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Glossary of terms

ANOVA (Analysis of Variance)

A statistical test used to compare the average values of three or more groups.

Alternative Hypothesis (H_1)

The statement that there *is* a difference or effect between the groups being tested.

Assumptions

The conditions that must be met for a statistical test to be valid, such as data being normally distributed and independent.

Chi-squared Test

A statistical test used to examine relationships between categorical or ranked data.

Confidence Interval (CI)

A range of values that shows where the true mean is likely to lie, usually expressed at 95% confidence.

Degrees of freedom (df)

A representation of the amount of independent information available to estimate a statistical parameter.

Dependent Variable

The variable being measured in a study, such as soil temperature or crop yield.

Effect Size

A measure of how large or meaningful a difference is between groups.

Homogeneity of Variance

An assumption that the spread of data is similar across all groups being compared.

Independent Variable

The variable that is changed or grouped to test its effect, such as slope aspect or fertiliser type.

Independent Samples t-test

A test used to compare the average values of two separate groups.

Mean

The average value of a dataset.

Null Hypothesis (H_0)

The statement that there is *no* difference or effect between the groups.

p-value

A value that shows how likely the results are due to chance. Results are usually considered significant when $p < 0.05$.

Prediction Errors

A prediction error refers to the difference between the actual value and the predicted value for a new observation, often from outside the sample used to build the model.

Random Sample

A sample chosen so that every member of the population has an equal chance of being selected.

Residuals

A residual is the difference between an observed value and the value predicted by a regression model using the same dataset that was used to fit the model.

Simple linear regression

A statistical method used to examine the relationship between two quantitative variables.

Standard Deviation (SD)

A measure of how spread out values are around the mean.

Statistical Significance

An indication that the results are unlikely to have occurred by chance.

t-test

A statistical test used to compare the means of two groups.

Variance

A measure of how much data values differ from the mean.

Statistics and charts for this report were calculated and created, respectively, using "A Guide to Computing Statistics with SPSS 11 FOR WINDOWS (Revised Edition) by Dennis Howitt and Duncan Cramer".
All data output from SPSS Version 30.0.0.0 (172) in this report.

AI Acknowledgement

I acknowledge the use of ChatGPT (https://chatgpt.com/) between 16 February and 2 March 2026 for the following purpose in my work:

PROOFREADING	For this assessment, you can use Generative AI to check your own text/creation for grammatical and syntactical mistakes, including rephrasing of your own work within specific standards.	Yes ☒ No ☐

I used the prompt:

- Please check and correct the following text for readability, grammar and syntax, giving me a list of changes made:

I confirm that I have not presented any AI generated text as my own work. I confirm that I have retained copies of my drafts, notes, and other resources used before and after the use of AI tools, which I may be asked to provide as evidence.

1 Soil Temperature

1.1 Statistical test

The **two-sample t-test** (a statistic that quantifies how significant the difference is between means of two groups) is commonly used for small sample sizes while considering the variance (Wadhwa and Marappa-Ganeshan, no date; Fowler et al., 2013).

A two-sample independent unpaired t-test was conducted to compare soil temperature data collected for two (independent) groups of variables: North-facing and South-facing aspects, to determine whether the groups are statistically significantly different. Table 1 shows hypotheses for this question.

Table 1-1 Hypotheses

H_0 (Null Hypothesis):	**H_1 (Alternative Hypothesis):**
There is *no significant difference* in mean soil temperatures between North-facing and South-facing groups.	There *is a significant difference* in mean soil temperatures between North-facing and South-facing groups.

1.2 Assumptions

Assumptions of t-tests are summarised in Table 1-2 (Fowler et al., 2013; Bevans, 2023).

Table 1-2 Assumptions of t-test

T-test assumes data from the two groups are:
• **Independent** • a **random** sample from target population • **continuous** (scalar) • **normally** distributed • showing **homogeneity** of variances between two groups

1.3 Calculations

The t-test output is below.

