

# Configuration Manual

Customers Attitudes to Insurance and Fraud  
Research Project (MSCDATOP)

**Keith O' Reilly**  
Student ID: 22178848

School of Computing  
National College of Ireland

Supervisor: Jorge Basilio

**National College of Ireland**  
**MSc Project Submission Sheet**  
**School of Computing**



**Student Name:** Keith O Reilly.....

**Student ID:** 22178848.....

**Programme:** Research Project (MSCDATOP)..... **Year:** 2023.....

**Module:** .....

**Lecturer:** .....

**Submission Due Date:** .....

**Project Title:** Customers Attitudes to Insurance and Fraud.....

**Word Count:** 1543..... **Page Count:** 14.....

I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.

ALL internet material must be referenced in the bibliography section. Students are required to use the Referencing Standard specified in the report template. To use other author's written or electronic work is illegal (plagiarism) and may result in disciplinary action.

**Signature:** .....

**Date:** .....

**PLEASE READ THE FOLLOWING INSTRUCTIONS AND CHECKLIST**

|   |                          |
|---|--------------------------|
| Attach a completed copy of this sheet to each project (including multiple copies)   | <input type="checkbox"/> |
| <b>Attach a Moodle submission receipt of the online project submission,</b> to each project (including multiple copies).  | <input type="checkbox"/> |
| <b>You must ensure that you retain a HARD COPY of the project,</b> both for your own reference and in case a project is lost or mislaid. It is not sufficient to keep a copy on computer. | <input type="checkbox"/> |

Assignments that are submitted to the Programme Coordinator Office must be placed into the assignment box located outside the office.

|                                  |  |
|----------------------------------|--|
| <b>Office Use Only</b>           |  |
| Signature:                       |  |
| Date:                            |  |
| Penalty Applied (if applicable): |  |

# Configuration Manual

Keith O' Reilly  
Student ID: 22178848

## 1 Survey Design

The initial design of the survey was influenced by the one the Tennyson used in their study on insurance fraud in 2002 (Tennyson, 2002). This used a 10-point Likert scale, but this was modified to a 7-point scale for this study. The questions on fraud were updated and modified from this set as they were US based the terms, for example "Excess" is used instead of the American "Deductible".

Research was conducted with several long-standing insurance professional with regard to the insurance industry and fraud in general. This helped shape some of the questions that were asked and the logic behind them.

The survey was broken down into very broad sections. The first part was some demographic questions on the respondent. The demographic data that was requested was kept deliberately to a minimum. This was to ensure the no GDPR issues arose and to elicit as honest responses as possible.

A qualifying question was selected around the purchase of an insurance product. If this was answered as a negative, then the survey terminated, and no further information was gathered. The initial scope of the survey was to seek information on the particular sales channel that the consumer chooses when dealing with their provider. The following questions were requested around the type of product, type of provider, the type of contact and the frequency.

The insurance industry has faced many challenges and changes in the last few years. One of these was the Covid pandemic and other industries had to adapt and change. A question was selected as to whether Covid had changed the consumers method of interaction with their provider.

A common theme for those that perpetrated fraud was a sense of fairness or justification. If the consumer believes there is some sort of justification, they were more likely to commit fraud. (Murphy & Dacin, 2011). Questions were added if the consumer's premium changed and if there was a reason for the change such as a claim. The logic is that if there was a claim then the premium increase could be seen as justified, where no claim and a premium increasing may seem unfair.

