

## **Analysis Report**

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SAMPLE REPORT - Rafael Data Analysis Portfolio

### Sample Characterization

The report starts with the characterization of the sample, which is consisted by 92 subjects (N = 92). The table below shows the sample characteristics. The average age was 53.8 years old.

		Count	Column N %
Gender	Male	25	27.2%
	Female	65	70.7%
	NonBinary	2	2.2%
Control or Treatment	Control Group	46	50.0%
	Treatment Group	46	50.0%
Education	Highschool	12	13.0%
	Associate	15	16.3%
	Bachelors	32	34.8%
	Graduate Degree	30	32.6%
	Trade School	3	3.3%
Religious or Spiritual Affiliations	No Affiliation	27	29.3%
	Spiritual	36	39.1%
	Pagan/Wiccan	4	4.3%
	Agnostic	2	2.2%
	Christian	15	16.3%
	Judaism	3	3.3%
	Buddhism	5	5.4%
Meditation Practice	Beginner	56	60.9%
	Intermeediate	8	8.7%
	Advanced with long term practice	3	3.3%
	Advanced Seeker with Mixed Practices	25	27.2%

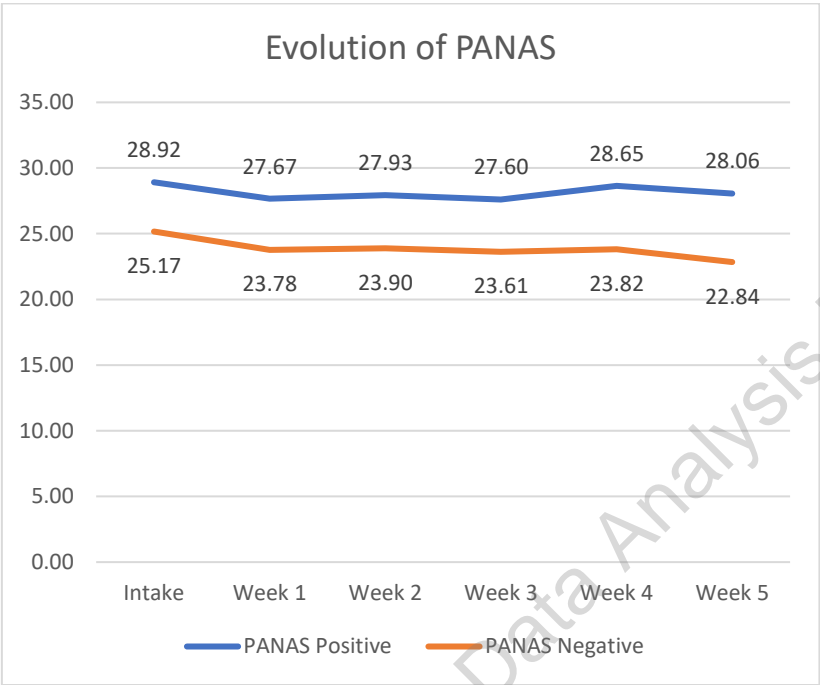
The table below shows the mean scores of each scale under study. The BDI scale decreased from 10.337 on Intake to 4.957 on Exit. The other scales remained fairly constant.

	Mean
PANAS Positive Affect Intake	28.772
PANAS Positive Affect Exit	28.924
PANAS Negative Affect Intake	24.750
PANAS Negative Affects Exit	23.641
BDI Intake	10.337
BDI Exit	4.957
PIL Intake	68.207
PIL exit	68.087

Besides looking at overall numbers, the table below shows the mean scores disaggregated by sample subgroups.

