EXPL ANALYSIS WITHIN THE NIDA PSYCHOSOCIAL TREATMENTS FOR COCAINE DEPEDENCE STUDY (1999, AGP/AMA)

STA513 FINAL PROJECT

MUSA 2023

THE OUTCOME ANALYZED IS EXPL WHICH IS MEASURED WITHIN THE INVENTORY OF INTERPERSONAL PROBLEMS (IIP) EXPLOITIVE SUBSCALE

The inventory of interpersonal problems is a self-report inventory that asks participants to rate a variety of interpersonal problems that may cause distress. Higher EXPL scores indicates a higher tendency to exploit.

The Exploitive Subscale examines the concepts of exploitation and exploitativeness, or unfairly using others for profit or advantage. Much of the interest in exploitativeness has stemmed from its connection with narcissism.

In a study by Boudewyn & Liem, high scorers on a measure of chronic self-destructiveness (the tendency to perform behaviors that later reduce positive consequences and increase the probability of experiencing negative ones reported experiencing more **interpersonal exploitation**, greater depression, lower self-esteem, more externalizing attitudes, and less control in relationships than low scorers) also engaged in more frequent acts of acute self-destructiveness.

Drug use is self-destructive behavior.

ABOUT THE DATA…

The SAS System

The MEANS Procedure

MONTH=3

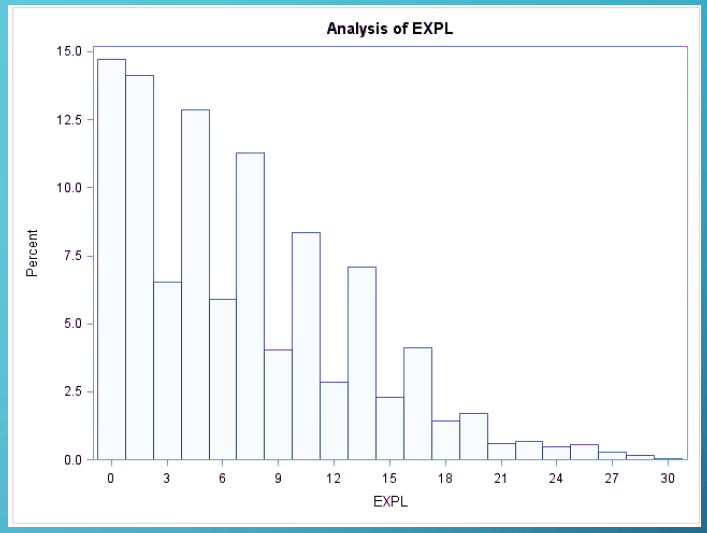
Analysis Variable : EXPL		
N	N Miss	Mean
298	52	6.0733461

MONTH=6

Analysis Variable : EXPL		
N	N Miss	Mean
328	50	6.5156794

The sample size for month 3 is 298 with 52 missing data values.

The sample size for month 6 is 328 with 50 missing data values.

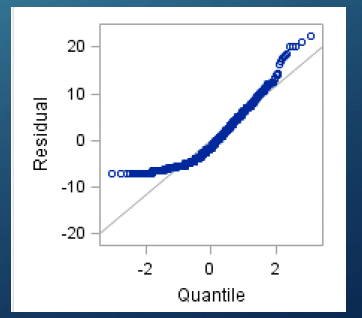


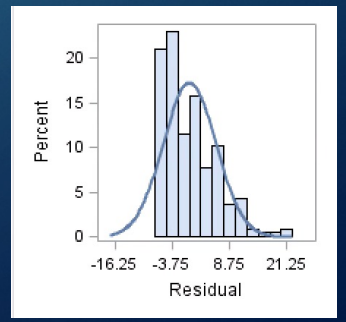
The EXPL distribution is skewed right indicating most participants have lower EXPL scores.

ASSUMPTIONS

No violation of homogeneity is found for the 3 month or 6 month cross sectional analysis.

The residuals are not distributed Normally (Shapiro-Wilk) at the 3 and 6 month cross sectional analysis for all of the modeling. A Boxcox transformation did not correct the residuals for either analysis. Therefore, any interpretation from these models should be considered with caution. Since the Boxcox transformation was not effective, the original data was used in the analysis.