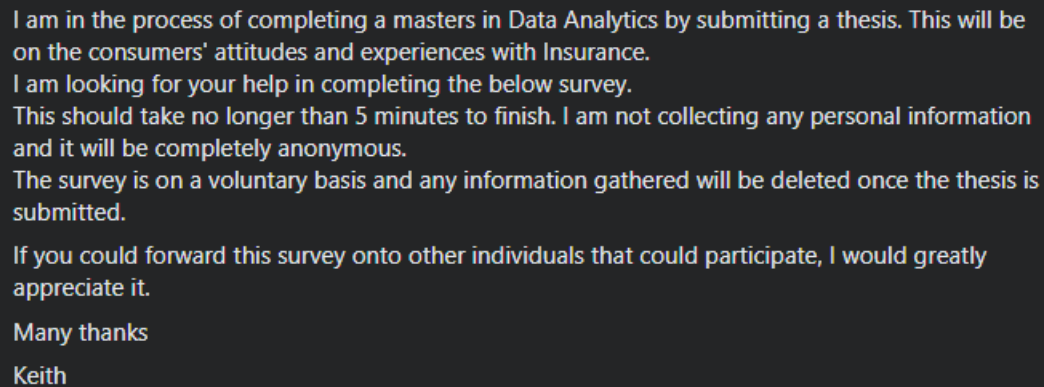
Regulation changes in the last five years in the industry have resulted in massive changes to how insurance companies do business. A question was asked about whether or not the consumer feels there should be more or less regulated.

The last two questions in the first section were to do with sophistication and personal service. These were asked on the same 7-point Likert scale as the fraud scenarios to determine how much they agreed with the statements. Studies have shown the more a policy holder is aware of the fraud tools in place the more effort they put into safety and reduction in the possibility of an accident (Okura, 2013).

A pilot survey was sent out to three people for feedback and any clarification. It was agreed to extend the number of options for the type of provider, the types of products purchased and to change the age question to age bands.

## 2 Survey Delivery

An email with the below information was sent to a list of participants from the researcher's own contacts. This was also sent on social media, on Facebook and through What's App.

The image shows a screenshot of an email request for a survey. The text is white on a black background. It reads: "I am in the process of completing a masters in Data Analytics by submitting a thesis. This will be on the consumers' attitudes and experiences with Insurance. I am looking for your help in completing the below survey. This should take no longer than 5 minutes to finish. I am not collecting any personal information and it will be completely anonymous. The survey is on a voluntary basis and any information gathered will be deleted once the thesis is submitted. If you could forward this survey onto other individuals that could participate, I would greatly appreciate it. Many thanks Keith".

I am in the process of completing a masters in Data Analytics by submitting a thesis. This will be on the consumers' attitudes and experiences with Insurance.  
I am looking for your help in completing the below survey.  
This should take no longer than 5 minutes to finish. I am not collecting any personal information and it will be completely anonymous.  
The survey is on a voluntary basis and any information gathered will be deleted once the thesis is submitted.  
If you could forward this survey onto other individuals that could participate, I would greatly appreciate it.  
Many thanks  
Keith

Figure 1: Email request for survey

The survey was created in Google Forms, as it allowed easy creation and delivery as well as collating all the responses automatically.

A sample of the survey is shown in Figure 2 below.

# Insurance Survey

This survey is completely anonymous, no personal information will be collected. Please complete all questions. This should take no more than 5 minutes to complete.

keithoreilly@gmail.com [Switch accounts](#)



Not shared

\* Indicates required question

Gender

- Male
- Female
- Prefer not to say

What is your age?

Choose ▾

Have you purchased an Insurance Product in Ireland \*

- Yes
- No

What product type did you purchase? \*

- Home
- Private Motor
- Commercial Vehicle
- Travel
- Other: \_\_\_\_\_

What type of Provider did you use? \*

- Local Small Broker
- Large National Broker
- Direct with an Insurance Company
- Through your Bank
- Through the Post Office or Supermarket

How do you mainly interact with your provider? \*

- Over the counter in the office
- Over the Phone
- Online Internet or Email

How often do you interact with your Insurance Provider? \*

- Once a year
- Two or three times a year
- Four or more times a year

Has your method of interaction changed since Covid? \*

- Yes
- No

Has the cost of your insurance increased or decreased or roughly stayed the same over the last three years? \*