		PANAS Positive Affect Intake	PANAS Positive Affect Exit	PANAS Negative Affect Intake	PANAS Negative Affects Exit	BDI Intake	BDI Exit	PIL Intake	PIL exit
Control or Treatment	Control Group	28.283	29.109	24.022	23.413	7.609	4.500	69.239	67.826
	Treatment Group	29.261	28.739	25.478	23.870	13.065	5.413	67.174	68.348
Gender	Male	28.160	29.200	24.400	23.800	11.040	4.560	68.200	69.520
	Female	28.938	28.831	24.954	23.615	10.262	5.185	68.200	67.354
	NonBinary	31.000	28.500	22.500	22.500	4.000	2.500	68.500	74.000
Education	Highschool	31.083	29.833	26.917	23.667	11.500	5.583	70.250	68.917
	Associate	31.333	28.733	26.800	23.600	11.600	4.733	67.533	67.333
	Bachelors	28.000	28.906	23.750	23.906	9.688	5.094	67.031	67.969
	Graduate Degree	27.533	28.733	23.667	23.233	9.433	4.200	69.433	69.633
	Trade School	27.333	28.333	27.333	25.000	15.333	9.667	63.667	54.333
Religious or Spiritual Affiliations	No Affiliation	28.037	27.741	23.074	23.074	9.889	5.185	68.667	69.000
	Spiritual	28.778	28.306	24.500	23.361	9.417	4.944	67.750	67.639
	Pagan/Wiccan	28.000	31.250	26.250	28.750	17.000	8.500	72.500	71.500
	Agnostic	36.500	30.000	38.500	25.000	30.500	9.000	65.500	63.500
	Christian	27.600	29.133	24.800	22.800	9.733	4.400	64.933	63.667
	Judaism	31.000	33.000	25.667	26.333	7.000	3.667	76.667	71.333
	Buddhism	32.400	34.400	28.200	25.000	9.800	1.800	71.400	76.800
Meditation Practice	Beginner	29.143	29.286	25.286	23.821	10.804	5.500	68.875	69.018
	Intermeediate	26.875	28.125	21.750	23.125	9.375	5.000	65.125	63.375
	Advanced with long term practice	29.000	31.667	24.333	26.000	6.000	2.333	59.667	68.000
	Advanced Seeker with Mixed Practices	28.520	28.040	24.560	23.120	10.120	4.040	68.720	67.520

The following graph shows the evolution of the PANAS scores over the 5-week intervention period.



**Correlations**

A correlation analysis was performed to examine the degree of association between the psychographic scales under study. The table below shows a correlation matrix with Pearson’s correlation coefficients and p-values (Sig.). P-values lower than 0.05 indicate the association is statistically significant at the 95% confidence level. The only inter-scale significant correlation was between PANAS Positive at Exit and PIL at Exit ( $r = 0.465$ ,  $p < 0.001$ ), suggesting that the scales are positively correlated: when one value increases the other increases as well. Negative PANAS was significantly correlated with Positive PANAS, both on Intake and Exit.

# Correlations

		PANAS Positive Affect Intake	PANAS Positive Affect Exit	PANAS Negative Affect Intake	PANAS Negative Affects Exit	BDI Intake	BDI Exit	PIL Intake	PIL exit
PANAS Positive Affect Intake	Pearson Correlation	1	.436**	.774**	.303**	-.108	-.110	.109	.220*
	Sig. (2-tailed)		.000	.000	.003	.305	.298	.300	.035
	N	92	92	92	92	92	92	92	92
PANAS Positive Affect Exit	Pearson Correlation	.436**	1	.369**	.741**	-.127	-.208*	.205	.465**
	Sig. (2-tailed)	.000		.000	.000	.226	.047	.050	.000
	N	92	92	92	92	92	92	92	92
PANAS Negative Affect Intake	Pearson Correlation	.774**	.369**	1	.368**	.254*	.106	.076	.091
	Sig. (2-tailed)	.000	.000		.000	.015	.317	.472	.387
	N	92	92	92	92	92	92	92	92
PANAS Negative Affects Exit	Pearson Correlation	.303**	.741**	.368**	1	.161	.100	.110	.360**
	Sig. (2-tailed)	.003	.000	.000		.126	.343	.299	.000
	N	92	92	92	92	92	92	92	92
BDI Intake	Pearson Correlation	-.108	-.127	.254*	.161	1	.720**	.130	-.015
	Sig. (2-tailed)	.305	.226	.015	.126		.000	.216	.886
	N	92	92	92	92	92	92	92	92
BDI Exit	Pearson Correlation	-.110	-.208*	.106	.100	.720**	1	-.007	-.113
	Sig. (2-tailed)	.298	.047	.317	.343	.000		.951	.284
	N	92	92	92	92	92	92	92	92
PIL Intake	Pearson Correlation	.109	.205	.076	.110	.130	-.007	1	.639**
	Sig. (2-tailed)	.300	.050	.472	.299	.216	.951		.000
	N	92	92	92	92	92	92	92	92
PIL exit	Pearson Correlation	.220*	.465**	.091	.360**	-.015	-.113	.639**	1
	Sig. (2-tailed)	.035	.000	.387	.000	.886	.284	.000	
	N	92	92	92	92	92	92	92	92