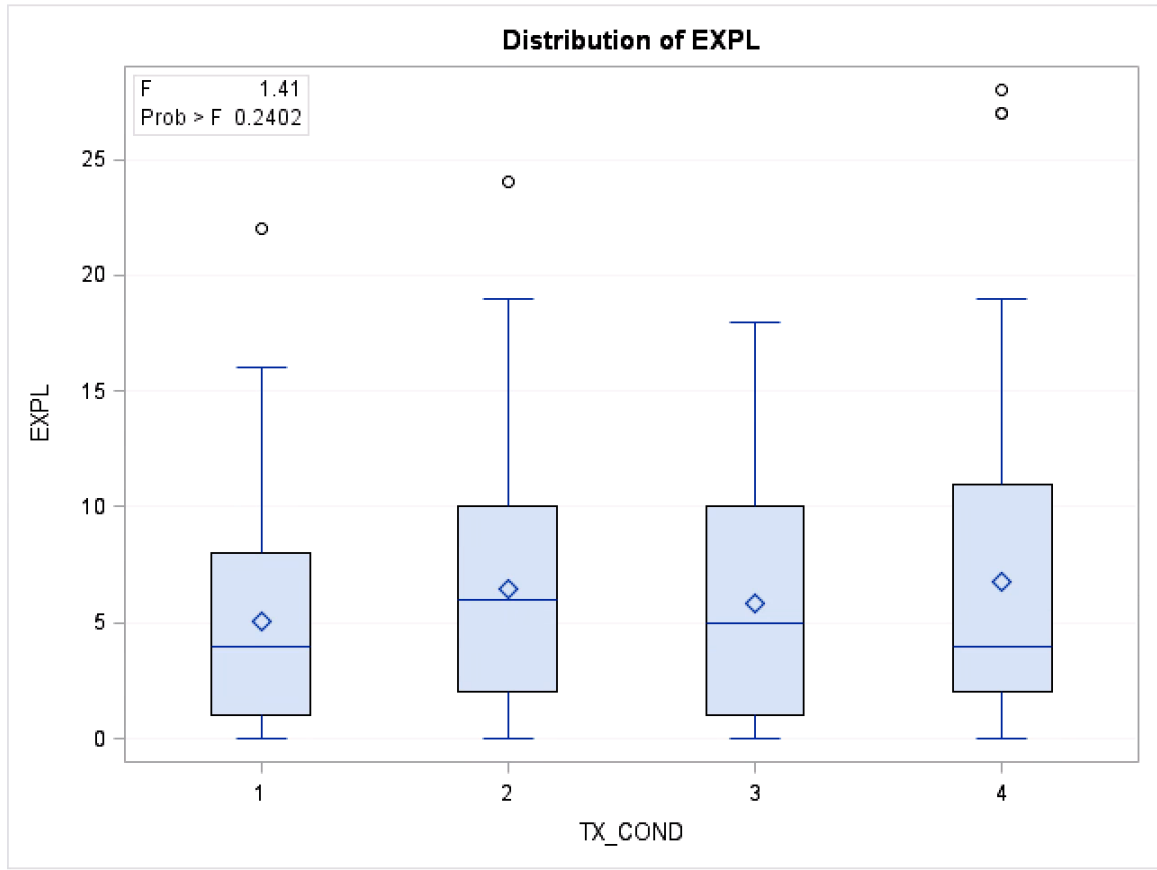


ONE WAY ANOVA (TX_COND)

TX_COND defines four interventions.

1 = Individual Drug Counseling (IDC)
2 = Cognitive Therapy (CT)
3 = Supportive Expressive Psychodynamic Therapy (SE)
4 = Group Drug Counseling (GDC)

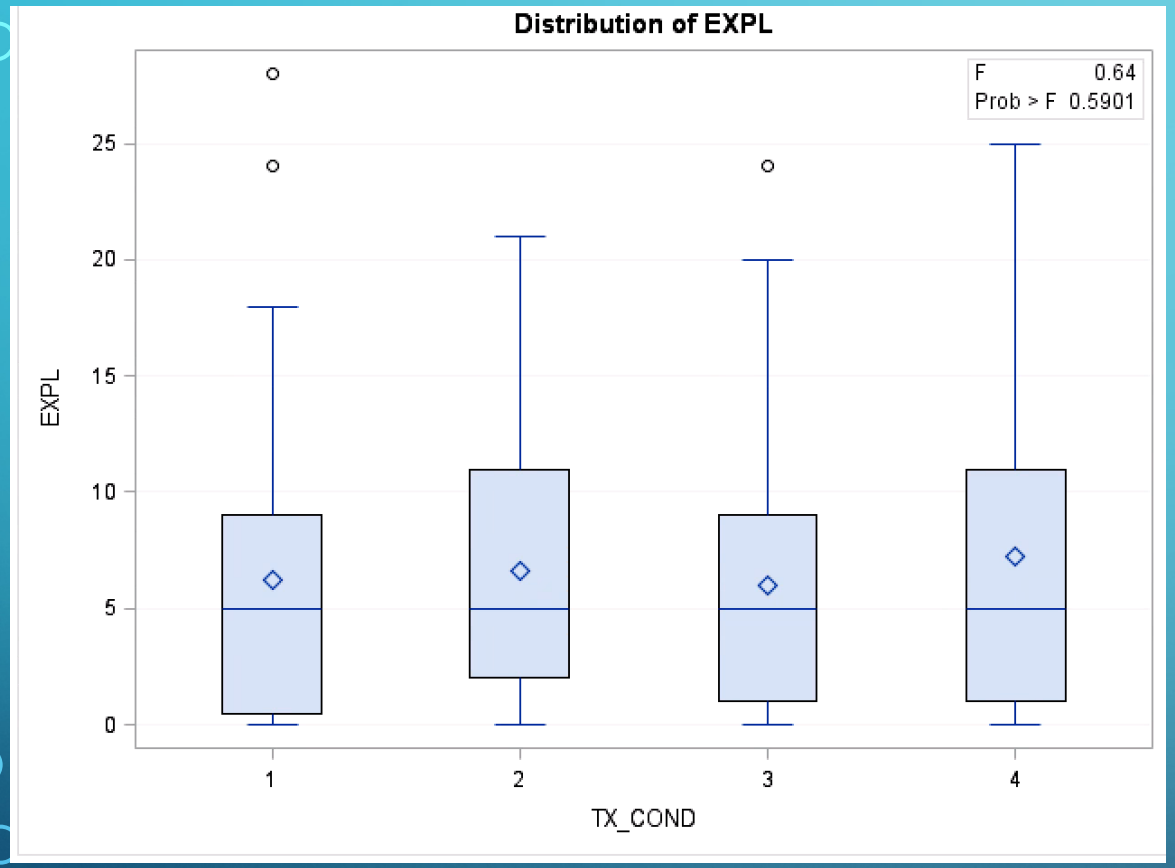
ONE WAY ANOVA: 3 MONTH ANALYSIS



Source	DF	Type III SS	Mean Square	F Value	Pr > F
TX_COND	3	128.6153482	42.8717827	1.41	0.2402

Based on the available data, we do not have evidence that EXPL varies differentially across the four levels of intervention after 3 months into the study.

