

Statistical Analysis Portfolio

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Analysis Portfolio

Correlation Matrix

The correlation matrix below illustrates a positive relationship between shame and depression, and how a person's age can impact self-forgiveness. After using the provided dataset and using SPSS to run bivariate correlations using Pearson Correlation, the data indicated that there was a relationship with a significance of $p < .001$. Overall, age has a weak relationship with depression and shame, as well as with self-forgiveness (HFS-Total). Age and depression have a negative correlation, and age and shame are also negatively correlated. However, age and self-forgiveness are positively correlated. Depression and shame have a positive correlation, depression and self-forgiveness have a negative correlation, and shame and self-forgiveness have a negative correlation.

Correlations

		What is your age?	DASS-Depression	TOSCA-Shame	HFS-Total
What is your age?	Pearson Correlation	1	-.173**	-.122**	.225**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	1285	1285	1285	1285
DASS-Depression	Pearson Correlation	-.173**	1	.300**	-.486**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	1285	1285	1285	1285
TOSCA-Shame	Pearson Correlation	-.122**	.300**	1	-.387**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	1285	1285	1285	1285
HFS-Total	Pearson Correlation	.225**	-.486**	-.387**	1

Sig. (2-tailed)	<.001	<.001	<.001
N	1285	1285	1285

**. Correlation is significant at the 0.01 level (2-tailed).

Independent Samples T-test

An independent-samples t-test was conducted to compare the impact of age when measuring levels of shame. The independent groups are age and age group 1 included ages 18-35, and age group 2 included ages 36-77. Our dependent variable is shame, measured by the TOSCA-shame. There was no significant differences in score for the two different age groups.

Group Statistics

	AgeGroup	N	Mean	Std.	Std. Error
				Deviation	Mean
TOSCA-	1.00	776	36.7629	8.19806	.29429
Shame	2.00	509	35.1356	8.32694	.36909

Independent Samples Test

Levene's Test for Equality of											
Variances						t-test for Equality of Means					
95% Confidence Interval of the											
						Significance					
						One-	Two-	Mean	Std. Error	Difference	
						Sided p	Sided p	Difference	Difference	Lower	Upper
TOSCA-	Equal variances	.662	.416	3.459	1283	<.001	<.001	1.62733	.47052	.70425	2.55040
Shame	assumed										
						3.447	1074.578	<.001	<.001	1.62733	.47205
										.70108	2.55357
						assumed					

Repeated Measures T-Test

A paired-samples t-test was conducted to show the significant difference between depression and shame scores. Depression scores tend to be higher than the shame scores, and the data shows that these scores are moderately correlated, where people with high depression scores also tend to have higher shame scores.

Paired Samples Correlations

		N	Correlation	Significance	
				One-Sided p	Two-Sided p
Pair 1	DASS-Depression & TOSCA-Shame	1285	.300	<.001	<.001

Paired Samples Test

Paired Differences							Significance			
	95% Confidence									
	Interval of the									
	Std.	Std. Error	Difference				One-	Two-		
	Mean	Deviation	Mean	Lower	Upper	t	df	Sided p	Sided p	
Pair 1	DASS-Depression	-	11.80386	.32929	-26.25845	-24.96646	-77.782	1284	<.001	<.001
1	- TOSCA-Shame	25.6124								

Paired Samples Effect Sizes

			Standardiz er ^a	Point Estimate	95% Confidence	
					Lower	Upper
Pair 1	DASS-Depression -	Cohen's d	11.80386	-2.170	-2.270	-2.070
	TOSCA-Shame	Hedges' correction	11.81076	-2.169	-2.269	-2.068

a. The denominator used in estimating the effect sizes.

Cohen's d uses the sample standard deviation of the mean difference.

Hedges' correction uses the sample standard deviation of the mean difference, plus a correction factor.

One-way between-subjects ANOVA

A one-way between subjects analysis of variance was completed to consider the relationship between age and its impact on levels of depression in the DASS-Depression assessment. This analysis shows that while there is a statistically significant difference in depression scores between the two groups, the effect size (eta-squared) is small (.023), accounting for a small portion of the variability in depression scores.

*ANOVA***DASS-Depression**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3790.927	1	3790.927	30.609	<.001
Within Groups	158900.279	1283	123.851		
Total	162691.206	1284			

ANOVA Effect Sizes^a

		Point Estimate	95% Confidence Interval	
			Lower	Upper
DASS-Depression	Eta-squared	.023	.010	.042
	Epsilon-squared	.023	.009	.041
	Omega-squared Fixed-effect	.023	.009	.041
	Omega-squared Random-effect	.023	.009	.041

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

Two-way Between Subjects ANOVA

A two-way between-groups analysis of variance was completed to examine the impact of age and shame on the dependent variable of depression. Subjects were divided into two groups according to their age (Group 1: Age 18-35, Group 2: Age 36-77). Depression is impacted by shame and age group independently, but age group and shame are not influenced by each other's effects.

Tests of Between-Subjects Effects

Dependent Variable: DASS-Depression

Source	Type III Sum of		Mean		
	Squares	df	Square	F	Sig.
Corrected Model	25677.972 ^a	82	313.146	2.747	<.001
Intercept	37713.538	1	37713.538	330.856	<.001
AgeGroup	600.992	1	600.992	5.272	.022
TOSCASHA	16439.125	43	382.305	3.354	<.001
AgeGroup *	3796.178	38	99.899	.876	.685
TOSCASHA					
Error	137013.234	1202	113.988		
Total	304520.000	1285			
Corrected Total	162691.206	1284			

a. R Squared = .158 (Adjusted R Squared = .100)

ANCOVA (Analysis of Covariance)

A one-way between-groups evaluation was conducted to explore the influence of age and shame on measured levels of depression. Both age and shame impacted depression scores, with $p < .001$. Both the age group and the shame show a significant impact on depression. The R squared value shows that age and shame explain 13.4% of the differences in depression score, leaving rooms for other variables to impact depression.

Univariate Analysis of Variance

Tests of Between-Subjects Effects

Dependent Variable: DASS-Depression

Source	Type III Sum of		Mean Square	F	Sig.
	Squares	df			
Corrected Model	21881.795 ^a	44	497.314	4.379	<.001
Intercept	20166.786	1	20166.786	177.593	<.001
AgeGroup	2255.492	1	2255.492	19.862	<.001
TOSCASHA	18090.868	43	420.718	3.705	<.001
Error	140809.412	1240	113.556		
Total	304520.000	1285			
Corrected Total	162691.206	1284			

a. R Squared = .134 (Adjusted R Squared = .104)