	Chi square test of independence	Chi square test of homogeneity	Correlation & Regression	Independent samples t test	Paired sample t test	Between groups ANOVA	Repeated measures ANOVA
Purpose	comparing variables	comparing groups	comparing variables	comparing 2 groups	comparing 2 trials	comparing groups	comparing trials
Independent, predictor, or group variable	nominal	nominal	interval/ratio	nominal or ordinal	nominal or ordinal	nominal or ordinal	nominal or ordinal
Dependent or criterion variable	nominal	nominal	interval/ratio	interval/ratio	interval/ratio	interval/ratio	interval/ratio
Null hypothesis	Ho: p1 = p2	Ho: p1 = p2	Ho: r = 0	Ho: M1 = M2	Ho: M1 = M2	Ho: M1 = M2	Ho: M1 = M2
Alternative hypothesis (two-tailed test)	Ha: p1 ≠ p2	Ha: p1 ≠ p2	Ho: r ≠ 0	Ha: M1 ≠ M2	Ha: M1 ≠ M2	Ha: M1 ≠ M2	Ha: M1 ≠ M2
Assumption: Random / Representative Sample	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Assumption: Independent sampling	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Assumption: Distribution of dependent / criterion variable	Any	Any	Normal	Normal	Normal	Normal	Normal
Assumption: Paired Variables or Repeated Measures	Yes	No	Yes	No	Yes	No	Yes
Assumption: Independent groups	No	Yes	No	Yes	No	Yes	No
Assumption: Relationship is linear	Not Applicable	Not Applicable	Yes	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Assumption: Scatterplot demonstrates homoscedasticity	Not Applicable	Not Applicable	Yes	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Assumption: Variances demonstrate homogeneity	Not Applicable	Not Applicable	Not Applicable	Yes	Yes	Yes	Yes
Assumption: Categories Exhaustive	Yes	Yes	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Assumption: Categories Mutually Exclusive	Yes	Yes	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

	Chi square test of independence	Chi square test of homogeneity	Correlation & Regression	Independent samples t test	Paired sample t test	Between groups ANOVA	Repeated measures ANOVA
Assumption: Expected Frequencies > 0 in all cells	Yes	Yes	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Assumption: Expected Frequencies > 5 in 80% or more of cells	Yes	Yes	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Sampling distribution	χ^2	χ^2	r	t	t	F	F
Degrees of freedom (df)*	(r-1) x (c-1)	(r-1) x (c-1)	N - 2	n1 + n2 - 2	N-1	(k-1), (N-k)	(k-1), (N-1) x (k - 1)
Example of how to report test results	χ^2 (1) = 5.15, p < 0.05	χ^2 (1) = 5.15, p < 0.05	r (48) = 0.45, p < 0.05	t (28) = 5.15, p < 0.05	t (29) = 5.15, p < 0.05	F (2,42) = 7.15, p < 0.05	F (2,88) = 7.15, p < 0.05
Effect size (common sense)	difference between proportions	difference between proportions	slope	difference between means	difference between means	difference between means	difference between means
95% Confidence interval (CI)	margin of error around the difference	margin of error around the difference	margin of error around the slope	margin of error around difference	margin of error around difference	margin of error around difference	margin of error around difference
Example of how to report effect size and 95%CI	p_d = 0.20, 95% CI: 0.15, 0.25	p_d = 0.20, 95% CI: 0.15, 0.25	b = 0.70, 95% CI: 0.65, 0.75	M_d = 2.20, 95% CI: 1.15, 3.25	M_d = 2.20, 95% CI: 1.15, 3.25	M_d = 2.20, 95% CI: 1.15,	M_d = 2.20, 95% CI: 1.15,
Effect size (percentage of variance accounted for)**	Cramér's V^2 = 0.35	Cramér's V^2 = 0.35	r^2 = 0.20	η_p^2 = 0.35	η_p^2 = 0.35	η_p^2 = 0.35	η_p^2 = 0.35

* N = number of people in the total sample; r = number of rows in the cross-tab table, c = number of columns in the cross-tab table; n1 = number of people in first group, n2 = number of people in second group; k = number of groups or number of trials

** Effect size should be interpreted as a percentage, for example r^2 of 0.20 means that the independent variable predicts 20% of the variability in the dependent variable; η_p^2 is "partial eta squared"