

# Mixed Models for IWQOL

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## IWQOL at 0 Months

### Univariate Models (IWQOL at 0 Months)

Table 1: Univariate Table - IWQOL Total at 0 Months

Variable	p-value
Affiliation	0.048
Treatment Arm	0.064
Age	0.003
Sex	0.000
Rurality	0.068
BMI	0.000
Mental Health Disorder(s)	0.000
Comorbidities (2+)	0.005

### Multivariable Models (IWQOL at 0 Months)

#### Full Model

Table 2: Full Model - IWQOL Total at 0 Months

Variable	Sum Sq	Mean Sq	Num DF	Den DF	F value	Pr(>F)
Affiliation	1208	604	2	30.8	2.44	0.104
Treatment Arm	1503	751	2	28.2	3.03	0.064
Age	261	261	1	1388.4	1.05	0.305
Sex	10670	10670	1	1105.6	43.04	0.000
Rurality	1904	952	2	151.2	3.84	0.024
BMI	43058	43058	1	1388.7	173.70	0.000
Mental Health Disorder(s)	25583	25583	1	1393.5	103.20	0.000
Comorbidities (2+)	972	972	1	1394.7	3.92	0.048

## Reduced Model Intermediates

Table 3: Reduced Model 1 - Remove Age - IWQOL Total at 0 Months

Variable	Sum Sq	Mean Sq	Num DF	Den DF	F value	Pr(>F)
Affiliation	1300	650	2	30.3	2.62	0.089
Treatment Arm	1575	788	2	28.0	3.18	0.057
Sex	11012	11012	1	1083.3	44.42	0.000
Rurality	1861	930	2	150.7	3.75	0.026
BMI	44953	44953	1	1390.6	181.35	0.000
Mental Health Disorder(s)	26876	26876	1	1395.4	108.42	0.000
Comorbidities (2+)	712	712	1	1390.1	2.87	0.090

Table 4: Reduced Model 2 - Remove Comorbidities - IWQOL Total at 0 Months

Variable	Sum Sq	Mean Sq	Num DF	Den DF	F value	Pr(>F)
Affiliation	1140	570	2	30.1	2.30	0.118
Treatment Arm	1502	751	2	28.0	3.03	0.065
Sex	10670	10670	1	1074.6	43.01	0.000
Rurality	1863	931	2	154.7	3.75	0.026
BMI	46284	46284	1	1391.0	186.56	0.000
Mental Health Disorder(s)	27536	27536	1	1396.1	110.99	0.000

Table 5: Reduced Model 3 - Remove Affiliation - IWQOL Total at 0 Months

Variable	Sum Sq	Mean Sq	Num DF	Den DF	F value	Pr(>F)
Treatment Arm	1209	605	2	29.6	2.44	0.105
Sex	10505	10505	1	1077.0	42.34	0.000
Rurality	2019	1010	2	155.9	4.07	0.019
BMI	46855	46855	1	1392.7	188.84	0.000
Mental Health Disorder(s)	28277	28277	1	1396.7	113.96	0.000

## Final Model

Table 6: Final Reduced Model - IWQOL Total at 0 Months

Variable	Sum Sq	Mean Sq	Num DF	Den DF	F value	Pr(>F)
Sex	10750	10750	1	1136	43.33	0.000
Rurality	2141	1071	2	182	4.32	0.015
BMI	46874	46874	1	1393	188.93	0.000
Mental Health Disorder(s)	27954	27954	1	1401	112.67	0.000

## Variance Inflation

Table 7: Variance Inflation Factors for the Final Model - IWQOL Total at 0 Months

Variable	GVIF	DF	GVIF <sup>1/(2*DF)</sup>
Sex	1.04	1	1.02
Rurality	1.00	2	1.00
BMI	1.00	1	1.00
Mental Health Disorder(s)	1.03	1	1.02

## Estimates

Table 8: Estimates and 95 Percent Confidence Intervals - IWQOL Total at 0 Months

	Beta Estimate	95 Percent Confidence Interval
Intercept	122.119	[114.32, 130.07]
Male	6.934	[4.88, 9]
Large Rural	3.040	[0.88, 5.19]
Small Rural	-0.052	[-2.64, 2.53]
BMI	-1.473	[-1.68, -1.26]
Mental Health Disorder(s)	-9.199	[-10.92, -7.51]

Table 9: Variable Summary Table - IWQOL Total at 0 Months

Variable	Mean	Std Deviation
Female	64.2	17.9
Male	73.7	16.8
Isolated Rural	65.8	18.3
Small Rural	64.7	19.0
Large Rural	68.0	17.4
No Mental Health Disorder	71.6	16.2
Mental Health Disorder(s)	60.6	18.3