- Increased
- Decreased
- Remained the same

If your premium increased was there a reason for it? E.G. A claim \*

- Yes
- No

Do you think Insurance Companies should have more or less regulation? \*

- More Regulation
- Less Regulation
- Remain the same

Have you ever made a claim against your own Insurance? \*

- Yes
- No

Have you ever claimed against someone else's Insurance policy? \*

- Yes
- No

Larger companies offer a more sophisticated and professional service. \*

- 1 2 3 4 5 6 7
- Strongly Disagree        Strongly Agree

The smaller the company the more personalised service they provide you as an individual. \*

- 1 2 3 4 5 6 7
- Strongly Disagree        Strongly Agree

[Next](#)

[Clear form](#)

On a scale of 1 to 7 how acceptable do you believe the following to be?

1. Totally unacceptable    2. Unacceptable    3. Marginally Unacceptable    4. Neutral  
5. Marginally Acceptable    6. Acceptable    7. Totally Acceptable

Changing Information on an Insurance application in order to obtain or reduce an Insurance premium. \*

1   2   3   4   5   6   7

Totally Unacceptable                        Totally Acceptable

Increasing an Insurance claim in order to cover an excess on the policy. \*

1   2   3   4   5   6   7

Totally Unacceptable                        Totally Acceptable

Changing the details of a claim in order to claim for something not covered by the policy. \*

1   2   3   4   5   6   7

Totally Unacceptable                        Totally Acceptable

Changing the details of a claim in order to increase the payout. \*

1   2   3   4   5   6   7

Totally Unacceptable                        Totally Acceptable

Increasing the extent of an injury order to increase the payout. \*

1   2   3   4   5   6   7

Totally Unacceptable                        Totally Acceptable



**On a scale of 1 to 7 how common do you think the following to be?**

1. Very Rare   2. Rare   3. Marginally Rare   4. Neutral  
5. Marginally Common   6. Common   7. Very Common

---

Changing Information on an Insurance application in order to obtain or reduce an Insurance premium. \*

1   2   3   4   5   6   7

Very Rare                        Very Common

---

Increasing an Insurance claim in order to cover an excess on the policy. \*

1   2   3   4   5   6   7

Very Rare                        Very Common

---

Changing the details of a claim in order to claim for something not covered by the policy. \*

1   2   3   4   5   6   7

Very Rare                        Very Common

---

Changing the details of a claim in order to increase the payout. \*

1   2   3   4   5   6   7

Very Rare                        Very Common

---

Increasing the extent of an injury order to increase the payout. \*

1   2   3   4   5   6   7

Very Rare                        Very Common

---

**Insurance Survey**

Thank you for taking the time to complete this survey.

[Submit another response](#)

Figure 2: Sample Survey

### 3 Data Preparation

All responses from the survey were downloaded into a csv file. Initial data preparation was performed in Excel. 232 responses were received for the survey, 6 had selected no to having previous insurance so were excluded from the results. 9 were rejected as they had identical answers across all of the tolerance and prevalence questions. This left 217 respondents that were utilised in the statistical analysis. Most of the multiple-choice questions were recoded as

numeric to allow SPSS to interact easier. So, for example the age bands were recoded as 1 for 25-30, 2 for 31-35 and so on. The type of product purchased was contained in a single column separated out by semi colons. These were extrapolated out to 4 products and a 5 other catchall. Each was given a new column and if the item appeared in the parent column it was given a Yes in the respective column.

In SPSS the questions based on a scale were given labels to more easily identify the response in the output as shown in figure 3.

