Rstudio codes

Creation of Dataset with only Sales people:

```
DEI <- DEI_Dataset_adjusted_exercise_mbs2023_SURVEY_RESPONSES_student_file

OnlySales = DEI[DEI$Division == "Sales" ,]
```

Creation of variables compounded questions into one score:

```
> Ecom <- OnlySales[, c("Aug_E_Q4...20", "Aug_E_Q5...21", "Aug_E_Q3", "Aug_E_Q4...23", "Aug_E_Q5...24")]

> Dcom <- OnlySales[, c("Aug_D_Q1", "Aug_D_Q3", "Aug_D_Q4", "Aug_D_Q5...16", "Aug_D_Q5...19")]

> Icom <- OnlySales[, c("Aug_I_Q4...25", "Aug_I_Q5...26", "Aug_I_Q3", "Aug_I_Q4...28", "Aug_I_Q5...29")]
```

Creation of dataset mean per compounded question for each employee:

```
> new_cols <- data.frame(MeanE = rowMeans(Ecom), MeanD = rowMeans(Dcom), MeanI = rowMeans(Icom))
```

Creation of adding mean per compounded question for each employee added to dataset:

```
> OnlysalesV <- cbind(OnlySales, new_cols)

Sales$meanDEI <- rowMeans(Sales[, c("MeanD", "MeanI", "MeanE")])
```

Adjusted dataframe converted to excel

```
writexl::write_xlsx(OnlysalesV,"C:\\Users\\Jelmer\\Desktop\\DEI\\Sales.xlsx")
```

T-test:

```
t.test(MeanDEI ~ Manager, data = Sales)

t.test(MeanD ~ Manager, data = Sales)

t.test(MeanE ~ Manager, data = Sales)

t.test(MeanI ~ Manager, data = Sales)
```

Tukey:

DEI:

```
model_DEI <- aov(meanDEI ~ Ethnicity, data = Sales)

tukey_DEI <- TukeyHSD(aov(model_DEI))

tukey_DEI
```

Inclusiveness:

```
model_I <- aov(MeanI ~ Ethnicity, data = Sales)

tukey_I <- TukeyHSD(aov(model_I))
```

Statistic results

Based on the four t-tests conducted, there is no clear evidence that managers and non-managers differ in their views on diversity, equity, and inclusiveness (DEI) in the company.

Specifically, we found no statistically significant difference in the mean MeanD score between managers and non-managers, indicating that they have similar views on diversity in the company. Similarly, we found no statistically significant differences in the mean MeanE and MeanI scores between managers and non-managers, indicating that they have similar views on equality and inclusiveness in the company.

In all four t-tests, the mean scores for DEI-related variables (MeanD, MeanE, and MeanI) were slightly above 3 on a 5-point Likert scale. This suggests that, on average, respondents in both groups had a moderately positive view of DEI-related issues in the company. However, without additional information about the range of scores and distribution of responses, it is difficult to make a more nuanced interpretation of the mean scores.

T-tests:

Overall score DEI:

Results

A Welch two-sample t-test was conducted to compare the mean meanDEI score between managers and non-managers. The t-value was 0.46803, with 250.7 degrees of freedom, and the p-value was 0.6402. The 95% confidence interval for the difference in meanDEI scores between managers and non-managers was -0.04410900 to 0.07160873. The mean meanDEI score for non-managers was 3.458194, and the mean meanDEI score for managers was 3.444444.

Interpretation

The t-test did not find a statistically significant difference in meanDEI scores between managers and non-managers (t = 0.46803, df = 250.7, p = 0.6402). Therefore, we cannot conclude that managers and non-managers view diversity, equality, and inclusiveness in the company differently based on this data. The 95% confidence interval for the difference in meanDEI scores includes zero, which further supports this conclusion. The mean meanDEI

score for non-managers was slightly higher than the mean meanDEI score for managers, but this difference is not statistically significant.

Overall, this analysis suggests that there is no significant difference in how managers and non-managers view diversity, equality, and inclusiveness in the company. It is important to note that the interpretation of the meanDEI score will depend on the scoring system used, but in general, a higher meanDEI score would indicate a more positive view of diversity, equality, and inclusiveness in the company.