ONE WAY ANOVA: 6 MONTH ANALYSIS



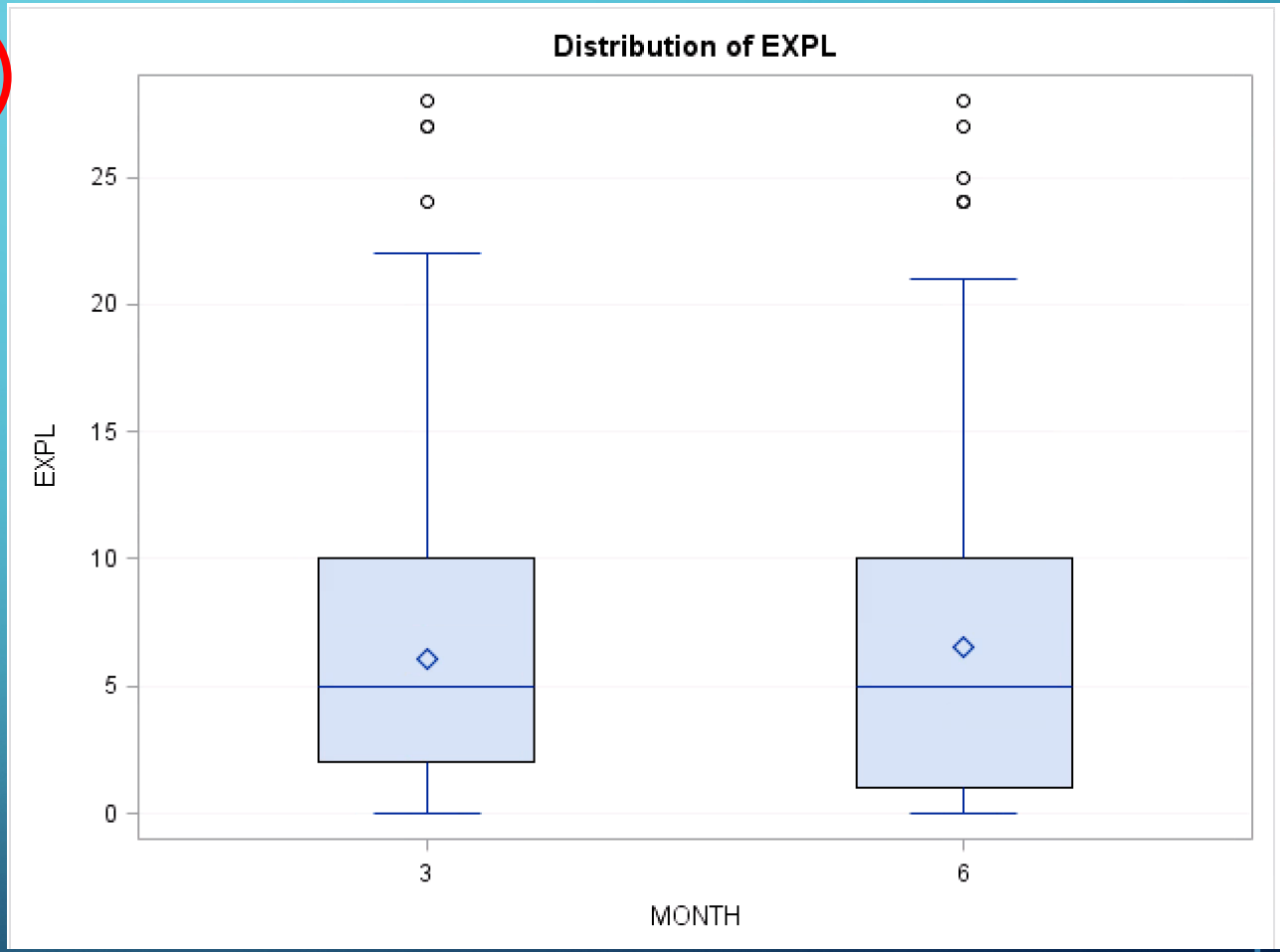
Source	DF	Type III SS	Mean Square	F Value	Pr > F
TX_COND	3	70.44247746	23.48082582	0.64	0.5901

Based on the available data, we do not have evidence that EXPL varies differentially across the four levels of intervention after 6 months into the study.

TX_COND CONTRAST: 3 MONTH VS 6 MONTH

diffMo6-Mo3	0.15192808	0.15467342	0.98	0.3264

Based on the available data, we do not have sufficient evidence to indicate a significant difference in EXPL scores across the four intervention arms between month 3 and month 6 in the study.



TWO WAY ANOVA ANALYSIS: RACE & JOB

RACE is defined by two levels.

