HW5

20184448 조민기

Prob 1

1)

```
Total Observations in Table:  78

             | Age
 Preference  | Young Adult | Middle Age | Older Adult |  Row Total |
-------------|-------------|------------|-------------|------------|
      Music  |         14  |        10  |         3   |        27  |
             |      8.654  |    11.769  |      6.577  |            |
             |    51.852%  |   37.037%  |    11.111%  |    34.615% |
-------------|-------------|------------|-------------|------------|
   News-talk |          4  |        15  |        11   |        30  |
             |      9.615  |    13.077  |      7.308  |            |
             |    13.333%  |   50.000%  |    36.667%  |    38.462% |
-------------|-------------|------------|-------------|------------|
     Sports  |          7  |         9  |         5   |        21  |
             |      6.731  |     9.154  |      5.115  |            |
             |    33.333%  |   42.857%  |    23.810%  |    26.923% |
-------------|-------------|------------|-------------|------------|
Column Total |         25  |        34  |        19   |        78  |
-------------|-------------|------------|-------------|------------|
```

```
        Pearson's Chi-squared test

data:  dt1
X-squared = 10.958, df = 4, p-value = 0.02704
```
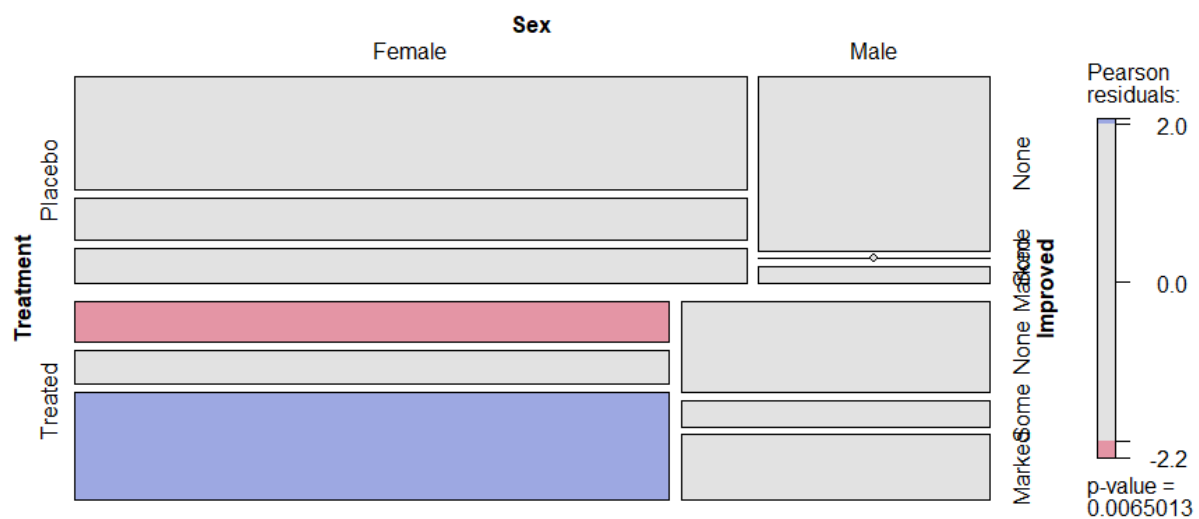
The P-value is less than 0.05. Therefore, the null hypothesis that the preference does not differ by age group is rejected.
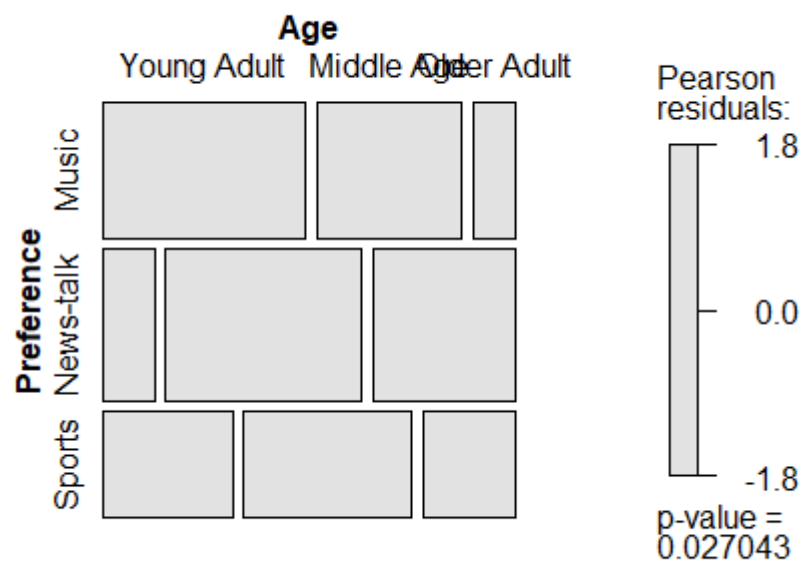
Prob 2

```
, , Improved = None

                Sex
Treatment Female Male
   Placebo      19    10
   Treated       6     7

, , Improved = Some

                Sex
Treatment Female Male
   Placebo       7     0
   Treated       5     2

, , Improved = Marked

                Sex
Treatment Female Male
   Placebo       6     1
   Treated      16     5
```

```
        Mantel-Haenszel chi-squared test with continuity correction

data:  bs3
Mantel-Haenszel X-squared = 2.0863, df = 1, p-value = 0.1486
alternative hypothesis: true common odds ratio is not equal to 1
95 percent confidence interval:
 0.8566711 8.0070521
sample estimates:
common odds ratio
       2.619048
```

P-value > 0.05. The null hypothesis is rejected which means the nominal variable is dependent to the improved.