|    | Name   | Type    | Width | Decimals | Label              | Values                       | Missing | Columns | Align | Measure | Role  |
|----|--|---------|-------|----------|--------------------|------------------------------|---------|---------|-------|---------|-------|
| 1  | UID  | Numeric | 4     | 0        |                    | None                         | None    | 12      | Right | Scale   | Input |
| 2  | Gender   | String  | 6     | 0        |                    | None                         | None    | 6       | Left  | Nominal | Input |
| 3  | Whatsyourage   | String  | 5     | 0        | What is your ag... | None                         | None    | 5       | Left  | Nominal | Input |
| 4  | YoungvOld  | String  | 5     | 0        | Young v Old        | None                         | None    | 5       | Left  | Nominal | Input |
| 5  | HaveyoupurchaseedanInsuranceProductinIreland                         | String  | 3     | 0        | Have you purch...  | None                         | None    | 3       | Left  | Nominal | Input |
| 6  | Whatproducttypedyoudurchase  | String  | 53    | 0        | What product ty... | None                         | None    | 50      | Left  | Nominal | Input |
| 7  | Home   | String  | 3     | 0        |                    | None                         | None    | 3       | Left  | Nominal | Input |
| 8  | Motor  | String  | 3     | 0        |                    | None                         | None    | 3       | Left  | Nominal | Input |
| 9  | Van  | String  | 3     | 0        |                    | None                         | None    | 3       | Left  | Nominal | Input |
| 10 | Travel   | String  | 3     | 0        |                    | None                         | None    | 3       | Left  | Nominal | Input |
| 11 | Other  | String  | 3     | 0        |                    | None                         | None    | 3       | Left  | Nominal | Input |
| 12 | WhattypeofProviderdidyouuse  | String  | 38    | 0        | What type of Pr... | {1, Local Small Broker}...   | None    | 38      | Left  | Nominal | Input |
| 13 | Howdoyoumainlyinteractwithyourprovider                               | String  | 30    | 0        | How do you m...    | None                         | None    | 30      | Left  | Nominal | Input |
| 14 | ContactType  | String  | 7     | 0        | Contact Type       | None                         | None    | 7       | Left  | Nominal | Input |
| 15 | HowoftendoyouinteractwithyourInsuranceProvider                       | String  | 25    | 0        | How often do y...  | None                         | None    | 25      | Left  | Nominal | Input |
| 16 | ContactFrequency   | String  | 8     | 0        | Contact Freque...  | None                         | None    | 8       | Left  | Nominal | Input |
| 17 | HasyourmethodofinteractionchangedsinceCovid                          | String  | 3     | 0        | Has your meth...   | None                         | None    | 3       | Left  | Nominal | Input |
| 18 | Hasbecostofyourinsuranceincreasedordecreasedorroughlystayedthes      | String  | 17    | 0        | Has the cost of... | None                         | None    | 17      | Left  | Nominal | Input |
| 19 | PriceIncrease  | String  | 3     | 0        | Price increas...   | None                         | None    | 3       | Left  | Nominal | Input |
| 20 | IfyourpremiumincreasedwasthereareasontotheE.G.Aclaim                 | String  | 3     | 0        | If your premi...   | None                         | None    | 3       | Left  | Nominal | Input |
| 21 | Do you think insurance Companies should have more or less regulation | String  | 15    | 0        | Do you think in... | None                         | None    | 15      | Left  | Nominal | Input |
| 22 | MoreRegulation   | String  | 3     | 0        | More Regulation    | None                         | None    | 3       | Left  | Nominal | Input |
| 23 | Haveyouevermadeaclaimagainstyourowninsurance                         | String  | 3     | 0        | Have you ever...   | None                         | None    | 3       | Left  | Nominal | Input |
| 24 | Haveyoueverclaimedagainstsomeoneelsesinsurancepolicy                 | String  | 3     | 0        | Have you ever...   | None                         | None    | 3       | Left  | Nominal | Input |
| 25 | LargercompaniesofferamoreSophisticatedandprofessionalservice         | Numeric | 1     | 0        | Larger compan...   | {1, Strongly Disagree}...    | None    | 12      | Right | Nominal | Input |
| 26 | Thesmallerthecompanythemorepersonalisedservicetheyprovideyouasan     | Numeric | 1     | 0        | The smaller th...  | {1, Strongly Disagree}...    | None    | 12      | Right | Nominal | Input |
| 27 | Changinginformationonaninsuranceapplicationinordertobtainorred       | Numeric | 1     | 0        | Changing Infor...  | {1, Totally Unacceptable}... | None    | 12      | Right | Scale   | Input |
| 28 | IncreasinganInsuranceclaiminordertocoveranexcessonthepolicy          | Numeric | 1     | 0        | Increasing an I... | {1, Totally Unacceptable}... | None    | 12      | Right | Scale   | Input |
| 29 | Changingthedetailsofclaiminordertoclaimgforsomethingnotcoveredby     | Numeric | 1     | 0        | Changing the d...  | {1, Totally Unacceptable}... | None    | 12      | Right | Scale   | Input |
| 30 | Changingthedetailsofclaiminordertoincreasepayout                     | Numeric | 1     | 0        | Changing the d...  | {1, Totally Unacceptable}... | None    | 12      | Right | Scale   | Input |
| 31 | Increasingtheextentofaninjuryordertoincreasepayout                   | Numeric | 1     | 0        | Increasing the ... | {1, Totally Unacceptable}... | None    | 12      | Right | Scale   | Input |

