# Preliminary Analysis

Analysis to be done:

1. Checking the number of individuals available from baseline (Considering ADNI1 and ADNI2 as baseline PHASE and then choose the one with more longitudinal samples).
2. Tracking diagnosis changes over time and determining the exact count of transitions
   a. CN → MCI
   b. MCI → AD
   c. Non-converters (remained CN)
3. Assessing the NPI-Q data availability for all the participants
   a. Providing the sample count for each subgroup (Mild, Moderate and Severe)
4. Checking and confirming the number of visits for these participants
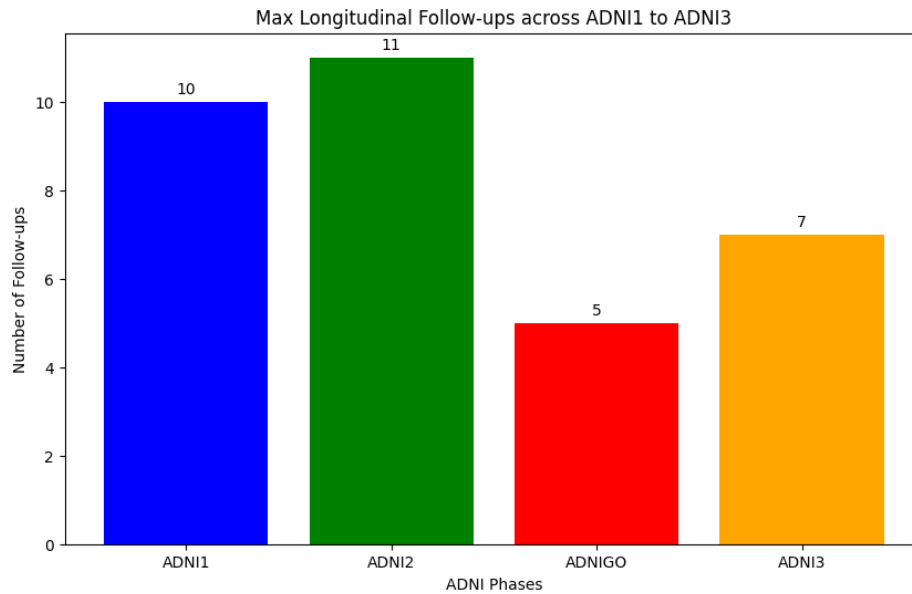   a. Number visits for each participant

Results:

1. Baseline:
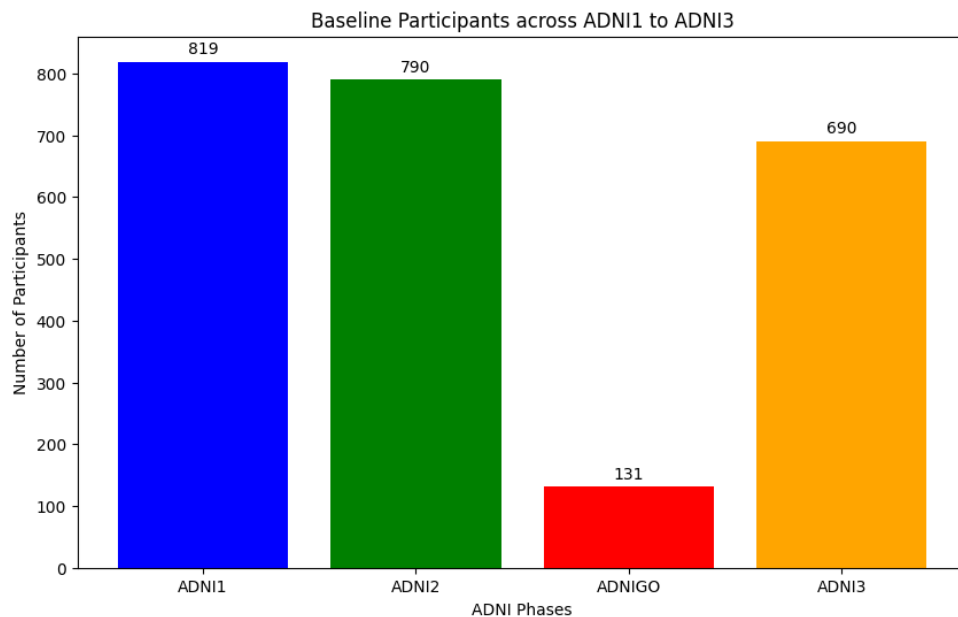
The ADNI1 has the highest participant count of 819 while, the ADNI2 has 790 participants starting from Baseline.