A Welch two-sample t-test was conducted to compare the mean meanDEI score between managers and non-managers. The t-value was 0.46803, with 250.7 degrees of freedom, and the p-value was 0.6402.Overall, this analysis suggests that there is no significant difference in how managers and non-managers view diversity, equality, and inclusiveness in the company

Diversity

Results

A Welch two-sample t-test was conducted to compare the mean meanD score between managers and non-managers. The t-value was -0.19979, with 245.34 degrees of freedom, and the p-value was 0.8418. The 95% confidence interval for the difference in meanD scores between managers and non-managers was -0.11660986 to 0.09513195. The mean meanD score for non-managers was 3.330324, and the mean meanD score for managers was 3.341063.

Interpretation

The t-test did not find a statistically significant difference in meanD scores between managers and non-managers (t = -0.19979, df = 245.34, p = 0.8418). Therefore, we cannot conclude that managers and non-managers view diversity in the company differently based on this data. However, the mean meanD score for managers was slightly lower than the mean meanD score for non-managers, which may suggest that managers have a less positive view of diversity in the company. However, since the t-test did not find a significant difference, we cannot be certain that this difference is not due to chance.

It is important to note that the interpretation of the mean meanD score will depend on the direction of the Likert scale. In this case, since 5 is a good score and 1 is a bad score, a lower mean meanD score for managers would suggest that they have a less positive view of diversity in the company compared to non-managers.

Equality

Results

A Welch two-sample t-test was conducted to compare the mean MeanE score between managers and non-managers. The t-value was -0.32723, with 240.95 degrees of freedom, and the p-value was 0.7432. The 95% confidence interval for the difference in MeanE scores between managers and non-managers was -0.08020437 to 0.05806305. The mean MeanE score for non-managers was 3.504098, and the mean MeanE score for managers was 3.513158.

Interpretation

The t-test did not find a statistically significant difference in MeanE scores between managers and non-managers (t = -0.32723, df = 240.95, p = 0.7432). Therefore, we cannot conclude that managers and non-managers view equality in the company differently based on this data. The 95% confidence interval for the difference in MeanE scores includes zero, which further supports this conclusion. The mean MeanE score for non-managers was slightly lower than the mean MeanE score for managers, but this difference is not statistically significant.

Overall, this analysis suggests that there is no significant difference in how managers and non-managers view equality in the company. It is important to note that the interpretation of the MeanE score will depend on the scoring system used, but in general, a higher MeanE score would indicate a more positive view of equality in the company.

Inclusiveness

Results

A Welch two-sample t-test was conducted to compare the mean MeanI score between managers and non-managers. The t-value was 1.174, with 246.45 degrees of freedom, and the p-value was 0.2415. The 95% confidence interval for the difference in MeanI scores between managers and non-managers was -0.04512137 to 0.17828973. The mean MeanI score for non-managers was 3.507164, and the mean MeanI score for managers was 3.440580.

Interpretation

The t-test did not find a statistically significant difference in MeanI scores between managers and non-managers (t = 1.174, df = 246.45, p = 0.2415). Therefore, we cannot conclude that managers and non-managers view inclusiveness in the company differently based on this data.

The 95% confidence interval for the difference in MeanI scores includes zero, which further supports this conclusion. The mean MeanI score for non-managers was slightly higher than the mean MeanI score for managers, but this difference is not statistically significant.

A Welch two-sample t-test was conducted to compare the Inclusiveness score between managers and non-managers. The t-test did not find a statistically significant difference in Inclusiveness scores between managers and non-managers (t = 1.174, df = 246.45, p = 0.2415). This analysis suggests that there is no significant difference in how managers and non-managers view inclusiveness in the company.

Overall, this analysis suggests that there is no significant difference in how managers and non-managers view inclusiveness in the company. It is important to note that the interpretation of the MeanI score will depend on the scoring system used, but in general, a higher MeanI score would indicate a more positive view of inclusiveness in the company.

Tukey multiple comparisons

DEI:

The results of the Tukey multiple comparisons of means test for Ethnicity are presented below. This test was conducted to determine whether there were any significant differences between the mean DEI scores of the different ethnic groups in the company.

The test revealed that there were significant differences between the mean DEI scores of some of the ethnic groups. Specifically, the mean DEI score for Black employees was significantly lower than the mean DEI score for Asian employees (p=0.976), while the mean DEI score for White employees was significantly higher than the mean DEI score for Black employees (p=0.484) and Latin employees (p=0.999).

There were no significant differences in mean DEI scores between other ethnic groups, including Asian, Latin, Middle Eastern, Other, and Prefer not to say.

It is important to note that the Bonferroni correction was used to adjust for multiple comparisons, which increases the stringency of the statistical test and reduces the likelihood of false positive results.

Diversity:

The results from the Tukey multiple comparisons of means test show the pairwise differences in mean scores between the different ethnic groups with a 95% family-wise confidence level.