Figure 3: Variable view in SPSS

## 4 SPSS Coding

A Cronbach's Alpha was calculated on the prevalence and acceptability scores through SPSS and the reliability analysis. This is to determine if the reliability and consistency in the average of the answers was good. To perform this test in SPSS one would go to Analyze-Scale-Reliability Analysis.

This would bring up the screen as shown in Figure 4.

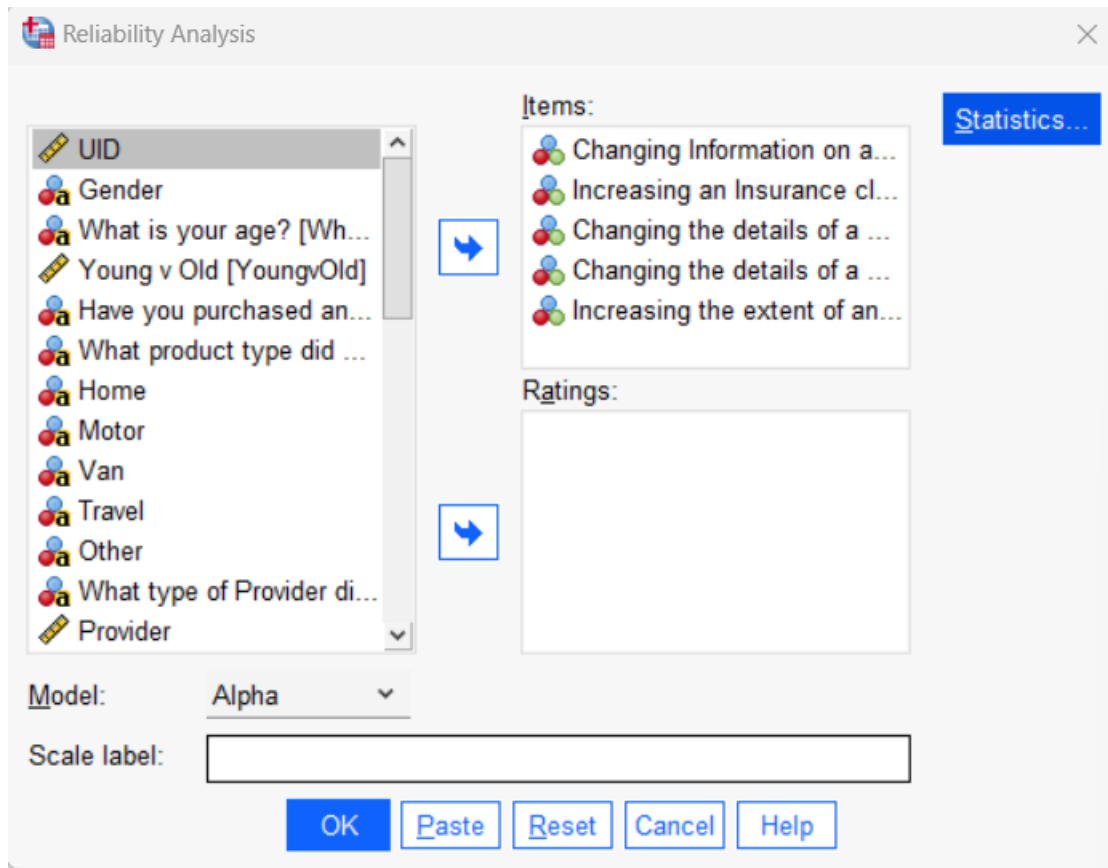


Figure 4: Reliability Analysis in SPSS

The items were added to the selection by clicking each one. The model was left as Alpha and then click into statistics.

This brings up the selection as shown in Figure 5.