However, the Max Longitudinal Follow-ups (Number of visitations) is the highest for ADNI2:

Max Longitudinal Follow-ups across ADNI1 to ADNI3

Since it is a longitudinal study, ADNI2 is likely the better choice due to its highest number of follow-ups. While ADNI1 provides a larger initial samples, longitudinal analysis benefits more from having extended follow-up data track.

2. Diagnosis changes over time:
   Considering ADNI2 as the baseline phase (Total number of participants = 790), the baseline Diagnosis split were:
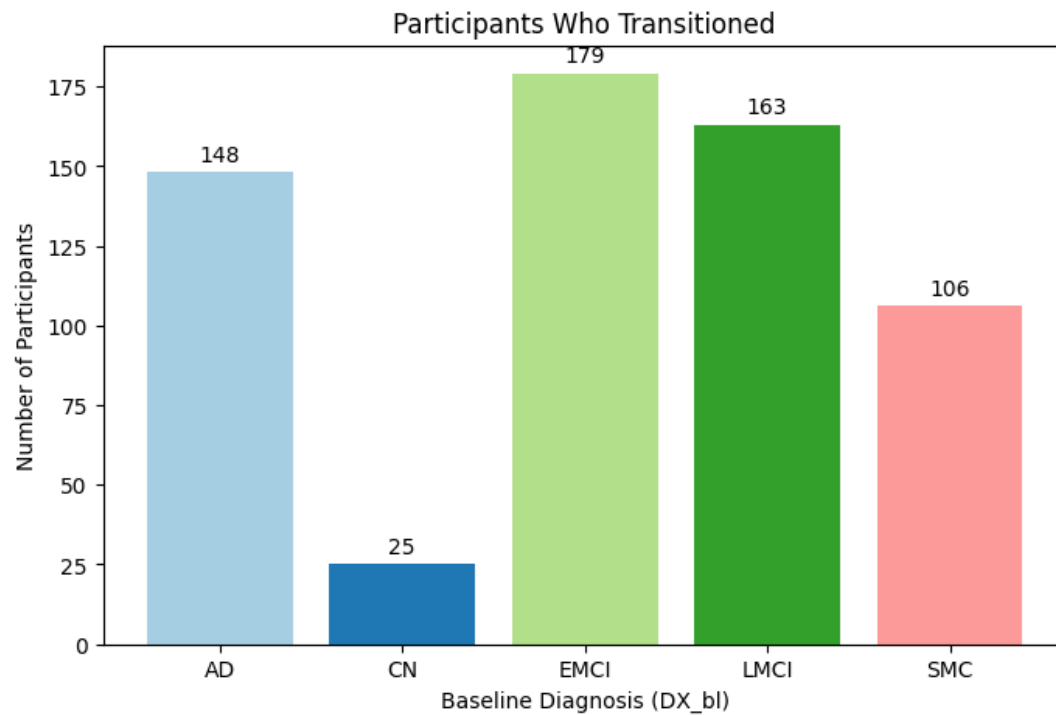   AD   151
   CN   188
   EMCI   181
   LMCI   164
   SMC   106
   The transitioned summary:

DX_bl	Total Participants	Transitioned	Stable
AD	151	148	3
CN	188	25	163
EMCI	181	179	2
LMCI	164	163	1
SMC	106	106	0

Where, in the SMC (Subjective memory complaints) group, individuals split (Current DX):
CN   106
Dementia   4
MCI   22

Participants Who Transitioned

Conclusion:
Considering the ADNI2 as baseline, there are 790 participants with the most Follow-up duration.