0 = Non-Caucasian

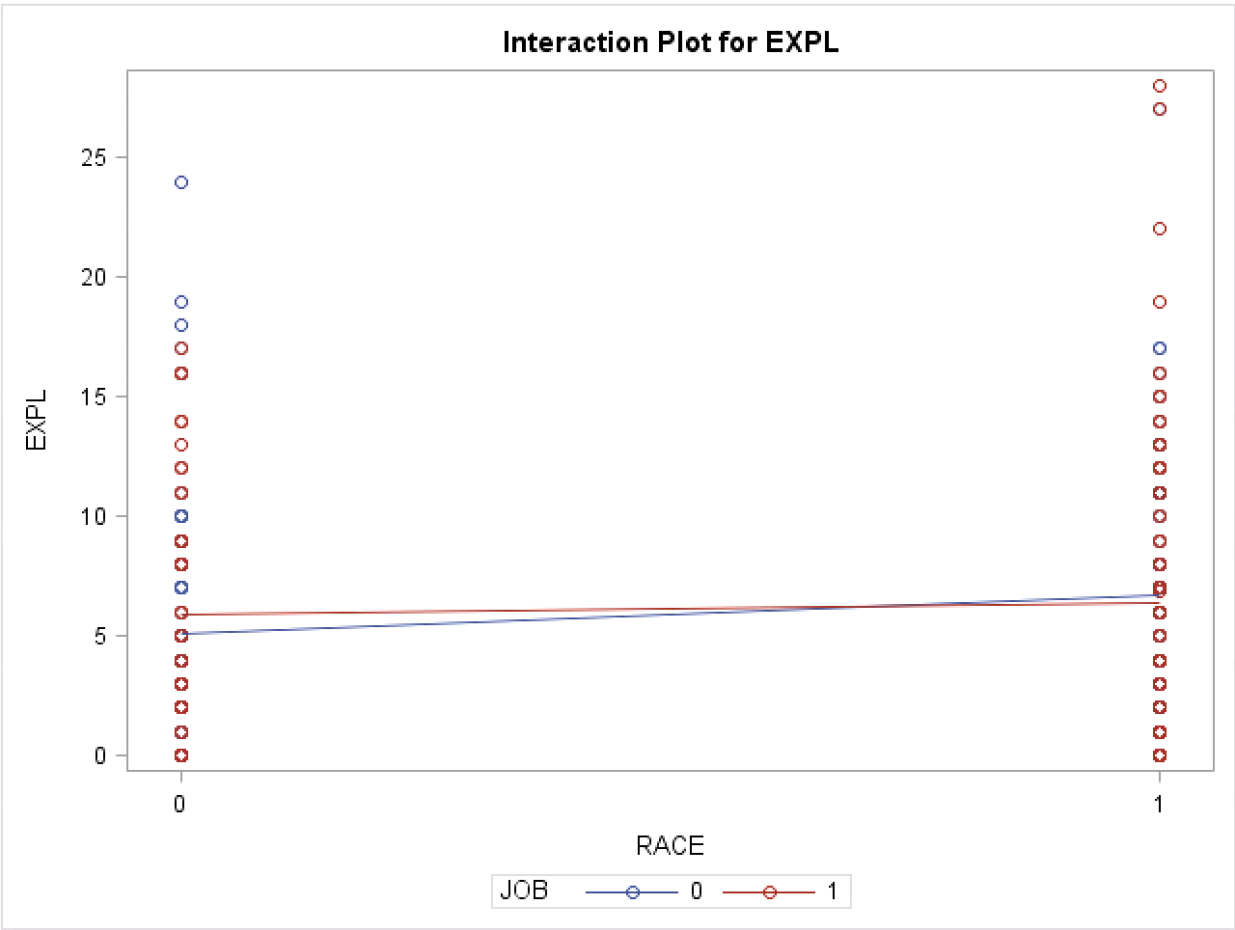
1 = Caucasian

JOB is defined by two levels.

0 = Unemployed

1 = Employed

TWO WAY ANOVA MONTH 3: Race & Job



Source	DF	Type I SS	Mean Square	F Value	Pr > F
RACE	1	67.07909436	67.07909436	2.19	0.1401
JOB	1	2.98357822	2.98357822	0.10	0.7553
RACE*JOB	1	20.27739823	20.27739823	0.66	0.4167

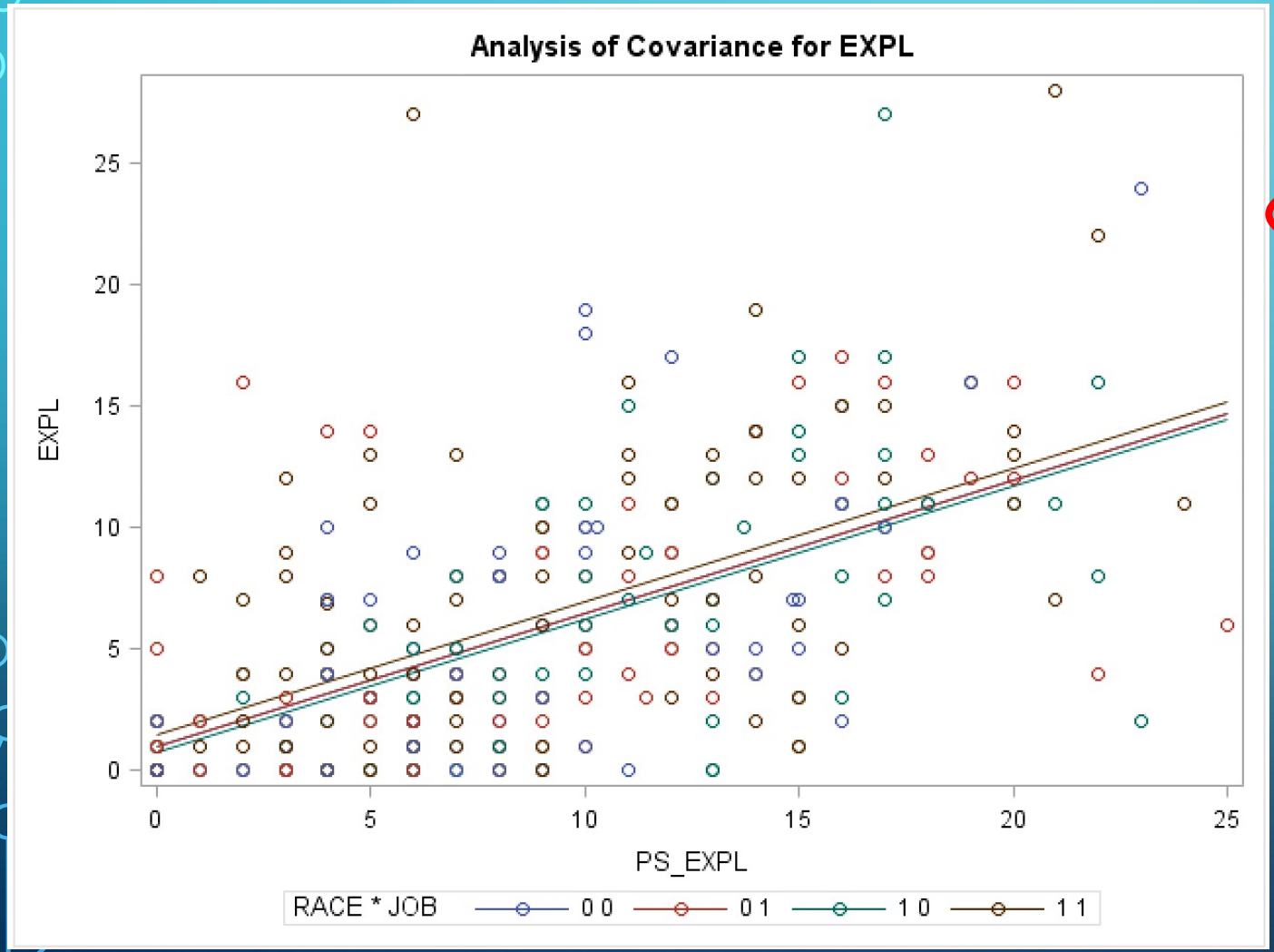
Based on the available data, we have do not have evidence that the on average EXPL score at month 3 across the two levels of race varies differentially across the two levels of employment.