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

\*. Correlation is significant at the 0.05 level (2-tailed).

### **The effect of a Meditation Protocol on PANAS, BDI and PIL**

This section presents the test of the main hypothesis of this study. The table below shows descriptive statistics of all scales for treatment and control groups.

#### *Descriptive Statistics*

	Control or Treatment	Mean	Std. Deviation	N
PANAS Positive Affect Intake	Control Group	28.28	5.361	46
	Treatment Group	29.26	6.184	46
	Total	28.77	5.776	92
PANAS Positive Affect Exit	Control Group	29.11	4.649	46
	Treatment Group	28.74	5.471	46
	Total	28.92	5.052	92
PANAS Negative Affect Intake	Control Group	24.02	5.369	46
	Treatment Group	25.48	5.876	46
	Total	24.75	5.644	92
PANAS Negative Affects Exit	Control Group	23.41	4.354	46
	Treatment Group	23.87	4.440	46
	Total	23.64	4.379	92
BDI Intake	Control Group	7.61	6.137	46
	Treatment Group	13.07	7.875	46
	Total	10.34	7.538	92
BDI Exit	Control Group	4.50	4.314	46
	Treatment Group	5.41	5.036	46
	Total	4.96	4.686	92
PIL Intake	Control Group	69.24	7.992	46
	Treatment Group	67.17	7.892	46
	Total	68.21	7.966	92
PIL exit	Control Group	67.83	9.611	46
	Treatment Group	68.35	9.267	46
	Total	68.09	9.392	92

A Repeated-Measures 2x2 Factorial ANOVA design was implemented to test if the intervention had an effect on the factors, as well as the existence of any interactions. The assumption of equality of covariance matrices was tested with Box's M, which showed that they are equal and no violation to the assumption was found ( $M = 54.234$ ,  $p = 0.072$ ).

The effect of 'Group' was significant for the BDI scale ( $F = 7.732$ ,  $p < 0.01$ ). This indicates that treatment and control groups show significantly different BDI scores, without taking the pre and post effects into account. The results for the other three scales were not significant ( $p > 0.05$ ). The value of Partial Eta Squared suggests a medium effect ( $\eta_p^2 = 0.079$ ).

*Tests of Between-Subjects Effects*

Transformed Variable: Average

Source	Measure	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	PANAS_Positive	153124.261	1	153124.261	3595.893	.000	.976
	PANAS_Negative	107719.043	1	107719.043	3120.412	.000	.972
	BDI	10758.962	1	10758.962	178.294	.000	.665
	PIL	854491.962	1	854491.962	6851.074	.000	.987
Group	PANAS_Positive	4.261	1	4.261	.100	.752	.001
	PANAS_Negative	42.087	1	42.087	1.219	.272	.013
	BDI	466.571	1	466.571	7.732	.007	.079
	PIL	27.397	1	27.397	.220	.640	.002
Error	PANAS_Positive	3832.478	90	42.583			
	PANAS_Negative	3106.870	90	34.521			
	BDI	5430.967	90	60.344			
	PIL	11225.141	90	124.724			