## IWQOL Change 0-6 Months

### Univariate Models (0 to 6 Months)

Table 10: Univariate Table - Change in IWQOL at 6 Months

Variable	p-value
Affiliation	0.124
Treatment Arm	0.769
Age	0.006
Sex	0.008
Rurality	0.372
BMI	0.130
Mental Health Disorder(s)	0.084
Comorbidities (2+)	0.137
Percent Weight Change	0.000

### Multivariable Models (0 to 6 Months)

#### Full Model

Table 11: Full Model - Change in IWQOL at 6 Months

Variable	Sum Sq	Mean Sq	Num DF	Den DF	F value	Pr(>F)
Age	297	297	1	1249	1.85	0.174
Sex	1980	1980	1	1249	12.35	0.000
Mental Health Disorder(s)	1832	1832	1	1249	11.43	0.001
Percent Weight Change	30227	30227	1	1249	188.62	0.000

#### Final Model

Table 12: Final Reduced Model - Change in IWQOL at 6 Months

Variable	Sum Sq	Mean Sq	Num DF	Den DF	F value	Pr(>F)
Sex	1819	1819	1	1250	11.3	0.001
Mental Health Disorder(s)	1723	1723	1	1250	10.7	0.001
Percent Weight Change	31523	31523	1	1250	196.6	0.000

## Variance Inflation

Table 13: Variance Inflation Factors for the Final Model - Change in IWQOL at 6 Months

Variable	VIF
Sex	1.03
Mental Health Disorder(s)	1.04
Percent Weight Change	1.01

## Estimates

Table 14: Estimates and 95 Percent Confidence Intervals - Change in IWQOL at 6 Months

Variable	Beta Estimate	95 Percent Confidence Interval
Intercept	5.459	[4.06, 6.86]
Male	-2.922	[-4.62, -1.22]
Mental Health Disorder(s)	2.403	[0.97, 3.84]
Percent Weight Change	-0.765	[-0.87, -0.66]

Table 15: Variable Summary Table - Change in IWQOL at 6 Months

Variable	Mean	Std Deviation
Female	12.29	13.6
Male	9.69	12.5
No Mental Health Disorder	10.92	12.0
Mental Health Disorder(s)	12.66	14.9

## IWQOL Change 0-24 Months

### Univariate Models (0-24 Months)

Table 16: Univariate Table - Change in IWQOL at 24 Months

Variable	p-value
Affiliation	0.502
Treatment Arm	0.965
Age	0.041
Sex	0.032
Rurality	0.488
BMI	0.220
Mental Health Disorder(s)	0.091
Comorbidities (2+)	0.336
Percent Weight Change	0.000

### Multivariable Models (0-24 Months)

#### Full Model

Table 17: Full Model - Change in IWQOL at 24 Months

Variable	Sum Sq	Mean Sq	Num DF	Den DF	F value	Pr(>F)
Age	22.2	22.2	1	1032	0.115	0.734
Sex	1595.9	1595.9	1	907	8.260	0.004
Mental Health Disorder(s)	1284.9	1284.9	1	1160	6.650	0.010
Percent Weight Change	38649.1	38649.1	1	1162	200.035	0.000

#### Final Model

Table 18: Final Reduced Model - Change in IWQOL at 24 Months

Variable	Sum Sq	Mean Sq	Num DF	Den DF	F value	Pr(>F)
Sex	1576	1576	1	829	8.16	0.004
Mental Health Disorder(s)	1266	1266	1	1161	6.56	0.011
Percent Weight Change	40008	40008	1	1165	207.18	0.000

## Variance Inflation

Table 19: Variance Inflation Factors for the Final Model - Change in IWQOL at 24 Months

Variable	VIF
Sex	1.04
Mental Health Disorder(s)	1.04
Percent Weight Change	1.01

## Estimates

Table 20: Estimates and 95 Percent Confidence Intervals - Change in IWQOL at 24 Months

Variable	Beta Estimate	95 Percent Confidence Interval
Intercept	8.274	[6.97, 9.58]
Male	-2.826	[-4.76, -0.89]
Mental Health Disorder(s)	2.130	[0.5, 3.76]
Percent Weight Change	-0.684	[-0.78, -0.59]

Table 21: Variable Summary Table - Change in IWQOL at 24 Months

Variable	Mean	Std Deviation
Female	12.15	15.4
Male	9.92	13.1
No Mental Health Disorder	10.90	12.0
Mental Health Disorder(s)	12.25	14.9