

# T-TEST REPORT

Tatiana Todorova  
Cloud computing  
SN: 2023692  
L-4/T-2

03.09.2021.Suneth Fernando, DAV

## Introduction

In this report we aim to explore Covid-19 infection rate in a statistic research by using T-test method that compares the means between two main groups of white people and those with BAME background in the UK by using BBC news presented data. We develop our hypothesis as clear experimental approach to the current real availability of frequency between null and alternative outcome to reach approximately right significance corresponding to the real situation in all the country. Looking after the factors that can affect all the characteristic's change in deep, we construct our work in optimal quantity of statistical facts and seek logical equivalent between these two groups and their wide range of reflection in the society. Our aim is to establish control over these factors, how to restrict and avoid any further expansion of this influence and make people informed.

### **Specification and method to evaluate and implement an independent T-TEST statistical analyze for two separate groups.**

T-Test provides full details and is mostly used in those cases where we have to look in such of data to compare with the information as hypothesis to statistically determine the mean between two in our case independent samples of data that is normally comparing the variables between selected to explore groups and essentially, they are too different each from other, that's why we have to analyze them as with their two independent means. Our aim is to develop and provide details on a short analysis to the hypothesis that tends to show the means between two main groups of English population, mostly affected from Corona virus, those of white people and BAME in the UK.

### **Using the formula, we must find the differences.**

And it shows that the 2-tailed P value is less than 0.0001. The mean between these two groups excluding from the group one, group two is equal to 23,46. There we have the confidence interval of 95% as result of this difference from -30,84 to -16.08. This is the intermediate value used in the calculation to find the null hypothesis using the formula here

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\left( \frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2} \right) \left( \frac{1}{N_1} + \frac{1}{N_2} \right)}}$$

The result of t in this calculation is

t=6.3120

df is equal to 98

And we have standard error of difference equal to 3.717

Our t-test between the two groups is presented here:

| Group | Group 1 | Group 2 |
|-------|---------|---------|
| Mean  | 36.58   | 60.04   |
| SD    | 11.98   | 23.39   |
| SEM   | 1.69    | 3.31    |
| N     | 50      | 50      |

We can see that there is a significant difference between the means of the two groups and make a conclusion from this which one from the two groups is much more affected and was too vulnerable in our statistical analysis. The big difference between the group mean shows how deeply was affected during this period the group of BAME people. From our observation in this hypothesis testing, we can understand that they are not equal affected. First, we need to understand these values as very important for our statistical comparison of our target to explore in deep the test statistic. As the t-value of the difference between the groups shows the increasing of the results and we can assume for our study that there is a specific t-distribution between these two groups and to determine the peak with a possible difference.

And by using all this information we can calculate the probability or the p-value.

Specially this is the evidence for the hypothesis as null or almost 1% probability to accept the alternative hypothesis which makes the result of 95% true in condition is true to happen. In our case our p-value is less than 0.0001 and  $p < .0001$ . This shows that there is strong relationship between the two variables, and we can understand the strength of the difference between the two groups.

All this can give us clear information about the real situation and makes our hypothetical analysis as much closer to the real probability of this statistical approach to be true or false as we must analyze if it is greater or equal to the null hypothesis and how this can be implemented.

SD or the standard deviation means a measure of spread of Corona virus between these two groups and shows us the confidence interval between them which allows us to compare the equivalent to the previous set if there is a difference. For example, Group 1 of white people is 11.98 and shows a confidence level of 95, which allows us to determine the lower and upper limit of the interval that there can be any deviation and we have a statistically significant difference in our experimental research between the two groups with SEM for group 1 as a result of 1.69 and for group 2 the score shows 3.31. This standard error of mean we understand as a measure of precision for estimated Covid frequency between the white group and the BAME. Compared to standard deviation it shows that the variability within the two target groups is large and close to the true situation corresponding with the real variation that our predictable results are mostly acquired as actual data information to be true.

SEM takes the standard deviation as a variant or calculates the standard error of the mean and precise how close to the reality is the mean in our case is the estimated true of data and gives us more accurate information for larger or smaller contrast of the standard error to happen and how close is to the reality. Or standard error is equal to the standard deviation. Statistically we can determine if there is a significant difference between the means of the two groups and analyze the features given to us by making t-test results using comparative data analysis as a hypothesis testing tool applicable in reality and predict with approximately variability to establish the outcomes comparing two variables different from one to another by exploring randomly selected data and interpret it properly in relation to the set of samples by making common assumption that can be applied properly and with validity. N is the number of paired differences, the sample size between our two groups, which is 50 for each of them.

As final words I can make a definitive conclusion of comparison following this classification that white people are like more resistant to the Covid-19 pandemic and with strong antibody biological reaction compared to the group of BAME cases shows big death proportion which percentage gets more critical level as ethnic minority and expands like with sensible graduation and difference between the mortality rates of those two compared groups in my report, observing latest BBC data information in UK. The report shows that Covid-19 infection is more dangerous for BAME background people and specially they are in great risk of death compared to white people since the period of the pandemic and we can assume this as racial inequalities by following the presented statistical analyses research report.

The report is made only by using teacher lecturers in our online education and the main analysis is made with helping direction to the presented online assessment form as guide to cover the requisition. The work is completely constructed on my

understanding of the presented information by interpreting this knowledge acquired from our lecturer.