Table 1-3 Group statistics

Group Statistics					
	Slope aspect	N	Mean (M)	Std. Deviation (SD)	Std. Error Mean
Soil temperature	North-facing	6	12.3333	1.50555	.61464
	South-facing	6	17.8333	1.72240	.70317

Table 1-4 Independent Samples Test

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Soil temperature	Equal variances assumed	.057	.817	-5.889	10	<.001	<.001	-5.50000	.93393	-7.58092	-3.41908
	Equal variances not assumed			-5.889	9.824	<.001	<.001	-5.50000	.93393	-7.58598	-3.41402

Table 1-5 Independent Samples Effect Sizes

Independent Samples Effect Sizes					
				95% Confidence Interval	
		Standardiser	Point Estimate	Lower	Upper
Soil temperature	Cohen's d	1.61761	-3.400	-5.223	-1.516
	Hedges' correction	1.75304	-3.137	-4.820	-1.399
	Glass's delta	1.72240	-3.193	-5.389	-.939

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control (i.e., the second) group.

1.4 Interpretation

Levene's test indicated equal variances could be assumed (p = 0.817). The results show that soil temperatures for South-facing group (M=17.8, SD=1.7 (1dp) are significantly higher than those for North-facing group (M = 12.3 (1dp), SD = 1.5 (1dp), t(10)= -5.89 (1dp), p <0.001, 95% CI [-7.6 (1dp), -3.4 (1dp)].

The results show that the South-facing slope had a higher mean soil temperature compared with the North-facing slope, reflecting results from similar but larger studies. For example, Burnett et al. (2008) studied several 60–100m-deep canyons in semiarid northeastern Arizona and found South-facing slopes were 1.4–5.6°C warmer than North-facing aspects. Slopes facing the sun (e.g., South-facing in the Northern Hemisphere) receive more direct insolation. Therefore, soil on this aspect tends to be warmer compared to soil on the opposite aspect (e.g. North-facing in the Northern hemisphere) (Elnaker and Zaleski, 2021).

Standard deviation (SD) represents the average amount by which soil temperature data points differ from the mean. SD is similar between the two groups, which can make the comparison of the results of two groups fairer using t-test, as assumptions of t-test are fulfilled (Bevans, 2023; UWTSD, 2026). In contrast, a larger study of 7.9-

ha forested catchment in Pennsylvania, U.S.A., by Fan et al. (2020), found that North-facing slopes showed greater temporal variability in soil microclimate than South-facing slopes. The similarity between variabilities in this study contrasts to the difference in variabilities in the study by Fan et al. (2020). This could be due to various factors such as different study sizes, locations, meteorological characteristics, soil depth, seasonality, temporality, land-use (i.e. arable, forest or grassland), etc. A study exemplifying factors which affect SD, by Baumberger et al. (2024), conducted high resolution soil temperature analysis using a machine learning modelling approach, linking multi-depth soil temperature from 212 locations to 45 potential predictors (including vegetation coverage). Figure 1-1 shows some results from this study. The points show the mean value for soil temperature and the error bars indicate spatial variability. The mean soil temperature varied according to soil depth; SD for forested land was lower than those for arable and grassland; and SD for all land uses was higher in summer months compared with winter months.

