Biostat HW2 Prob 6

Alyssa Vanderbeek

38 September 2018

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).

Below are point and spread summaries for each of the three variables given. First, for CESD scores, note that the range of possible values is (0, 48).

migraine	Measure	N	Mean	25th percentile	Median	75th percentile	Std Dev
no	CESD	337	10.67883	3	8	14	10.29807
yes	CESD	82	14.40541	6	11	20	11.47591

NDDIE summary

migraine	Measure	N	Mean	25th percentile	Median	75th percentile	Std Dev
no	NDDIE	337	10.28571	6	9	13	4.489249
yes	NDDIE	82	11.42466	8	11	14	4.361822

summary with binary variable

```
migraine_recode %>%
  mutate(cesd_binary = recode(cesd_geq16, 'yes' = 1, 'no' = 0)) %>%
  group_by(migraine) %>%
  summarise(sum(cesd_binary, na.rm = T)/table(migraine))
```

```
## # A tibble: 2 x 2
##   migraine `sum(cesd_binary, na.rm = T)/table(migraine)`
##   <chr>    <S3: table>
## 1 no       0.1839763
## 2 yes      0.3170732
```

```
prop.table(table(Migraine = migraine_recode$migraine,
      'CESD >= 16' = migraine_recode$cesd_geq16), margin = 1)
```

```
##         CESD >= 16
## Migraine        no       yes
##      no  0.7737226 0.2262774
##      yes 0.6486486 0.3513514
```

```
table(Migraine = migraine_recode$migraine,
      'NNDIE >= 16' = migraine_recode$nddie_geq16)
```

```
##         NNDIE >= 16
## Migraine  no yes
##      no  234  39
##      yes  62  11
```

NDDIE summary

```
migraine_data %>%
  group_by(migraine) %>%
  summarise(n_nddie = table(migraine),  # number of subjects per group
            avg_cesd = mean(nddie, na.rm = T),  # mean CESD
            quartile_25 = quantile(nddie, na.rm = T)[2],
            median = median(nddie, na.rm = T),
            quartile_75 = quantile(nddie, na.rm = T)[4],
            sd = sd(nddie, na.rm = T))
```

```
## # A tibble: 2 x 7
##   migraine n_nddie     avg_cesd quartile_25 median quartile_75    sd
##   <chr>    <S3: table>    <dbl>       <dbl>  <dbl>       <dbl> <dbl>
## 1 no       337             10.3           6      9          13  4.49
## 2 yes      " 82"           11.4           8     11          14  4.36
```

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)