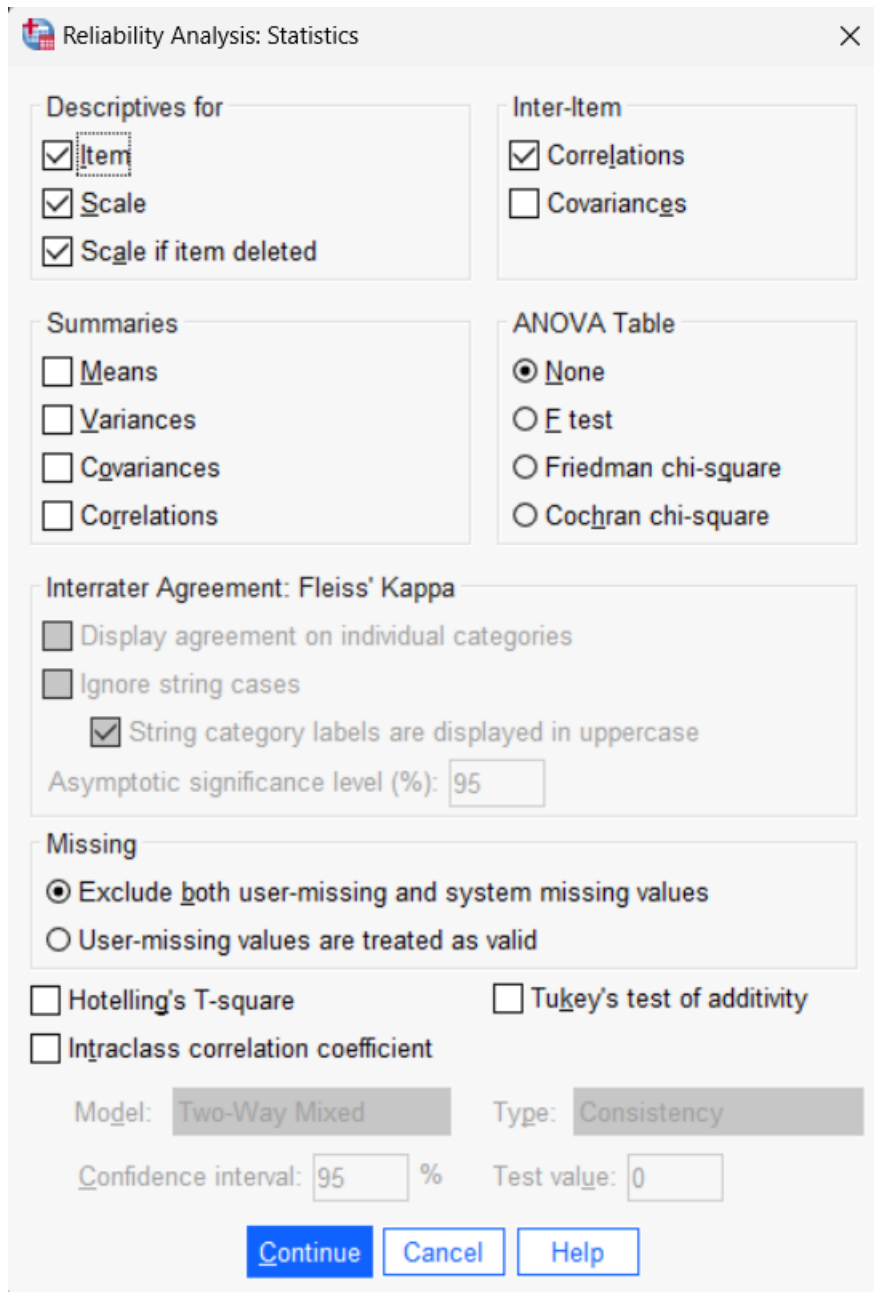


Figure 5: Reliability Statistics

Item, Scale and Scale if item deleted were ticked along with correlations. Then we click continue to bring it back to the previous screen and click OK. This will output the statistics for the Cronbach Alpha scores for each of the sets of fraud questions.

Where there were comparisons between two variables such as those with yes and no answers a standard t-test was performed. This was to determine to a significant degree if the responses to the fraud questions were statistically different. An example of