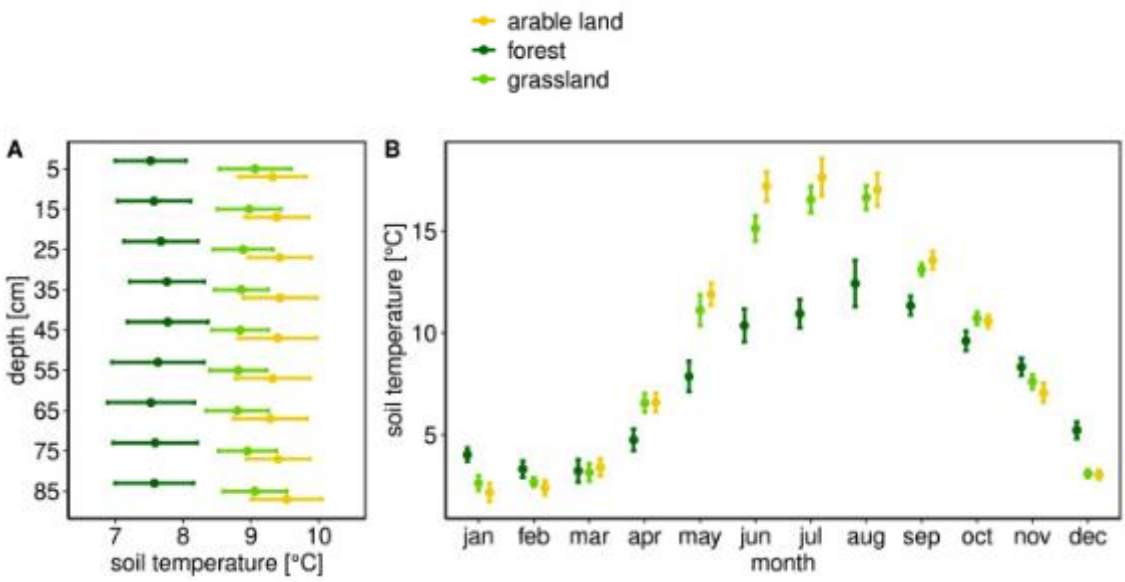

Figure 1-1 Mean and standard deviation of soil temperature (a and b) in depth and time, grouped by land use (Baumberger et al., 2024).

Is the t-test result significant?

Whilst Table 1-3 shows that there is a difference between the means, analysis (Table 1-4) indicated that the mean for the North-facing group was significantly different

($p<0.01$) from that for the South-facing group because $p < 0.05$. Therefore, there is a *statistically significant difference* between the two groups**,** and the null hypothesis is rejected in favour of the alternative hypothesis (Fowler et al., 2013).

1.5 Conclusion

This pattern aligns strongly with ecological research describing aspect as a major control on soil microclimate, although limitations in this test are the small sample size, and assumptions of normality and homogeneity.

Because soil temperature can vary over time and space, the t-test may oversimplify the system unless sampling is carefully controlled. For more nuanced questions about temporal trends or multiple influencing factors, more advanced statistical approaches could be used, such as a time-series approach, ANOVA, or regression model.

2 Fertiliser

2.1 Statistical test

When comparing the means of three or more samples, **ANOVA (Analysis of Variance) test** is useful to determine whether the means are significantly different, whilst determining whether independent variable(s) had an effect on a dependent variable(Fowler et al., 2013; Green Belt Academy, 2023).

A **one-way ANOVA test** (where when one independent variable is being analysed) was conducted to determine whether fertiliser (independent variable) had an effect on yield (dependent variable) when analysing three different samples of fertiliser across five fields (Fowler et al., 2013; Green Belt Academy, 2023) Table 2-1 shows hypotheses of ANOVA for this question. The level of significance is 0.05 here.

Table 2-1 Hypotheses

H_0 (Null Hypothesis):	**H_1 (Alternative Hypothesis):**
No difference among group means	At least one group mean differs significantly from the overall mean of the dependent variable

2.2 Assumptions

Assumptions of ANOVA are summarised in Table 2-2 (Bevans, 2024; van den Berg, 2026).

Table 2-2 Assumptions of ANOVA

ANOVA assumes data from the three or more samples are:
• **Independent** - the independent variable data must be categorical, whereas the dependent variable data is continuous. • a **random** sample from target population • **normally** distributed (small samples only) • showing **homogeneity** of variances (the variance of the dependent variable must be equal in each subpopulation)

2.3 Calculations

Table 2-2 Descriptives of ANOVA

Descriptives

Yield in tonnes

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	95% Confidence Interval for Mean Upper Bound	Minimum	Maximum
A	5	19.8000	2.94958	1.31909	16.1376	23.4624	15.00	23.00
B	5	18.8000	3.96232	1.77200	13.8801	23.7199	15.00	25.00
C	5	25.8000	1.09545	.48990	24.4398	27.1602	25.00	27.00
Total	15	21.4667	4.18956	1.08174	19.1466	23.7868	15.00	27.00

Table 2-3 ANOVA results

ANOVA					
Yield in tonnes					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	143.333	2	71.667	8.398	.005
Within Groups	102.400	12	8.533		
Total	245.733	14			

Table 2-4 ANOVA Effect Sizes

ANOVA Effect Sizes[a,b]				
			95% Confidence Interval	
		Point Estimate	Lower	Upper
Yield	Eta-squared	.583	.093	.738
	Epsilon-squared	.514	-.058	.695
	Omega-squared Fixed-effect	.497	-.054	.680
	Omega-squared Random-effect	.330	-.026	.515

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

b. Negative but less biased estimates are retained, not rounded to zero.

2.4 Interpretation

The results show a statistically significant difference in average crop yield according to fertiliser type ($F(_{2,\ 12})= 8.40$, $p < 0.05$) (Salkind, 2019). F represents the test statistic that was used.

