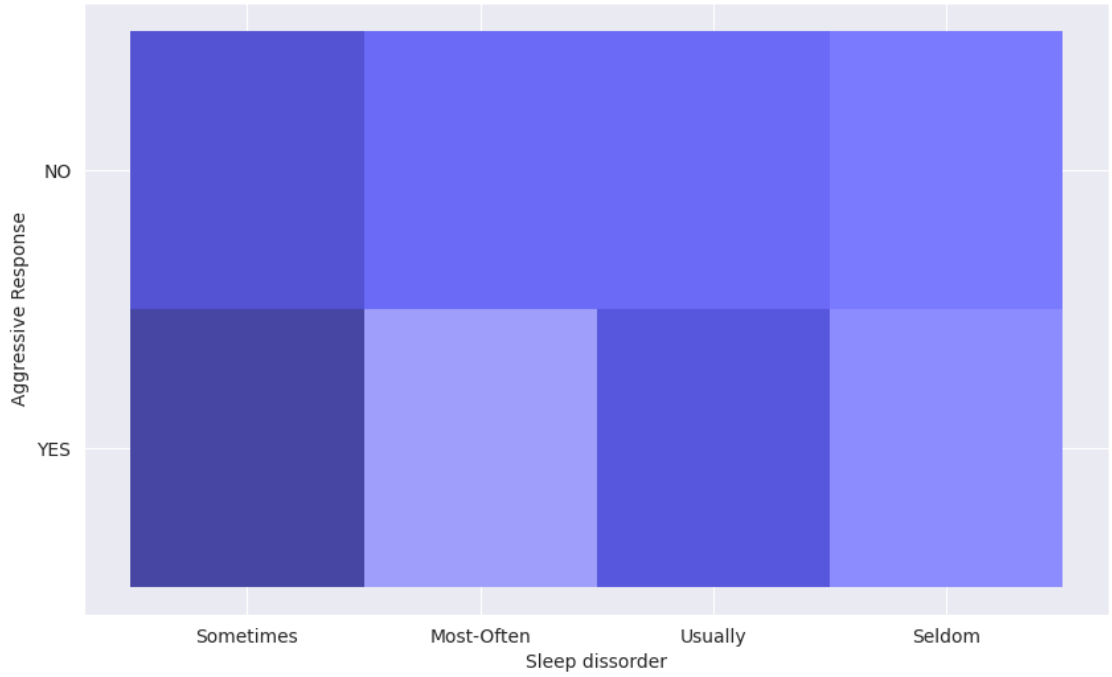
[ ]:
```
#authority respect vs agressive behaviour
plt.figure(figsize=(10,6))
sns.set_style('darkgrid')
sns.histplot(x = data['Authority Respect'],y=data['Aggressive Response'],␣
 ↪color='r')
plt.show()
```



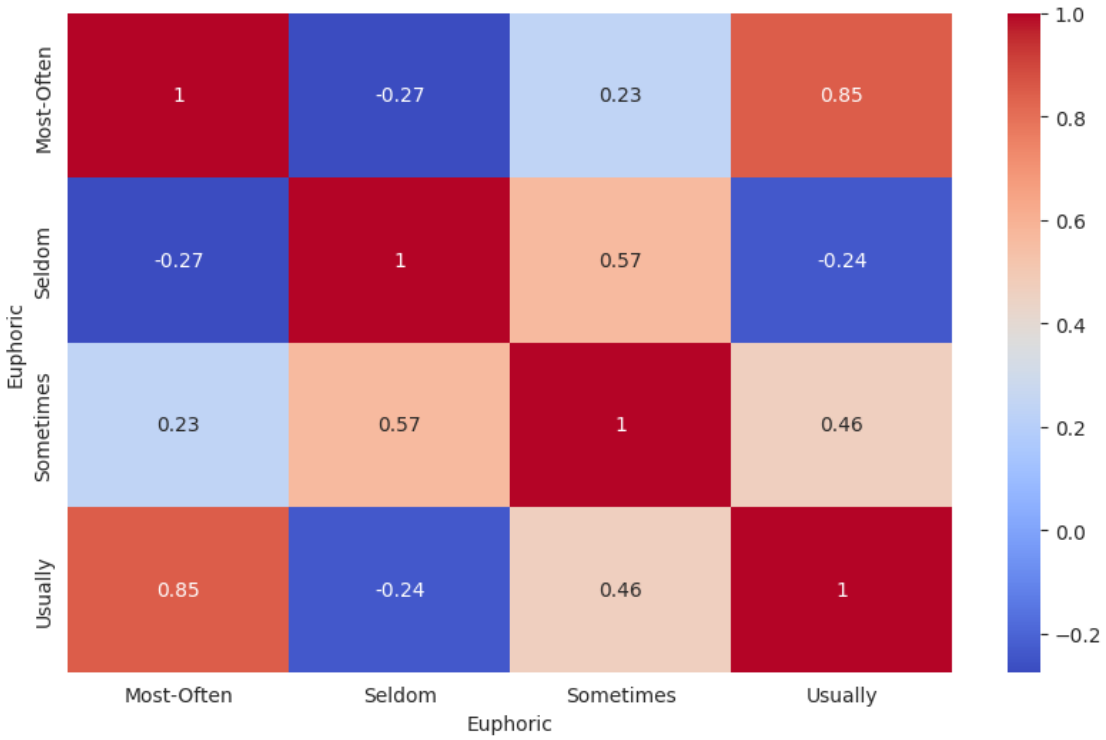
[ ]:
```
# optimism vs ignore-move on
plt.figure(figsize=(10,6))
sns.set_style('darkgrid')
sns.histplot(x = data['Optimisim'],y=data['Ignore & Move-On'], color='g')
plt.show()
```