3. Assessing the NPI-Q subgroups (Mild, Moderate and Severe):
   Total ADNI2 Participants: 790
   Participants with Available NPI-Q Data: 732
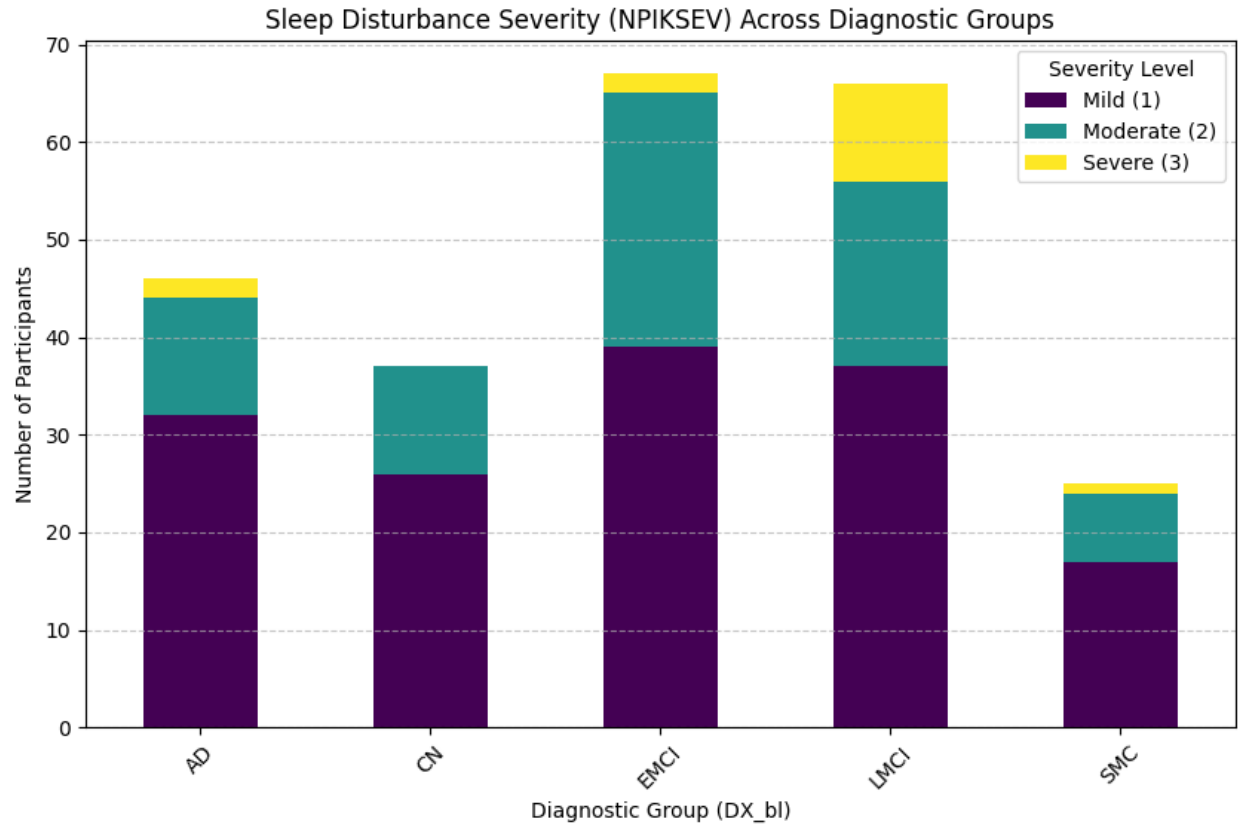   Participants without NPI-Q Data: 58