The F statistic represents the ratio of variance between groups to variance within groups. Degrees of freedom reflect the number of independent values used to estimate these variances. In this example, 2 degrees of freedom correspond to the between-group estimate, and 12 correspond to the within-group estimate. The calculated F value is 8.398.

0.05 was the level of significance set for this particular research question. A result of $p < 0.05$ indicates that there is less than a 5% probability that the observed differences between group means occurred by chance under the null hypothesis of no difference.

Figure 2-1 shows the mean yields (in tonnes) grouped by fertiliser with error bars representing the Confidence Intervals for each fertiliser group. This demonstrates there is overlap between A and B, and no overlap between A and C or B and C (therefore there is certainly a pairwise difference with the latter two groups). However, group comparisons were also made by post-hoc testing (Salkind, 2019).

Table 2-5 shows the results of post-hoc Bonferroni tests, which were used to perform comparisons between the different groups of fertilisers. The results show there are statistically significant pairwise differences between groups A and C and groups B and C, which are contributing to the overall significant difference among all three groups.

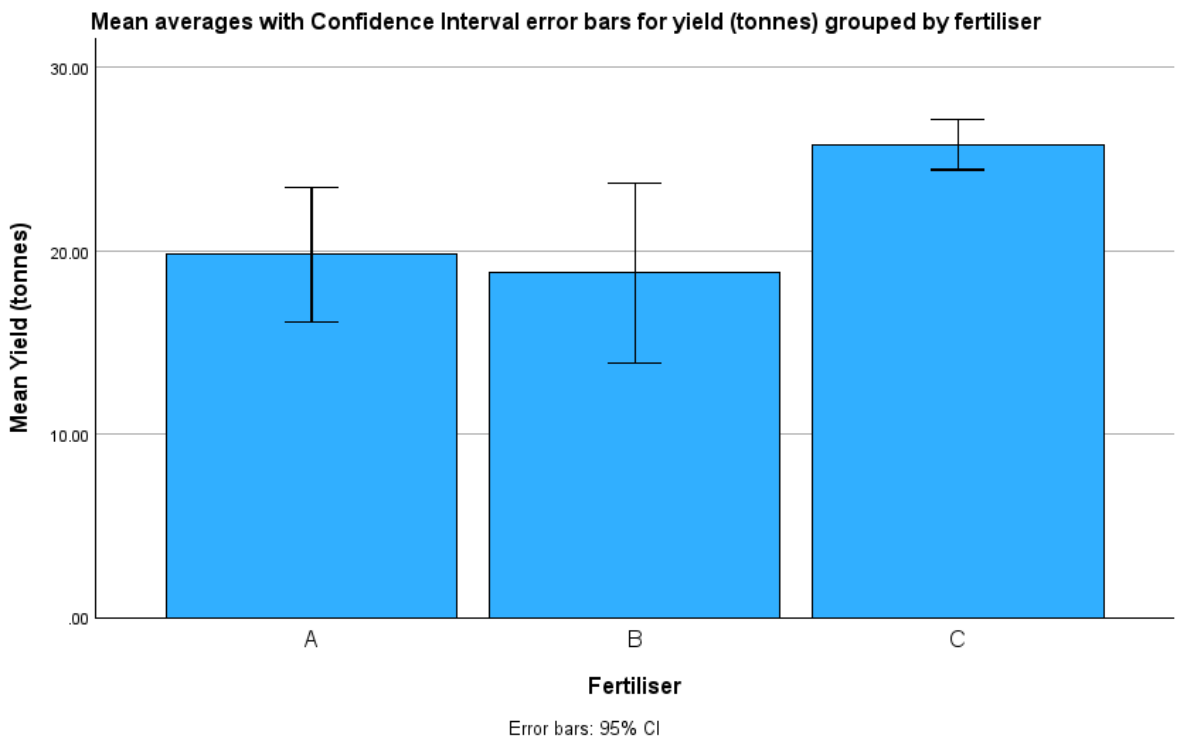

Figure 2-1 Mean and Confidence Intervals of yield (tonnes) grouped by fertiliser

Table 2-5 Post-hoc (Bonferroni) tests

Multiple Comparisons

Dependent Variable: Yield

Bonferroni

(I) Fertiliser	(J) Fertiliser	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
A	B	1.00000	1.84752	1.000	-4.1351	6.1351
	C	-6.00000*	1.84752	.021	-11.1351	-.8649
B	A	-1.00000	1.84752	1.000	-6.1351	4.1351
	C	-7.00000*	1.84752	.008	-12.1351	-1.8649
C	A	6.00000*	1.84752	.021	.8649	11.1351
	B	7.00000*	1.84752	.008	1.8649	12.1351

*. The mean difference is significant at the 0.05 level.