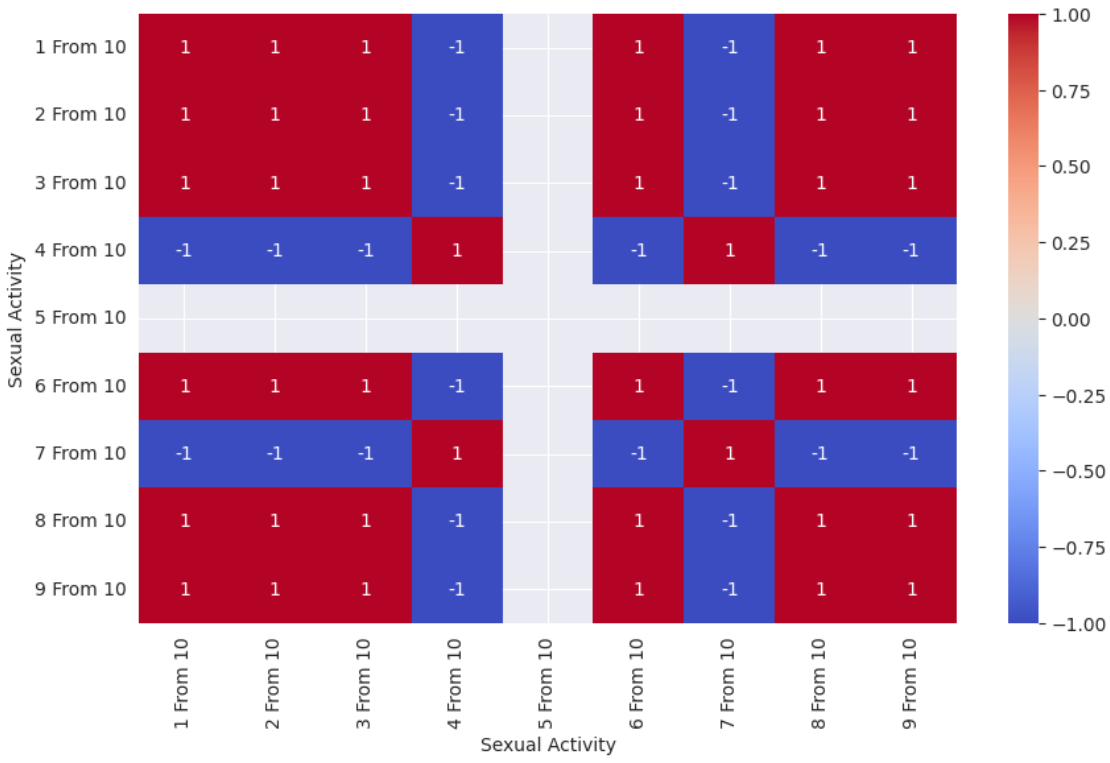
[ ]:
```
# sleep disorder vs agreessive response
plt.figure(figsize=(10,6))
sns.set_style('darkgrid')
sns.histplot(x =data['Sleep dissorder'] ,y=data['Aggressive Response'],␣
 ↪color='b')
plt.show()
```