When the two way interaction was removed, all main effects were insignificant.

JOB: blue = unemployed
Red = employed

RACE: 0 = Non-Caucasian
1 = Caucasian

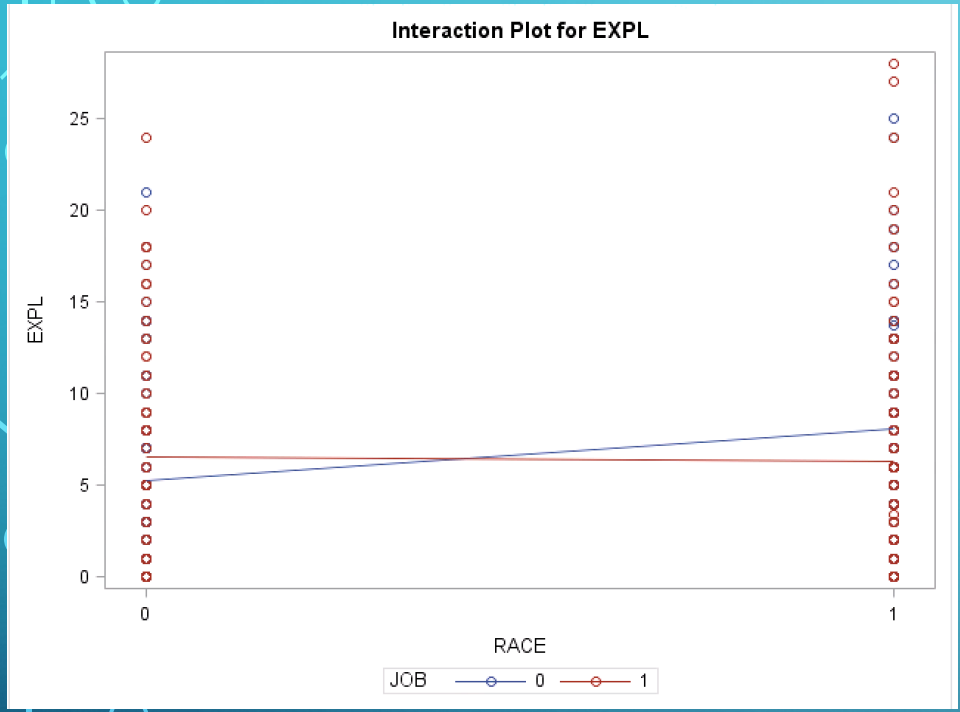
COVARIATE IN THE TWO WAY ANOVA MONTH 3: PS_EXP (BASELINE EXPL)



Source	DF	Type III SS	Mean Square	F Value	Pr > F
RACE	1	1.215322	1.215322	0.06	0.8092
JOB	1	9.321226	9.321226	0.45	0.5038
RACE*JOB	1	9.680792	9.680792	0.47	0.4957
PS_EXPL	1	2898.464927	2898.464927	139.32	<.0001

Based on the available data, we do not have evidence that the on average EXPL score at month 3 across the two levels of race varies differentially across the two levels of employment when baseline EXPL is added to the model. In turn, baseline EXPL is a significant covariate.

TWO WAY ANOVA MONTH 6: RACE & JOB



JOB: blue = unemployed
Red = employed

RACE: 0 = Non-Caucasian
1 = Caucasian

There appears to be a disordinal interaction between race and job when measuring EXPL.

Unemployed Non-Caucasians had lower on average EXPL scores than Non-Caucasians who were employed.

The opposite is observed with Caucasians. Caucasians who were employed had lower on average EXPL score than unemployed Caucasians.