2.5 Conclusion

ANOVA test showed a statistically significant difference in mean crop yield according to fertiliser type. Post-hoc test showed that fertiliser C produced statistically significantly higher crop yields than A or B. Therefore, the null hypothesis was rejected in favour of the alternative hypothesis as at least one group mean differed significantly from the overall mean of the dependent variable. The limitations in this test include the small sample size, and assumptions of normality and homogeneity.

3 Flu

3.1 Statistical test

The chi-square test is a nonparametric method used to examine whether observed categorical frequencies differ significantly from expected frequencies (Fowler et al., 2013; Salkind, 2019).

Chi-square test of independence uses two dimensions; in this case, the vaccine type (A – E) and the occurrence/ absence of occurrence of flu. The question asked by the test is whether vaccine type and occurrence/ absence of occurrence of flu are independent of each other (Salkind, 2019).

Table 3-1 shows hypotheses of chi-square test for this question. If there is a significant difference between observed and expected frequencies then the value of the calculated test statistic will exceed the critical value at the appropriate number of degrees of freedom, in which case the null hypothesis is rejected in favour of the alternative hypothesis (Fowler et al., 2013). The level of significance is 0.05 here.

Table 3-1 Hypotheses of Chi-square test of independence

H_0 (Null Hypothesis):	**H_1 (Alternative Hypothesis):**
There is no association between vaccine type and flu occurrence.	There is an association between vaccine type and flu occurrence.

3.2 Assumptions

Assumptions of the chi-square test are summarised in Table 3-2 (McHugh, 2013; Kent State University, 2026)

Table 3-2 Assumptions of chi-square test

Chi-square test assumes data are:
• Collated into a minimum of **two categorical variables** each with **two or more categories** • **mutually exclusive** - each subject can belong to **one and only one category** for each variable. • **independent** - subjects between each group must not be related (or the same) - categorical variables are not inherently paired (e.g., pre-/post-test) • of a sufficiently **large sample size** - the expected frequency in each cell is at least 1 - at least **80% of the cells have expected frequencies of 5 or more**.

3.3 Calculations

Table 3-3 Case Processing Summary

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gotflu * Vaccine	1351	100.0%	0	0.0%	1351	100.0%

Table 3-4 Contingency table comparing observed and expected frequencies for categories of "got flu" and "avoided flu" for each vaccine A-E

Gotflu * Vaccine Crosstabulation								
			Vaccine					Total
			A	B	C	D	E	
Gotflu	Got flu	Count	42	52	28	45	55	222
		Expected Count	45.8	41.4	44.5	42.9	47.3	222.0
		Residual	-3.8	10.6	-16.5	2.1	7.7	
	Avoided flu	Count	237	200	243	216	233	1129
		Expected Count	233.2	210.6	226.5	218.1	240.7	1129.0
		Residual	3.8	-10.6	16.5	-2.1	-7.7	
Total		Count	279	252	271	261	288	1351
		Expected Count	279.0	252.0	271.0	261.0	288.0	1351.0

Table 3-5 Chi-square tests

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.585[a]	4	.013
Likelihood Ratio	13.251	4	.010
Linear-by-Linear Association	.555	1	.456
N of Valid Cases	1351		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 41.41.			

The observed frequencies of having got flu and avoided flu are charted for each vaccine in Figure 3-1.