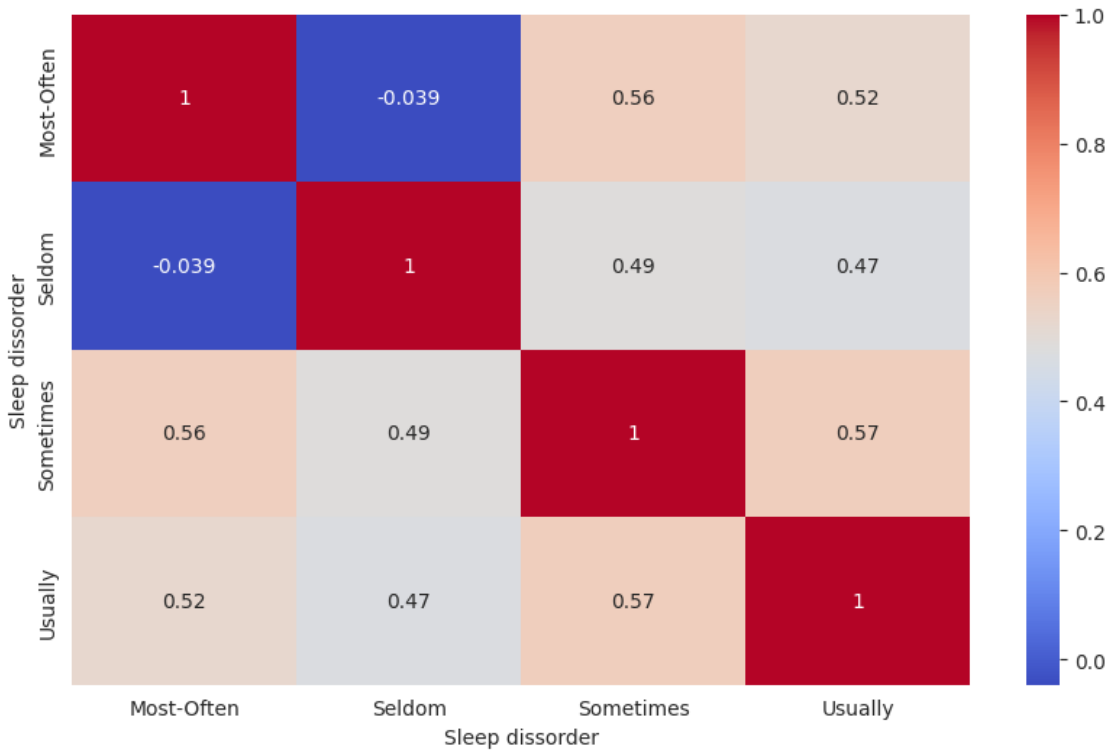
[ ]:
```
# optimisim vs eupheria
df = data.groupby('Optimisim')['Euphoric'].value_counts().unstack(fill_value=0)
df

corr_matrix = df.corr()
corr_matrix

plt.figure(figsize=(10,6))
sns.heatmap(corr_matrix, annot=True, cmap='coolwarm')
plt.show()
```



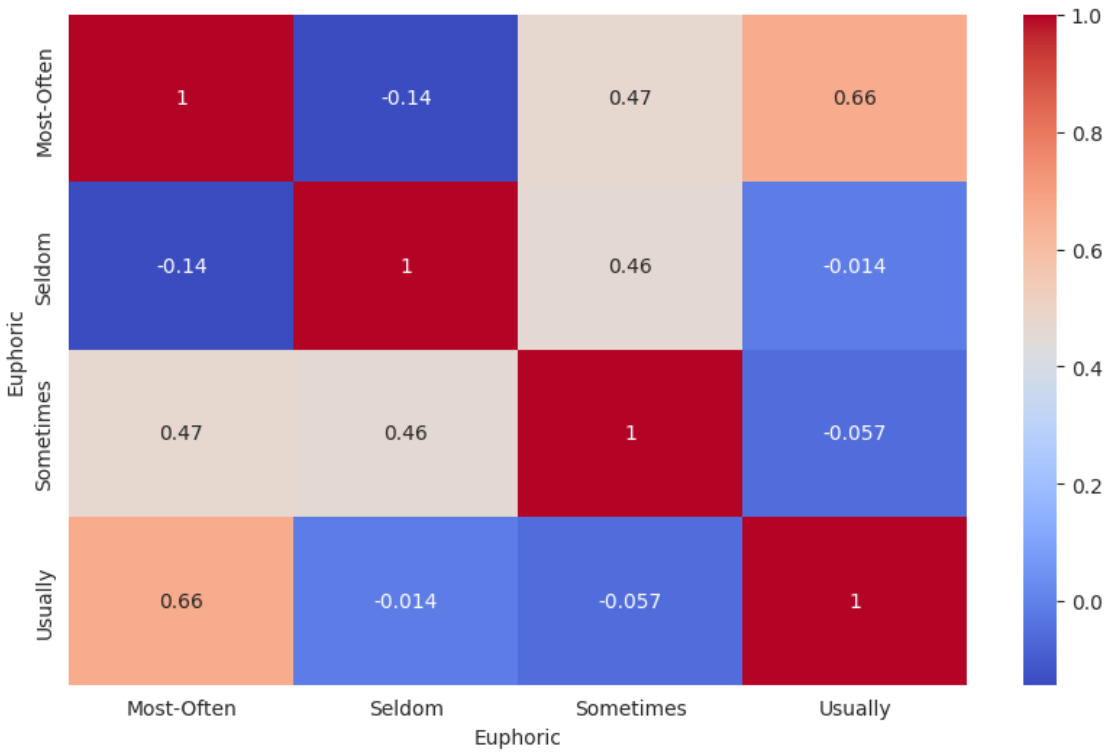
[ ]:
```
# overthinking vs sexual activity
df2 = data.groupby('Overthinking')['Sexual Activity'].value_counts().
 ↪unstack(fill_value=0)
df2

corr_matrix2 = df2.corr()

plt.figure(figsize=(10,6))
sns.heatmap(corr_matrix2, annot=True , cmap='coolwarm')
plt.show()
```