Distribution of Follow-up Durations in ADNI2 Longitudinal Study
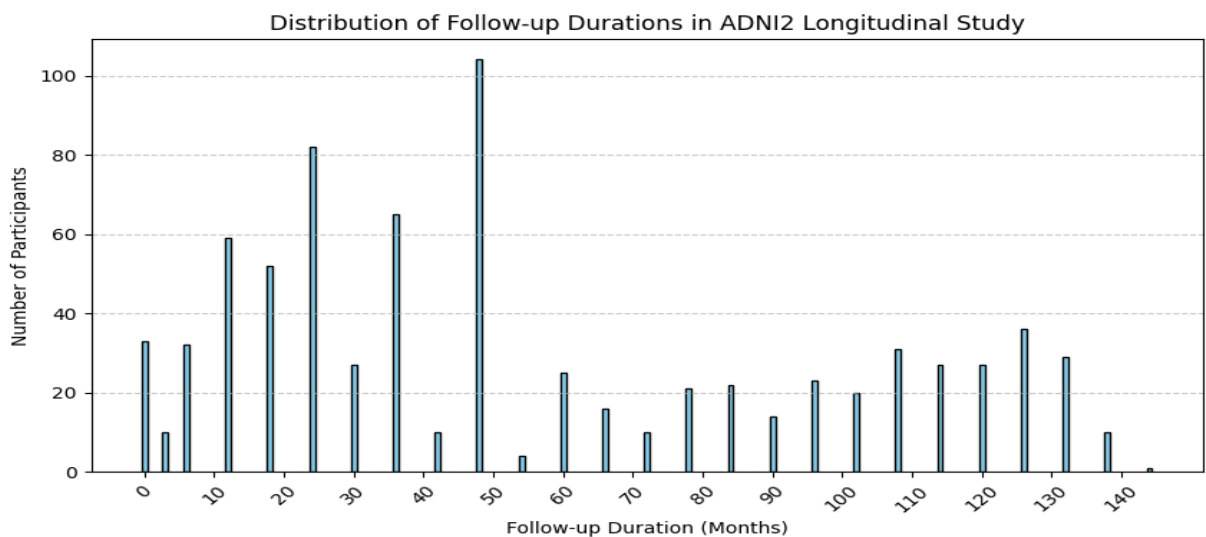
In which, the severity counts are:

Mild: 174

Moderate: 83

Severe: 15

Sleep Disturbance Severity (NPIKSEV) Across Diagnostic Groups

The Sleep complaints such as awakening during the night, rising too early in the morning or excessive daytime napping were also grouped:

No complaints: 650
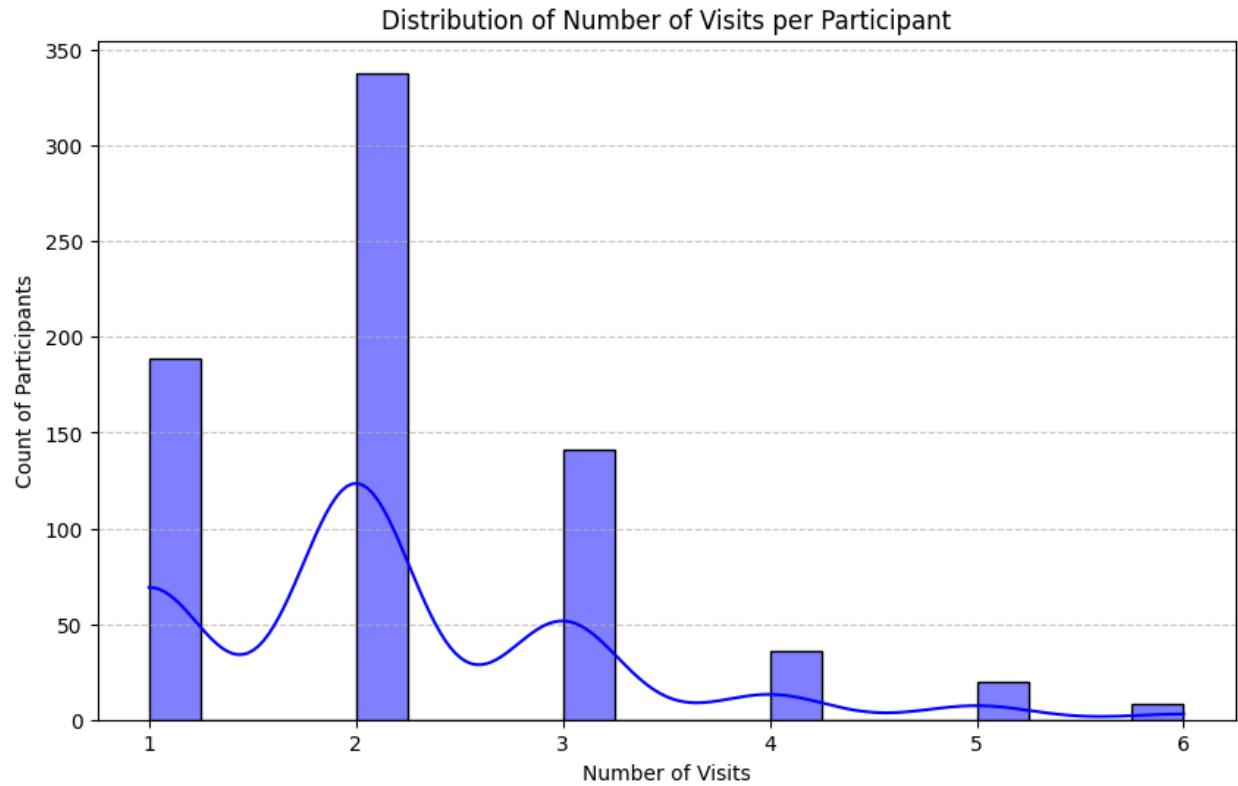
Yes: 214

not given: 6

From which,

Mild severe: 151

Moderate severe: 75

Highly severe: 15

Are given (Considering people have sleep complaints and complaints not given).

4. Number of Visits for all the 790 participants:

Distribution of Number of Visits per Participant

The Maximum participants have atleast 2 visits.

Wherein the maximum number of visits are for the CN (Diagnosed during baseline), which is to be 6.

Number of Visits per Participant by Diagnostic Group
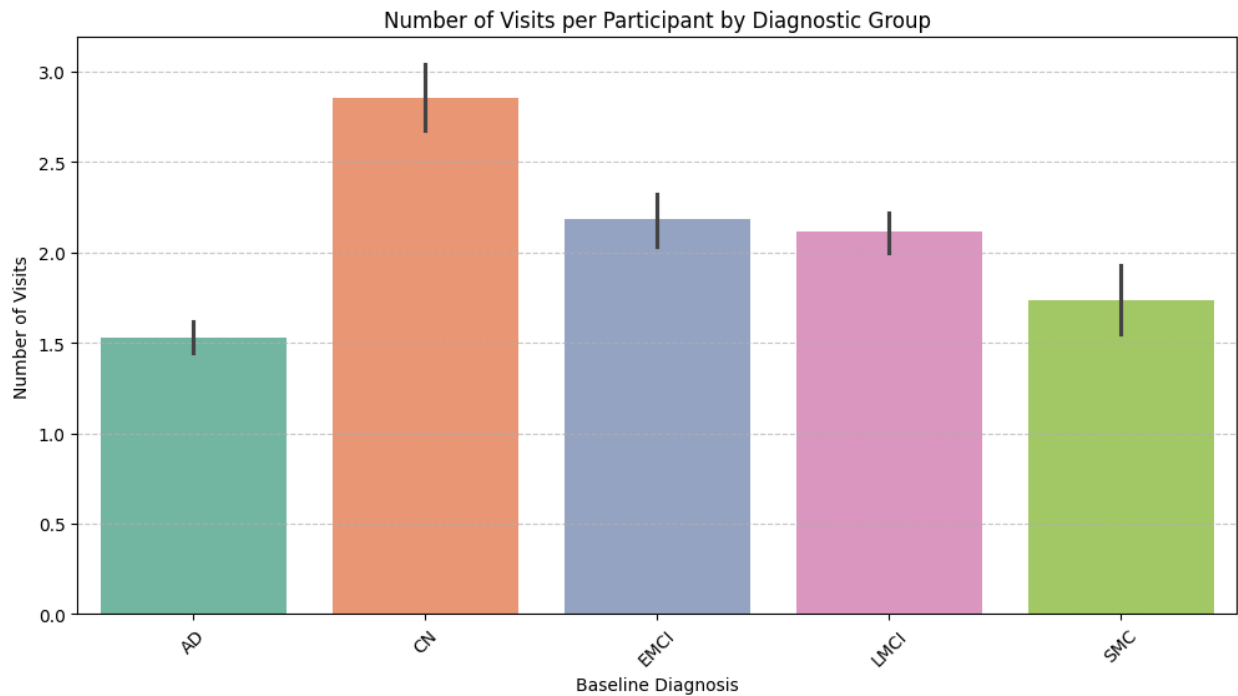
Conclusion: The median number of visits varies across diagnostic groups.