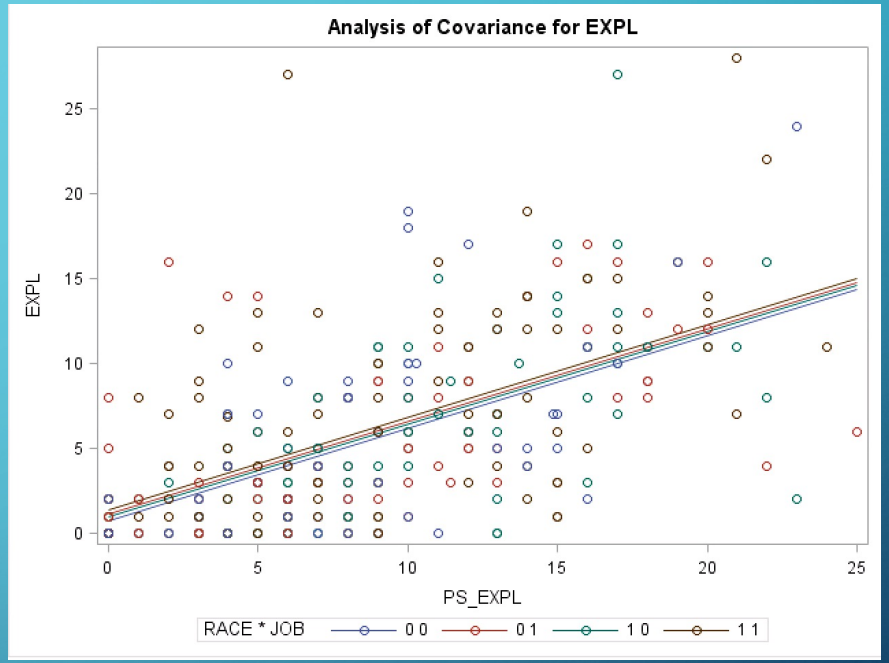
Source	DF	Type III SS	Mean Square	F Value	Pr > F
RACE	1	265.3343019	265.3343019	7.33	0.0071
JOB	1	3.9258671	3.9258671	0.11	0.7421
JOB*RACE	1	179.1288371	179.1288371	4.95	0.0268

Based on the available data, we have evidence that the on average EXPL score at month 6 across the two levels of race varies differentially across the two levels of employment. In turn, the differences in average EXPL that varies across race depends on job.

When the interaction was removed from the model, the main effects were insignificant.

COVARIATE IN THE TWO WAY ANOVA MONTH 6: PS_EXP (BASELINE EXPL)

Source	DF	Type III SS	Mean Square	F Value	Pr > F
RACE	1	58.946595	58.946595	2.48	0.1162
JOB	1	0.109661	0.109661	0.00	0.9459
JOB*RACE	1	43.333427	43.333427	1.82	0.1778
PS_EXPL	1	4026.261578	4026.261578	169.46	<.0001



Baseline EXPL (PS_EXPL) is added to the model as a covariate for EXPL. Based on the available data, we do not have evidence that the on average EXPL score across the two levels of race varies differentially across the two levels of employment when adjusting for baseline EXPL at the 6 month time point in the study.

In turn, baseline EXPL is, in fact, a statistically significant covariate for EXPL. When the data is adjusted for baseline EXPL (when the data is controlled for baseline) the interaction of race and job is no longer significant.

CONTRAST MONTH 3 AND MONTH 6

Without baseline EXPL

The SAS System

The GLM Procedure

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Cauc_Em_3	2.85302508	0.66422425	4.30	<.0001
Cauc_UnEm_3	2.48662854	0.68983302	3.60	0.0003
NonCau_Em_3	4.59306221	0.67225123	6.83	<.0001
nonCau_NonEm_3	4.22666568	0.70468810	6.00	<.0001
Av_Month 3	3.53984538	0.56458029	6.27	<.0001
Cauc_Em_6	2.68767153	0.77223154	3.48	0.0005
Cauc_UnEm_6	2.32127500	0.79480930	2.92	0.0036
NonCau_Em_6	4.42770867	0.77901586	5.68	<.0001
nonCau_NonEm_6	4.06131214	0.80760996	5.03	<.0001
Av_Month 6	3.37449183	0.68858478	4.90	<.0001
Av_Month 6	3.37449183	0.68858478	4.90	<.0001
Av_Month 3	3.53984538	0.56458029	6.27	<.0001
Diff 6_3	-0.16535354	0.13779573	-1.20	0.2306

Based on the available data, we do not have evidence that the on average EXPL score between month 3 and month 6 across the two levels of race varies differentially across the two levels of job with and without adjusting for baseline EXPL.

With baseline EXPL

The SAS System

The GLM Procedure

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Cauc_Em_3	0.44865511	0.64536009	0.70	0.4872
Cauc_UnEm_3	0.25041624	0.66786481	0.37	0.7078
NonCau_Em_3	1.02845271	0.68277370	1.51	0.1325
nonCau_NonEm_3	0.83021384	0.71053346	1.17	0.2431
Av_Month 3	0.63943448	0.57548098	1.11	0.2669
Cauc_Em_6	0.34182338	0.73928699	0.46	0.6440
Cauc_UnEm_6	0.14358450	0.75935974	0.19	0.8501
NonCau_Em_6	0.92162098	0.77181670	1.19	0.2329
nonCau_NonEm_6	0.72338211	0.79681057	0.91	0.3643
Av_Month 6	0.53260274	0.67913976	0.78	0.4332
Av_Month 6	0.53260274	0.67913976	0.78	0.4332
Av_Month 3	0.63943448	0.57548098	1.11	0.2669
Diff 6_3	-0.10683173	0.12670423	-0.84	0.3995