[ ]:
```
# sexual activity vs sleep disorder
df3 = data.groupby('Sexual Activity')['Sleep dissorder'].value_counts().
 ↪unstack(fill_value=0)
df3

corr_matrix3 = df3.corr()

plt.figure(figsize=(10,6))
sns.heatmap(corr_matrix3, annot=True , cmap='coolwarm')
plt.show()
```



[ ]:
```
# sexual activity vss eupheria
df4 = data.groupby('Sexual Activity')['Euphoric'].value_counts().
 ↪unstack(fill_value=0)
df4

corr_matrix4 = df4.corr()

plt.figure(figsize=(10,6))
sns.heatmap(corr_matrix4, annot=True , cmap='coolwarm')
plt.show()
```

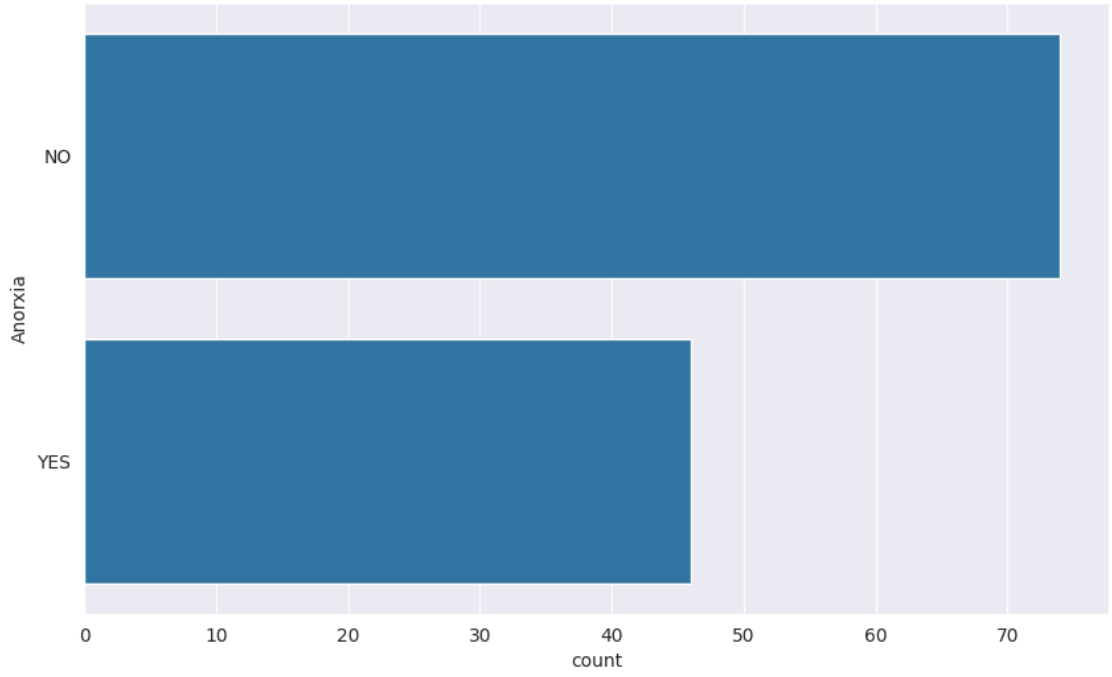


[ ]:
```
data.columns
```

[ ]:
```
Index(['Patient Number', 'Sadness', 'Euphoric', 'Exhausted', 'Sleep dissorder',
       'Mood Swing', 'Suicidal thoughts', 'Anorxia', 'Authority Respect',
       'Try-Explanation', 'Aggressive Response', 'Ignore & Move-On',
       'Nervous Break-down', 'Admit Mistakes', 'Overthinking',
       'Sexual Activity', 'Concentration', 'Optimisim', 'Expert Diagnose'],
      dtype='object')
```

[ ]:
```
plt.figure(figsize=(10,6))
sns.countplot(data['Anorxia'])
```

[ ]:
```
<Axes: xlabel='count', ylabel='Anorxia'>
```



[ ]:
```
data = data.rename(columns={'Sleep dissorder': 'Sleep disorder', 'Anorxia':␣
↪'Anorexia', 'Nervous Break-down': 'Nervous Breakdown'})
data
```

[ ]:

	Patient Number	Sadness	Euphoric	Exhausted	Sleep disorder	\
0	Patiant-01	Usually	Seldom	Sometimes	Sometimes	
1	Patiant-02	Usually	Seldom	Usually	Sometimes	
2	Patiant-03	Sometimes	Most-Often	Sometimes	Sometimes	
3	Patiant-04	Usually	Seldom	Usually	Most-Often	
4	Patiant-05	Usually	Usually	Sometimes	Sometimes	
..	…	…	…	…	…	
115	Patiant-116	Most-Often	Seldom	Usually	Sometimes	
116	Patiant-117	Sometimes	Sometimes	Sometimes	Seldom	
117	Patiant-118	Usually	Sometimes	Usually	Sometimes	
118	Patiant-119	Usually	Sometimes	Seldom	Seldom	
119	Patiant-120	Sometimes	Usually	Seldom	Usually	