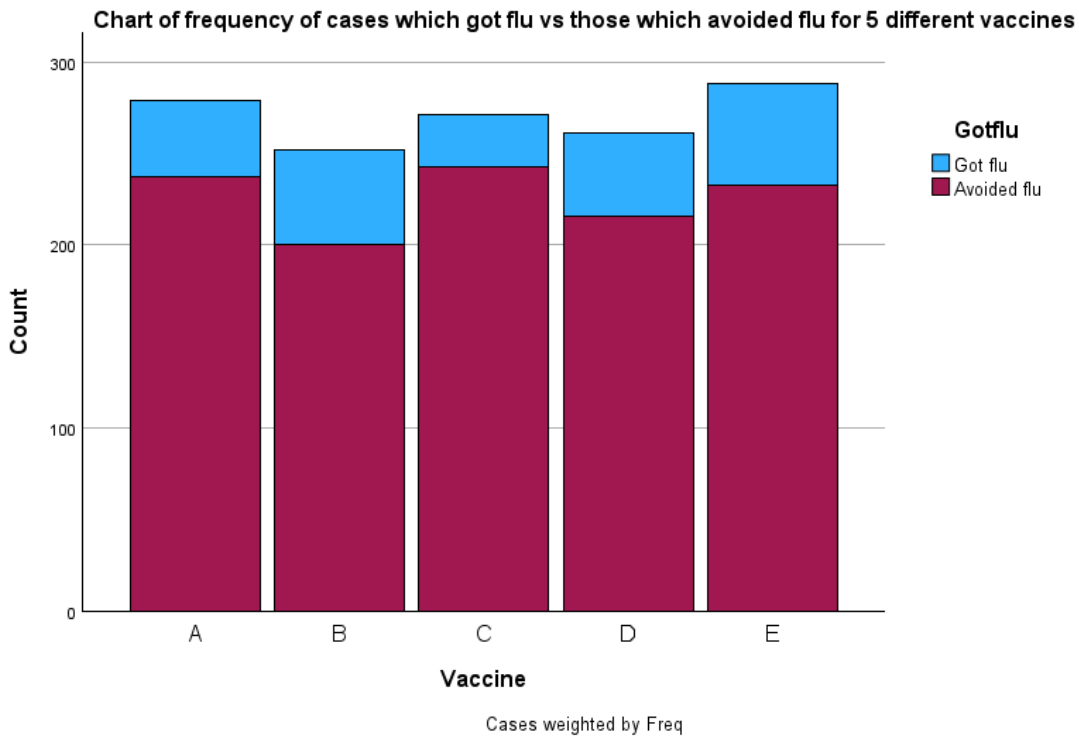

Figure 3-1 Chart of frequencies for categories of "got flu" vs "avoided flu" for each vaccine A-E

3.4 Interpretation

The test statistic is reported as:

$\chi^2 df$ = value, p-value

Therefore, $\chi^2{}_4$ = 12.6 (1dp), p<0.05

The test statistic value is 12.6. Degrees of freedom (*df*) represent the number of independent comparisons that can be made between observed and expected frequencies, which in this case is 4. p < 0.05 indicates that there is less than a 5% probability of observing these results if the null hypothesis is true - that the frequency of having got flu/ avoided flu is equally distributed across all categories by chance alone (0.05 was the criterion for the null hypothesis being rejected in favour of the alternative hypothesis). For the test statistic of 12.6, the critical value needed for rejection of the null hypothesis was determined using the appropriate table of critical values of chi-square (see Appendix). The critical value is 9.5 (1dp). So, at the 0.05 level, with 4 degrees of freedom, the value needed for rejection of the null hypothesis is 9.5.

The test statistic is greater than the critical value, so the null hypothesis is rejected in favour of the alternative hypothesis (Salkind, 2019). Therefore, the distribution of frequencies of having got flu/ avoided flu across the 5 vaccine groups is not equal.

3.5 Conclusion

The chi-square value of 12.6 was tested for significance and used to reject the null hypothesis in favour of the alternative hypothesis. The observed frequencies differed from those expected of a homogeneous distribution by a margin too large to be attributed to sampling error alone.

A limitation of the chi-square test is that it cannot determine the strength or direction of an association, nor can it establish causation, as it only indicates if a statistically significant relationship exists. Measures of effect size, such as Cramér's V or Phi, should be reported together with the test statistic (SAS Institute Inc, 2012; Learn Statistics Easily, 2023).

Figure 3-1 shows that vaccine C had the lowest frequency of having got flu of all the vaccines and marginally the highest frequency of having avoided flu of all the vaccines as well, suggesting that the difference in the frequencies of having got flu/ avoided flu across all vaccine groups may be attributed to vaccine C.

Additional limitations of the test stem from its underlying assumptions. One key assumption is the independence of observations; if this assumption is violated, the results may be misleading. The test is also highly sensitive to sample size. In very large samples, even minor differences between observed and expected frequencies can yield statistically significant results, whereas in very small samples, the test may lack sufficient power to detect meaningful associations. Researchers should also exercise caution when categories are unevenly distributed, as dominant groups may obscure patterns present in smaller groups (Lee, 2025; The University of Utah, 2026).