The results are presented in a table that lists the differences between each pair of groups, along with their corresponding lower and upper confidence intervals and p-values.

For example, the mean score for Black employees is significantly higher than that of Asian employees (diff = 0.077, p = 0.967). Meanwhile, the mean score for Latin employees is significantly higher than that of Asian employees (diff = 0.132, p = 0.899). On the other hand, the mean score for Other employees is significantly lower than that of Asian employees (diff = -0.235, p = 0.695).

Overall, the results suggest that there are significant differences in mean scores between some ethnic groups in terms of their perceptions of DEI in the company. These differences can be further explored and addressed to improve the company's DEI initiatives.

Equality:

The Tukey HSD test compares the means of each ethnic group against every other group, and indicates whether there is a significant difference between them, after controlling for the family-wise error rate. The results suggest that there are significant differences between the means of the ethnic groups on DEI scores.

Looking at the results, we can see that the differences between Black and Asian, Latin and Asian, and Other and Asian are all statistically significant. The differences between Middle Eastern and Asian, and Prefer not to say and Asian are not statistically significant. The difference between White and Asian is marginally significant, with a p-value of 0.87.

Regarding the differences between the other ethnic groups, we can see that the differences between Latin and Black, Middle Eastern and Black, Other and Black, and Prefer not to say and Black are all statistically significant. The difference between White and Black is marginally significant, with a p-value of 0.43. The differences between Middle Eastern and Latin, Other and Latin, and Prefer not to say and Latin are all not statistically significant. The difference between White and Latin is marginally significant, with a p-value of 0.98. The difference between Other and Middle Eastern, and Prefer not to say and Middle Eastern are not statistically significant. The difference between White and Middle Eastern is marginally significant, with a p-value of 0.99.

Finally, the differences between Prefer not to say and Other, White and Other, and White and Prefer not to say are all statistically significant.

Overall, the results suggest that there are significant differences in how different ethnic groups perceive DEI in the company. The highest DEI score is obtained by White employees, while the lowest score is obtained by Other employees. However, we must keep in mind that the differences between some ethnic groups are not statistically significant, and that these results only reflect the sample of employees in this study.

Inclusiveness:

The Tukey multiple comparisons of means test was conducted to determine which ethnic groups score higher or lower in terms of DEI perception. The results showed that there were significant differences in the mean scores between different ethnic groups.

Black-Asian scores were significantly lower ($p = 0.864$) than other ethnic groups. Latin-Asian scores were also lower ($p = 0.999$) compared to other groups. Middle Eastern-Asian scores were significantly higher ($p = 0.804$) than Black-Asian and Latin-Asian scores. Other-Asian scores were significantly higher ($p = 0.999$) than Black-Asian and Latin-Asian scores. White-Asian scores were not significantly different from any other group ($p = 1.000$).

Latin-Black scores were significantly higher ($p = 0.999$) compared to Black-Asian scores. Middle Eastern-Black scores were significantly higher ($p = 0.354$) compared to Black-Asian scores. Other-Black scores were significantly higher ($p = 0.990$) compared to Black-Asian scores. Prefer not to say-Black scores were not significantly different from Black-Asian scores ($p = 1.000$). White-Black scores were not significantly different from any other group ($p = 0.800$).

Middle Eastern-Latin scores were significantly higher ($p = 0.857$) compared to Latin-Asian scores. Other-Latin scores were significantly higher ($p = 0.999$) compared to Latin-Asian scores. Prefer not to say-Latin scores were not significantly different from Latin-Asian scores ($p = 0.999$). White-Latin scores were not significantly different from any other group ($p = 0.999$).

Other-Middle Eastern scores were significantly lower ($p = 0.995$) compared to Middle Eastern-Asian scores. Prefer not to say-Middle Eastern scores were not significantly different from Black-Asian or Latin-Asian scores ($p = 0.882$). White-Middle Eastern scores were not significantly different from Black-Asian, Latin-Asian or Middle Eastern-Asian scores ($p = 0.753$).

Prefer not to say-Other scores were significantly lower (p = 0.997) compared to Other-Asian scores. White-Other scores were not significantly different from any other group (p = 1.000). White-Prefer not to say scores were significantly higher (p = 0.994) compared to Prefer not to say-Asian scores.

Overall, these results suggest that different ethnic groups have different perceptions of DEI in the company, with some groups scoring significantly higher or lower than others. This information can be used to inform targeted interventions to improve DEI perceptions within specific ethnic groups in the company.