	Mood Swing	Suicidal thoughts	Anorexia	Authority Respect	Try-Explanation	\
0	YES	YES	NO	NO	YES	
1	NO	YES	NO	NO	NO	
2	YES	NO	NO	NO	YES	
3	YES	YES	YES	NO	YES	
4	NO	NO	NO	NO	NO	
..	…	…	…	…	…	
115	NO	YES	NO	NO	YES	

```
116        YES                NO       NO                NO              NO
117        YES                NO      YES               YES              NO
118         NO               YES      YES                NO             YES
119         NO                NO       NO               YES             YES

    Aggressive Response Ignore & Move-On Nervous Breakdown Admit Mistakes  \
0                    NO               NO               YES             YES
1                    NO               NO                NO              NO
2                   YES               NO               YES             YES
3                    NO               NO                NO              NO
4                    NO               NO               YES             YES
..                   …                …                …               …
115                  NO              YES                NO              NO
116                 YES               NO                NO              NO
117                  NO               NO               YES              NO
118                 YES              YES                NO             YES
119                  NO              YES               YES              NO

    Overthinking Sexual Activity Concentration  Optimisim Expert Diagnose
0            YES       3 From 10     3 From 10  4 From 10  Bipolar Type-2
1             NO       4 From 10     2 From 10  5 From 10      Depression
2             NO       6 From 10     5 From 10  7 From 10  Bipolar Type-1
3             NO       3 From 10     2 From 10  2 From 10  Bipolar Type-2
4            YES       5 From 10     5 From 10  6 From 10          Normal
..           …             …             …       …              …
115          YES       2 From 10     5 From 10  3 From 10      Depression
116          YES       6 From 10     7 From 10  8 From 10  Bipolar Type-1
117          YES       1 From 10     5 From 10  3 From 10  Bipolar Type-2
118          YES       7 From 10     7 From 10  7 From 10      Depression
119           NO       7 From 10     3 From 10  8 From 10          Normal

[120 rows x 19 columns]
```

[ ]:
```python
object_columns = data.select_dtypes(include='object')
for column in object_columns:
  try:
    data[column] = pd.to_numeric(data[column])
  except ValueError:
    print(f"Column '{column}' could not be converted ")
```

```
Column 'Patient Number' could not be converted
Column 'Sadness' could not be converted
Column 'Euphoric' could not be converted
Column 'Exhausted' could not be converted
Column 'Sleep disorder' could not be converted
Column 'Mood Swing' could not be converted
Column 'Suicidal thoughts' could not be converted
```

```
Column 'Anorexia' could not be converted
Column 'Authority Respect' could not be converted
Column 'Try-Explanation' could not be converted
Column 'Aggressive Response' could not be converted
Column 'Ignore & Move-On' could not be converted
Column 'Nervous Breakdown' could not be converted
Column 'Admit Mistakes' could not be converted
Column 'Overthinking' could not be converted
Column 'Sexual Activity' could not be converted
Column 'Concentration' could not be converted
Column 'Optimisim' could not be converted
Column 'Expert Diagnose' could not be converted
```