4 Exam results

4.1 Statistical test

Simple linear regression is a statistical method used to examine the relationship between two quantitative variables. It is appropriate when you want to determine the strength of the relationship between two variables and the predicted value of a dependent variable for a specific value of an independent variable (Bevans, 2020). In this case, the dependent variable is final exam marks and the independent variable is the initial exam marks.

Regression models explain relationships by fitting a line to observed data points. In linear regression, this relationship is represented by a straight line, whereas logistic and other nonlinear regression models use curved lines. Overall, regression analysis helps estimate how the dependent variable changes in response to variations in one or more independent variables (Bevans, 2020).

4.2 Assumptions

Assumptions of the linear regression analysis are summarised in table 4-1(Schmidt and Finan, 2018; Bevans, 2020).

Table 4-1 Assumptions of linear regression analysis

For linear regression analysis, the following assumptions must be met:
• **Linearity:** linear relationship between the dependent and independent variables • Homoscedasticity (**homogeneity** of variance): The variability of the residuals (prediction errors) remains constant across all levels of the independent variable. In other words, the spread of errors should be roughly the same throughout the range of predicted values. • **Independence** of observations**:** The data points are independent of one another. This means the observations were collected using appropriate sampling methods, and no hidden relationships or dependencies exist among them. • **Normality:** The residuals of the model are approximately normally distributed, which ensures the validity of statistical tests and confidence intervals in linear regression. • **Absence of extreme observations**

4.3 Calculations

Table 4-2 Linear regression output

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Initial score[b]	.	Enter

a. Dependent Variable: Final score

b. All requested variables entered.

Table 4-3 Linear regression output

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-46.741	30.143		-1.551	.131
	Initial score	3.215	.629	.671	5.114	<.001
a. Dependent Variable: Final score						