THREE WAY ANOVA ANALYSIS: MAR_STAT, JOB, CRACK

MAR_STAT

0 = Married/Cohabitation

1 = Lives alone

JOB

0 = Unemployed

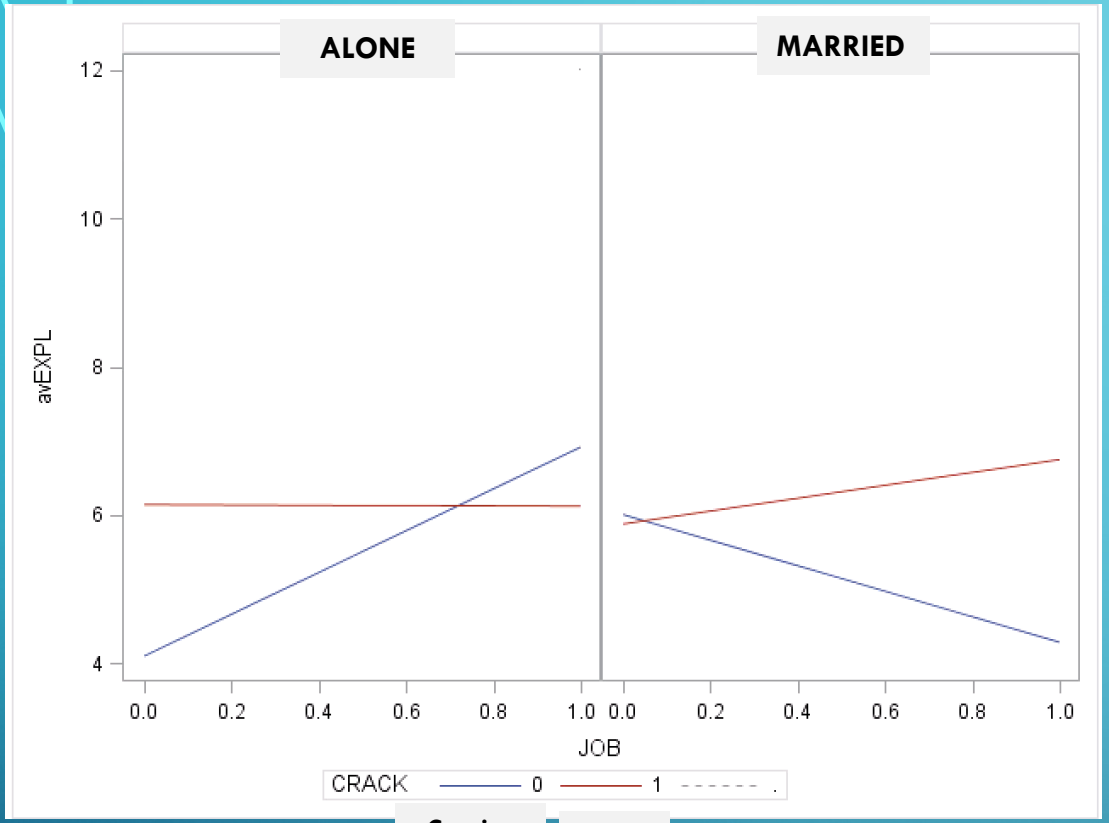
1 = Employed

CRACK

0 = Cocaine (IV or snort)

1 = Crack

THREE WAY ANOVA MONTH 3: MAR_STAT, JOB, CRACK



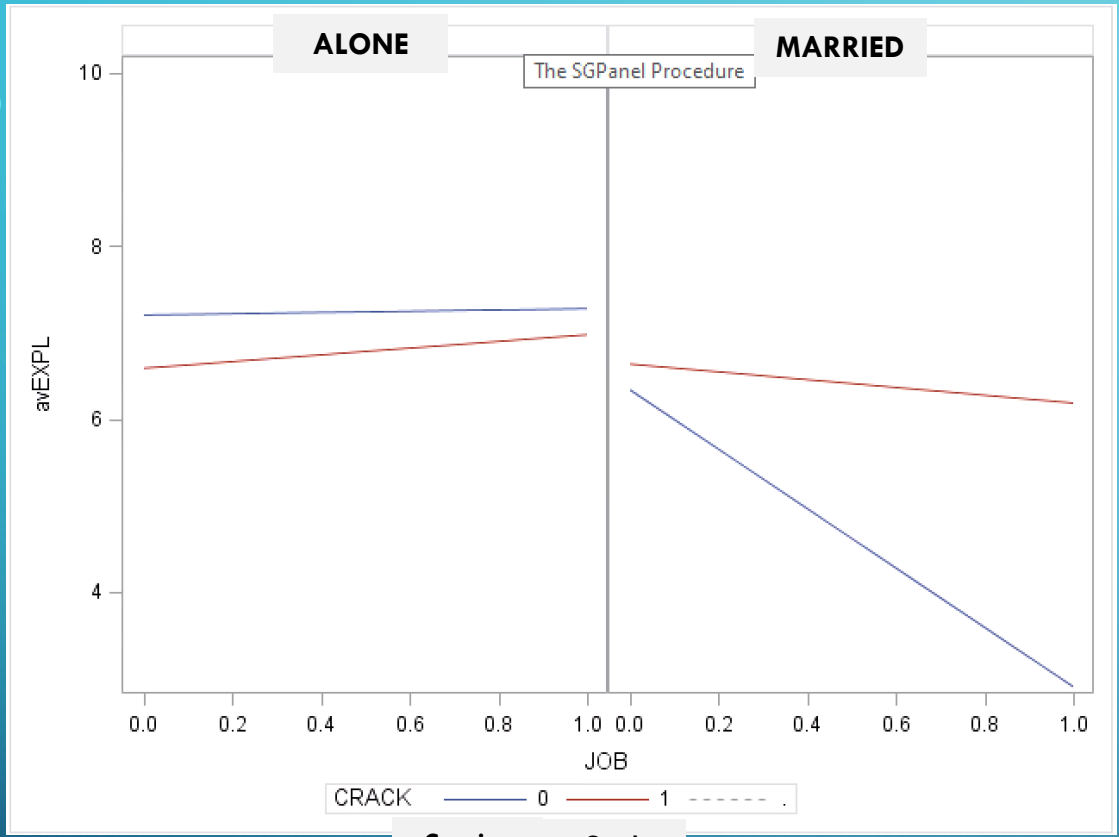
Source	DF	Type III SS	Mean Square	F Value	Pr > F
MAR_STAT	1	0.26581879	0.26581879	0.01	0.9262
JOB	1	7.91932767	7.91932767	0.26	0.6131
MAR_STAT*JOB	1	27.85875202	27.85875202	0.90	0.3432
CRACK	1	26.79329823	26.79329823	0.87	0.3525
MAR_STAT*CRACK	1	2.49806384	2.49806384	0.08	0.7764
JOB*CRACK	1	0.13015143	0.13015143	0.00	0.9483
MAR_STAT*JOB*CRACK	1	61.45212399	61.45212399	1.99	0.1596