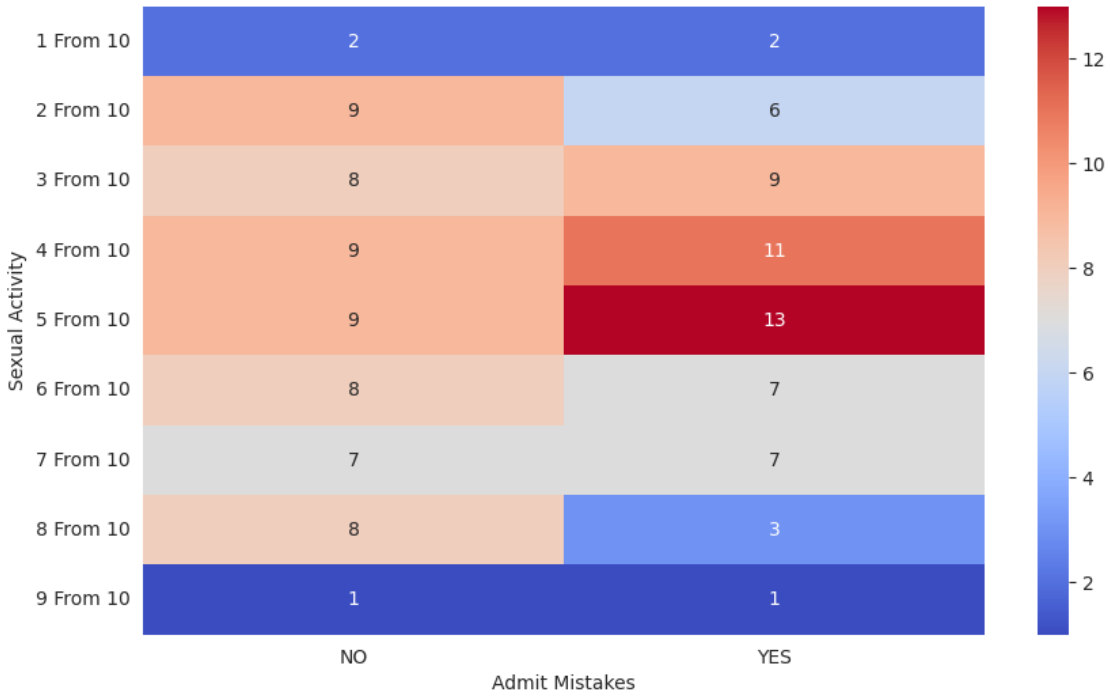
[ ]:
```
data.columns
```

[ ]:
```
Index(['Patient Number', 'Sadness', 'Euphoric', 'Exhausted', 'Sleep disorder',
       'Mood Swing', 'Suicidal thoughts', 'Anorexia', 'Authority Respect',
       'Try-Explanation', 'Aggressive Response', 'Ignore & Move-On',
       'Nervous Breakdown', 'Admit Mistakes', 'Overthinking',
       'Sexual Activity', 'Concentration', 'Optimisim', 'Expert Diagnose'],
      dtype='object')
```

[ ]:
```
sexual_activity_vs_admit_mistakes = data.groupby('Sexual Activity')['Admit␣
↪Mistakes'].value_counts().unstack()
sexual_activity_vs_admit_mistakes
```

[ ]:
```
Admit Mistakes   NO  YES
Sexual Activity
1 From 10         2    2
2 From 10         9    6
3 From 10         8    9
4 From 10         9   11
5 From 10         9   13
6 From 10         8    7
7 From 10         7    7
8 From 10         8    3
9 From 10         1    1
```

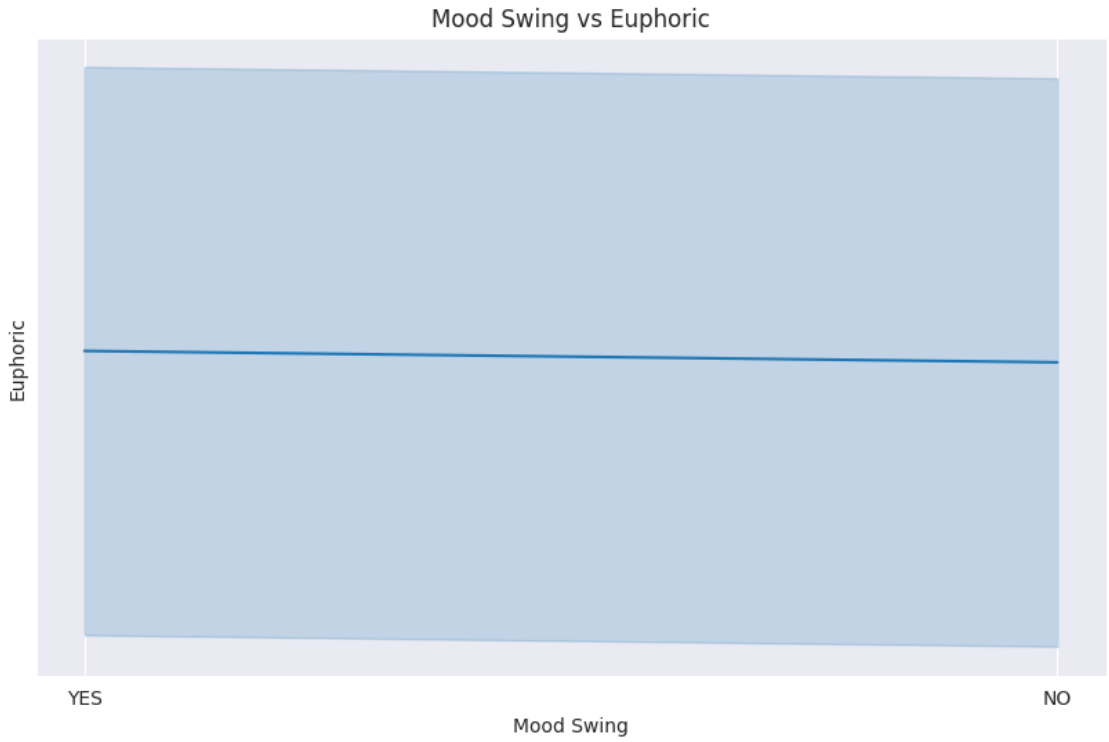
[ ]:
```
plt.figure(figsize=(10,6))
sns.heatmap(sexual_activity_vs_admit_mistakes, annot=True, cmap='coolwarm')
plt.show()
```