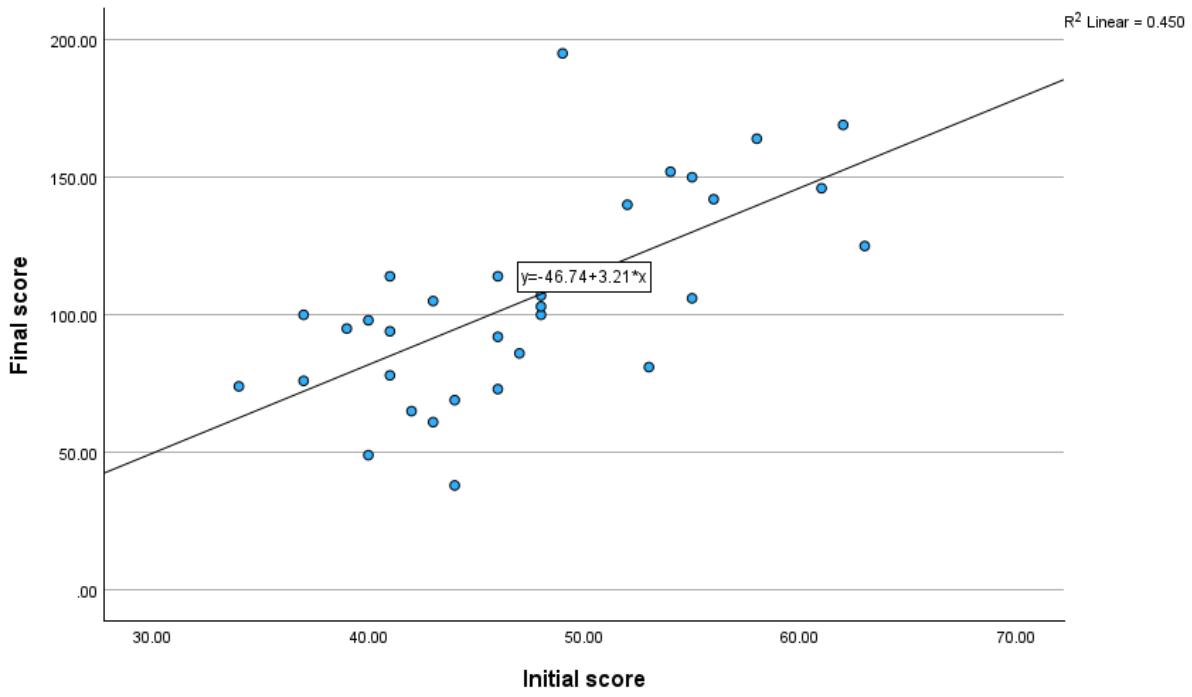

Figure 4-1 Edited scatterplot with regression line

4.4 Interpretation

B represents the slope of the regression line, also known as the unstandardised regression coefficient(Howitt and Cramer, 2003). As shown under B in Table 4-3, its value is 3.21 (2dp). This indicates that for every 1.00-unit increase on the horizontal axis (independent variable), the value on the vertical axis (dependent variable) increases by 3.21 units.

The intercept (a) referred to as the “constant” in SPSS, is -46.74 (2dp), the point at which the regression line intercepts the vertical (Y) axis.

The standardised regression coefficient (β) is 0.67 (2dp)

The regression line sloping from the bottom left to the top right of the scatterplot (figure 4-1) indicates a positive relationship between the two variables. The points seem relatively close to the line, which indicates that the Beta (correlation) should be a relatively high (positive) number and the Confidence Interval (not given in these calculations) for the slope should be relatively small.

The equation is:

$$Y = -46.74 + 3.21*X$$

where X is a student’s initial exam score and Y is the best prediction of their final exam score (Howitt and Cramer, 2003).

4.5 Conclusion

The scatterplot of the relationship between initial and final exam scores suggests a linear positive relationship between the two variables. Therefore, it is possible to predict, with moderate predictive accuracy, a student’s final exam score from their initial exam score.

The limitations of linear regression analysis stem from the assumptions of linearity, independence of observations, homoscedasticity and absence of extreme observations, even with large samples. The assumption of normality is a limitation particularly with small samples (Schmidt and Finan, 2018; Bevans, 2020). A residual

plot could help identify poor or incorrect curve fitting between the data and the regression model if the relationship between the variables are non-linear. A non-linear analysis could then be applied to the data, which then may involve taking logs of the original values to make the data linear. Log-transforming the dependent variable can reduce heteroscedasticity (Krishnamoorthy and Alok, 2022).

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Appendix

Critical values of chi-square (right tail) (Turney, 2023)

	Significance level (α)							
Degrees of freedom (*df*)	.99	.975	.95	.9	.1	.05	.025	.01
1	-------	0.001	0.004	0.016	2.706	3.841	5.024	6.635
2	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210
3	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345
4	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277
5	0.554	0.831	1.145	1.610	9.236	11.070	12.833	15.086
6	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812
7	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475
8	1.646	2.180	2.733	3.490	13.362	15.507	17.535	20.090
9	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666
10	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209
11	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725
12	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217
13	4.107	5.009	5.892	7.042	19.812	22.362	24.736	27.688
14	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141
15	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578
16	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000
17	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409
18	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805
19	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191
20	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566
21	8.897	10.283	11.591	13.240	29.615	32.671	35.479	38.932
22	9.542	10.982	12.338	14.041	30.813	33.924	36.781	40.289
23	10.196	11.689	13.091	14.848	32.007	35.172	38.076	41.638
24	10.856	12.401	13.848	15.659	33.196	36.415	39.364	42.980
25	11.524	13.120	14.611	16.473	34.382	37.652	40.646	44.314
26	12.198	13.844	15.379	17.292	35.563	38.885	41.923	45.642
27	12.879	14.573	16.151	18.114	36.741	40.113	43.195	46.963
28	13.565	15.308	16.928	18.939	37.916	41.337	44.461	48.278
29	14.256	16.047	17.708	19.768	39.087	42.557	45.722	49.588
30	14.953	16.791	18.493	20.599	40.256	43.773	46.979	50.892
40	22.164	24.433	26.509	29.051	51.805	55.758	59.342	63.691
50	29.707	32.357	34.764	37.689	63.167	67.505	71.420	76.154
60	37.485	40.482	43.188	46.459	74.397	79.082	83.298	88.379
70	45.442	48.758	51.739	55.329	85.527	90.531	95.023	100.425
80	53.540	57.153	60.391	64.278	96.578	101.879	106.629	112.329
100	61.754	65.647	69.126	73.291	107.565	113.145	118.136	124.116
1000	70.065	74.222	77.929	82.358	118.498	124.342	129.561	135.807