The Alone panel and Married panel have different patterns indicating a possible three way interaction. There also appears to be a possible disordinal relationship between job and crack based on the plot. However, analysis indicates insignificant interactions.

Based on the available data, we do not have sufficient evidence to indicate the on average EXPL score at month 3 between the two levels of marital and the two levels of employment varies differentially across the two levels of crack.

When the three way interaction was removed, all two way interactions were insignificant. In fact, all main effects were also insignificant.

THREE WAY ANOVA MONTH 6: MAR_STAT, JOB, CRACK



Source	DF	Type III SS	Mean Square	F Value	Pr > F
MAR_STAT	1	58.75620174	58.75620174	1.60	0.2062
JOB	1	19.25572402	19.25572402	0.53	0.4689
MAR_STAT*JOB	1	31.02588707	31.02588707	0.85	0.3581
CRACK	1	11.64785312	11.64785312	0.32	0.5732
MAR_STAT*CRACK	1	33.23866394	33.23866394	0.91	0.3415
JOB*CRACK	1	17.86225341	17.86225341	0.49	0.4855
MAR_STAT*JOB*CRACK	1	11.67778240	11.67778240	0.32	0.5727

The patterns across the two panels appear to differ indicating a possible three way interaction. There also appears to be a possible main effect of crack and employment for married participants. However, analysis indicates insignificant interactions.

Based on the available data, we do not have sufficient evidence to indicate the on average EXPL score at month 6 between the two levels of marital and the two levels of employment varies differentially across the two levels of crack.

When the three way interaction was removed, all two way interactions were insignificant. In fact, all main effects were also insignificant.

CONTRAST: MAR_STAT, JOB, CRACK FOR MONTHS 3 & 6

Based on the available data, we do not have evidence that the on average EXPL score across marital status varies differentially across job status varying across crack use from month 3 to month 6 in the study.

Dependent Variable: EXPL

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Married_Unemp_Cocaine3	5.47065004	0.71772860	7.62	<.0001
Married_Unemp_Crack3	6.30687235	0.45863215	13.75	<.0001
Married_Emp_Cocaine3	5.64058337	0.64858938	8.70	<.0001
Married_Emp_Crack3	6.47680568	0.44488140	14.56	<.0001
Alone_Unemp_Cocaine3	4.82087330	0.77063278	6.26	<.0001
Alone_Unemp_Crack3	5.65709561	0.60305137	9.38	<.0001
Alone_Emp_Cocaine3	4.99080663	0.67618045	7.38	<.0001
Alone_Emp_Crack3	5.82702894	0.55593007	10.48	<.0001
avMo3	5.64883949	0.40279467	14.02	<.0001
Married_Unemp_Cocaine6	5.89014930	0.71901711	8.19	<.0001
Married_Unemp_Crack6	6.72637161	0.44187362	15.22	<.0001
Married_Emp_Cocaine6	6.06008263	0.65110361	9.31	<.0001
Married_Emp_Crack6	6.89630494	0.42923743	16.07	<.0001
Alone_Unemp_Cocaine6	5.24037256	0.77339968	6.78	<.0001
Alone_Unemp_Crack6	6.07659487	0.59245313	10.26	<.0001
Alone_Emp_Cocaine6	5.41030589	0.68037389	7.95	<.0001
Alone_Emp_Crack6	6.24652820	0.54571463	11.45	<.0001
avMo6	6.06833875	0.39691597	15.29	<.0001
avMo6	6.06833875	0.39691597	15.29	<.0001
avMo3	5.64883949	0.40279467	14.02	<.0001
diff 6-3	0.41949926	0.46704921	0.90	0.3694

CONCLUSION

Most of the findings in this report are insignificant. Treatment intervention, race, job, marital status, and crack use, and interactions between some of the variables, were not significant predictors of EXPL at month 3, month 6, and contrasted between the two time points.

The interventions in the study are drug-based. Interpersonal problems are better treated with Interpersonal Psychotherapy (IPT), Cognitive Behavioral Therapy (CBT), or Dialetical Behavioral Therapy (DBT).

Since dishonesty is associated with drug use, response bias in the data could also be impacting the analysis.

Lastly, due to the distribution of EXPL, stacking was observed and caused disruptions to Normality of the residuals. In turn, the findings may be not accurate.

CITATIONS

Boudewyn, A. C., & Liem, J. H. (1995). Psychological, Interpersonal, and Behavioral Correlates of Chronic Self-Destructiveness: An Exploratory Study. Psychological Reports, 77(3_suppl), 1283-1297. https://doi.org/10.2466/pr0.1995.77.3f.1283

Crits-Christoph P, Siqueland L, Blaine J, et al. Psychosocial Treatments for Cocaine Dependence: National Institute on Drug Abuse Collaborative Cocaine Treatment Study. *Arch Gen Psychiatry.* 1999;56(6):493–502. doi:10-1001/pubs.Arch Gen Psychiatry-ISSN-0003-990x-56-6-yoa8244