[ ]:
```
data.columns
```

[ ]:
```
Index(['Patient Number', 'Sadness', 'Euphoric', 'Exhausted', 'Sleep disorder',
       'Mood Swing', 'Suicidal thoughts', 'Anorexia', 'Authority Respect',
       'Try-Explanation', 'Aggressive Response', 'Ignore & Move-On',
       'Nervous Breakdown', 'Admit Mistakes', 'Overthinking',
       'Sexual Activity', 'Concentration', 'Optimisim', 'Expert Diagnose'],
      dtype='object')
```

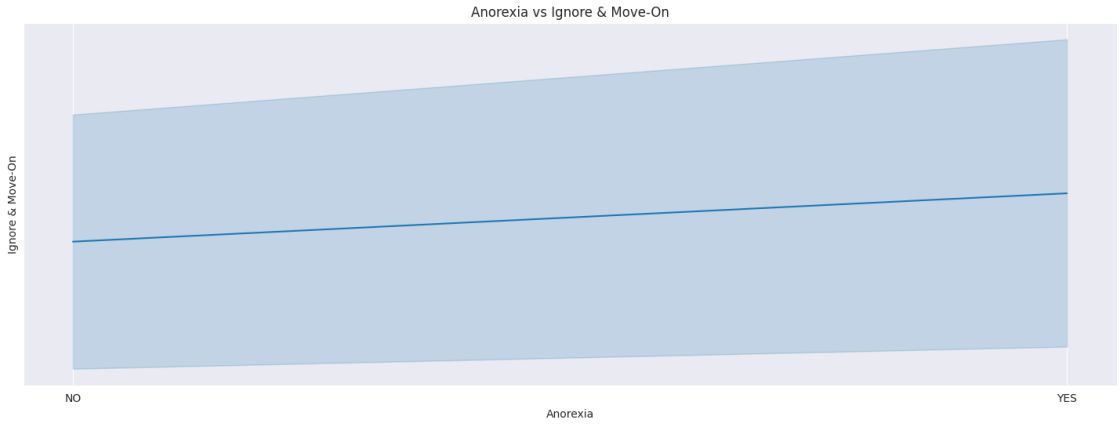
[ ]:
```
plt.figure(figsize=(10,6))
sns.lineplot(x='Mood Swing', y='Euphoric', data=data)
plt.xlabel('Mood Swing')
plt.ylabel('Euphoric')
plt.title('Mood Swing vs Euphoric')
plt.show()
```



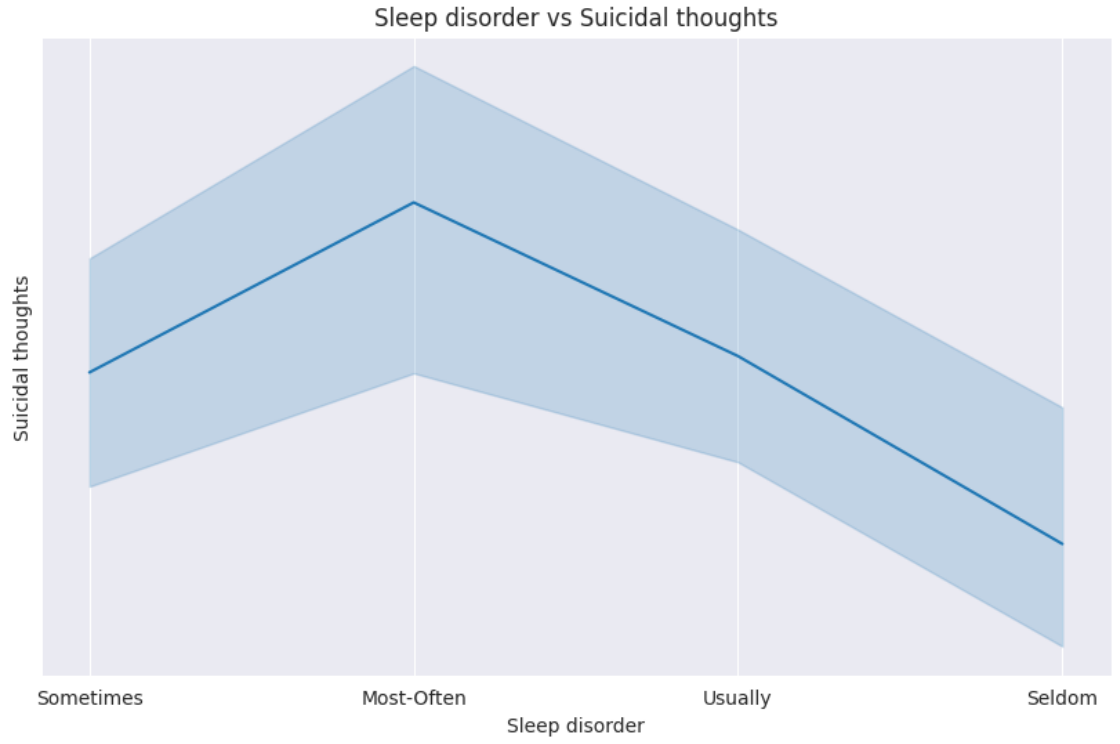
[ ]:
```
data.columns
```

[ ]:
```
Index(['Patient Number', 'Sadness', 'Euphoric', 'Exhausted', 'Sleep disorder',
       'Mood Swing', 'Suicidal thoughts', 'Anorexia', 'Authority Respect',
       'Try-Explanation', 'Aggressive Response', 'Ignore & Move-On',
       'Nervous Breakdown', 'Admit Mistakes', 'Overthinking',
       'Sexual Activity', 'Concentration', 'Optimisim', 'Expert Diagnose'],
      dtype='object')
```