this type would be the Yes/No response that was given for whether the method of contact had changed due to Covid. This was performed through the compare means and proportions section of SPSS. This will bring up the screen as shown in Figure 6 below.

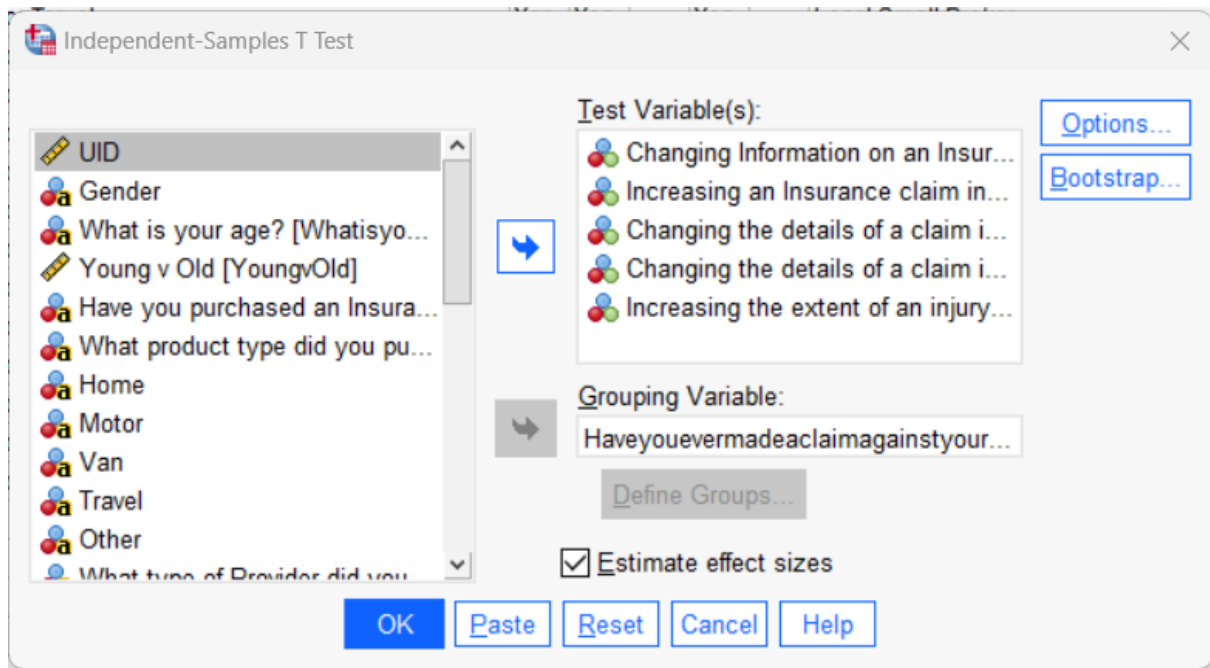


Figure 6: T-Test options in SPSS

The test variables are selected in the upper box and the Grouping Variable in the 2<sup>nd</sup> box. The groups can be defined in the box in this instance Yes and No were the two defined groups. Click ok to run the T-Tests and the outputs are then displayed.