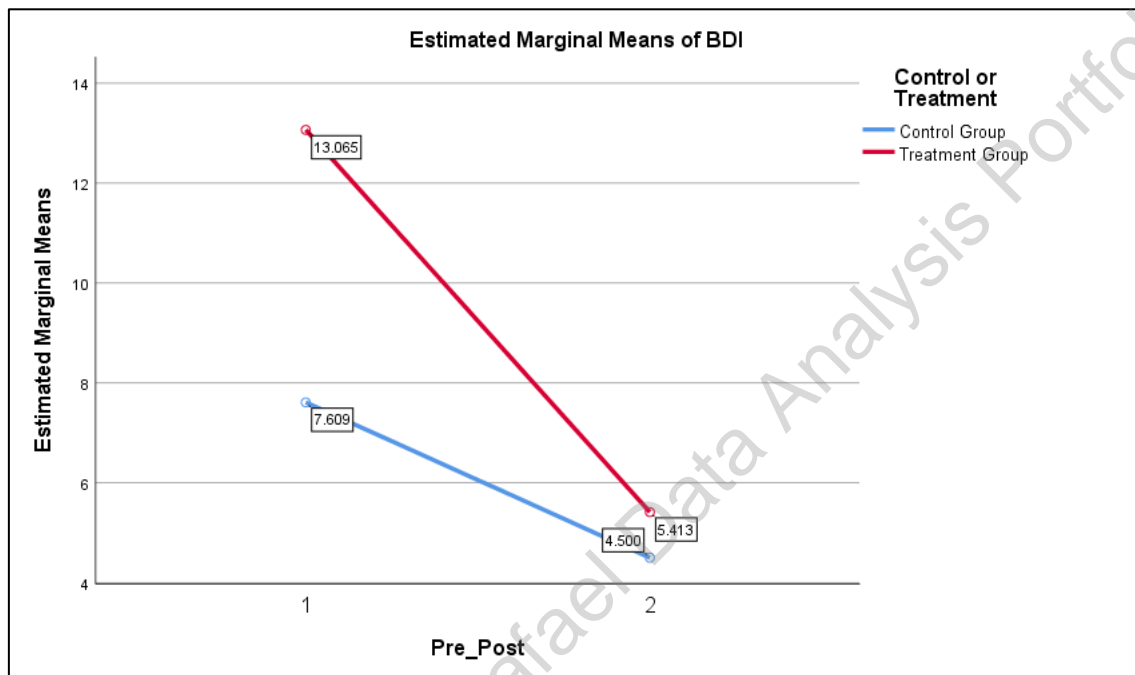
There was a very strong effect of the meditation intervention on the BDI scale ( $F = 20.674$ ,  $p < 0.001$ ,  $\eta_p^2 = 0.563$ ), with values dropping from 10.34 to 4.96. No effect was observed on the other three scales. There was a significant interaction effect of the meditation protocol on treatment and control groups ( $F = 20.674$ ,  $p < 0.001$ ,  $\eta_p^2 = 0.187$ ). In other words, the effect of the intervention was significantly different between treatment and control groups.

*Tests of Within-Subjects Effects*

Source	Measure	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Pre_Post	PANAS_Positive	1.065	1	1.065	.064	.801	.001
	PANAS_Negative	56.543	1	56.543	3.429	.067	.037
	BDI	1331.658	1	1331.658	115.970	.000	.563
	PIL	.658	1	.658	.024	.877	.000
Pre_Post * Group	PANAS_Positive	20.891	1	20.891	1.253	.266	.014
	PANAS_Negative	11.500	1	11.500	.697	.406	.008
	BDI	237.397	1	237.397	20.674	.000	.187
	PIL	76.962	1	76.962	2.801	.098	.030
Error(Pre_Post)	PANAS_Positive	1501.043	90	16.678			
	PANAS_Negative	1483.957	90	16.488			
	BDI	1033.446	90	11.483			
	PIL	2472.880	90	27.476			

In order to visualize the interaction, the following plot was produced. It shows how BDI values change from pre to post intervention for treatment and control groups.

The decrease on the value of BDI for the treatment group is more intense than for the control group, indicating that the effect of the meditation protocol on BDI was stronger on the treatment group compared to the control group.



In conclusion, the meditation protocol had a strong effect on the scores of BDI, but no effect was observed on PANAS or PIL. The decrease on BDI scores was significantly stronger on the treatment group versus the control group.