[ ]:
```
plt.figure(figsize=(18,6))
sns.lineplot(x= data['Anorexia'],y=data['Ignore & Move-On'], data = data)
plt.xlabel('Anorexia')
plt.ylabel('Ignore & Move-On')
plt.title('Anorexia vs Ignore & Move-On')
plt.show()
```



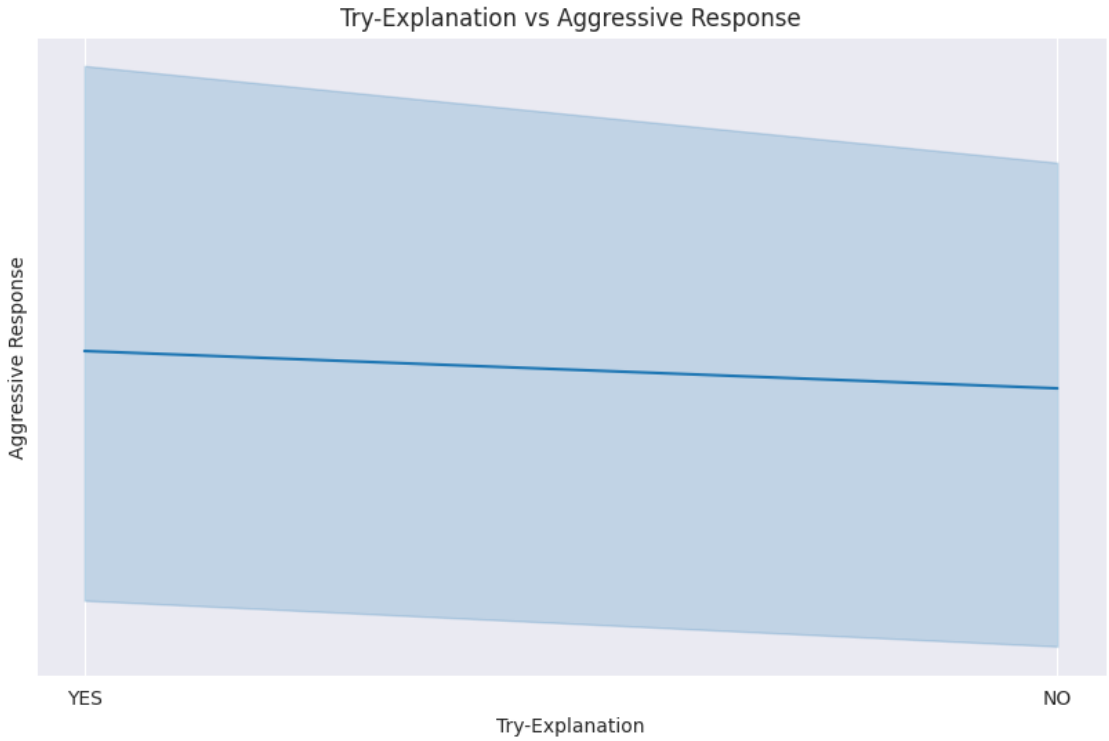
[ ]:
```
plt.figure(figsize=(10,6))
plt.subplot(1,1,1)
sns.lineplot(x= data['Sleep disorder'],y=data['Suicidal thoughts'], data = data)
plt.xlabel('Sleep disorder')
plt.ylabel('Suicidal thoughts')
plt.title('Sleep disorder vs Suicidal thoughts')
plt.show()
```



[ ]:
```
data.columns
```

[ ]:
```
Index(['Patient Number', 'Sadness', 'Euphoric', 'Exhausted', 'Sleep disorder',
       'Mood Swing', 'Suicidal thoughts', 'Anorexia', 'Authority Respect',
       'Try-Explanation', 'Aggressive Response', 'Ignore & Move-On',
       'Nervous Breakdown', 'Admit Mistakes', 'Overthinking',
       'Sexual Activity', 'Concentration', 'Optimisim', 'Expert Diagnose'],
      dtype='object')
```

[ ]:
```
plt.figure(figsize=(10,6))
plt.subplot(1,1,1)
sns.lineplot(x= data['Try-Explanation'], y=data['Aggressive Response'],␣
 ↪data=data)
plt.xlabel('Try-Explanation')
plt.ylabel('Aggressive Response')
plt.title('Try-Explanation vs Aggressive Response')
plt.show()
```



[ ]:
```

```