Where there were multiple identifiers a correlation test was performed to determine if there was correlation between subjects to a significant degree. This was performed through the compare means and proportions section of SPSS. A one-way ANOVA was selected. Two or more dependant items are added into the Dependant list and the independent factor in the factor box as shown in Figure 7.

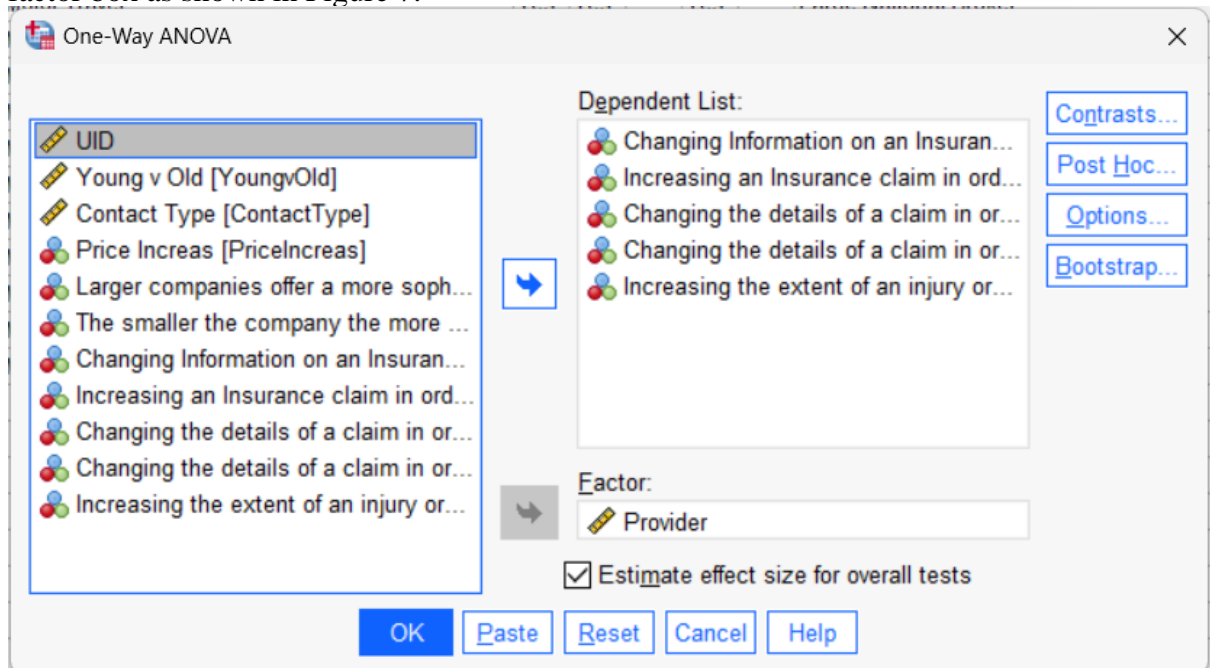


Figure 7: Anova selection box in SPSS

POST hoc is then selected and Tukey is selected, Click Continue and then click Options.

In this section we click Descriptive, click continue and click OK to run.  
This will output the statistics for the ANOVA in an output file.

## References

**References should be formatted using APA or Harvard style as detailed in NCI Library Referencing Guide available at <https://libguides.ncirl.ie/referencing>**

**You can use a reference management system such as Zotero or Mendeley to cite in MS Word.**

Murphy, P. and Dacin, M. (2011) 'Psychological pathways to fraud: Understanding and preventing fraud in organizations', *Journal of Business Ethics*, 101(4): pp. 601–618.

Okura, M. (2013) 'The Relationship Between Moral Hazard and Insurance Fraud', *The Journal of Risk Finance*, 14(2), pp. 120–128

Tennyson, S. (2002) 'Insurance Experience and Consumers' Attitudes Toward Insurance Fraud', *Journal of Insurance Regulation*, 21(2), pp. 35–55