Biostat HW2 Prob 6

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Problem 6

A researcher is conducting a study to examine associations of depression and cognitive performance with migraine symptoms. Use data from the Human Epilepsy Project (HEP) to answer the following questions.

Migraine status 0-no, 1-yes NDDIE: Neurological Disorder Depression Inventory for Epilepsy CESD: Center for Epidemiologic Studies Depression Scale Cognitive evaluation: Aldenkamp-Baker

(a) Summarize the three variables above for epilepsy patients with and without migraine. Carefully choose the descriptive statistics and report both measures of location/spread, sample sizes (N) and number of missing values for each variable. For NDDIE and CSED, use the original scores and the following cutoffs: NDDIE (cutoff of 16), CSED (cutoff of 16).

There are data for 419 subjects in the data provided. Below are point and spread summaries for each of the variables given (CESD, NDDIE, and ABNAS scores for language and memory). First, for CESD scores, note that the range of possible values is (0, 48).

migraine	N	Mean	Mode	25th %	Median	75th %	Std Dev	CESD >= 16	NAs
no	274	10.67883	0	3	8	14	10.29807	0.1839763	63
yes	74	14.40541	2,3,10	6	11	20	11.47591	0.3170732	8

For the NDDIE score, the range of possible values is (6, 24).

migraine	N	Mean	Mode	25th %	Median	75th %	Std Dev	NDDIE >= 16	NAs
no	273	10.28571	6	6	9	13	4.489249	0.1157270	64
yes	73	11.42466	6	8	11	14	4.361822	0.1341463	9

ABNAS scoring is broken down into two categories: language - range (0, 9) - and memory - range (0, 12).

migraine	Measure	N	Mean	Mode	25th %	Median	75th %	Max	Std Dev	NAs
no	Language	337	1.602374	0	0	1	2	9	2.212463	0
yes	Language	82	1.975610	0	0	1	3	8	2.084485	0
no	Memory	337	2.554896	0	0	2	4	12	3.042963	0
yes	Memory	82	3.304878	0	1	2	5	12	3.369028	0

(b) Create graphical displays to show the scores distributions for NDDIE, CSED, ABNAS (memory and language) by group (migraine vs no-migraine). Please add your recommendations / comments. (5p)

```
ggplot(migraine_data, aes(x = migraine, y = cesd)) +
  geom_boxplot(aes(fill = migraine))
```

```
## Warning: Removed 71 rows containing non-finite values (stat_boxplot).
```