

Frontiers Interactive Review – Supplementary material for the Revision of
„Prevalence of Alcohol and Substance Use Relapse in Forensic Inpatients with
Substance Use Disorders in Germany“

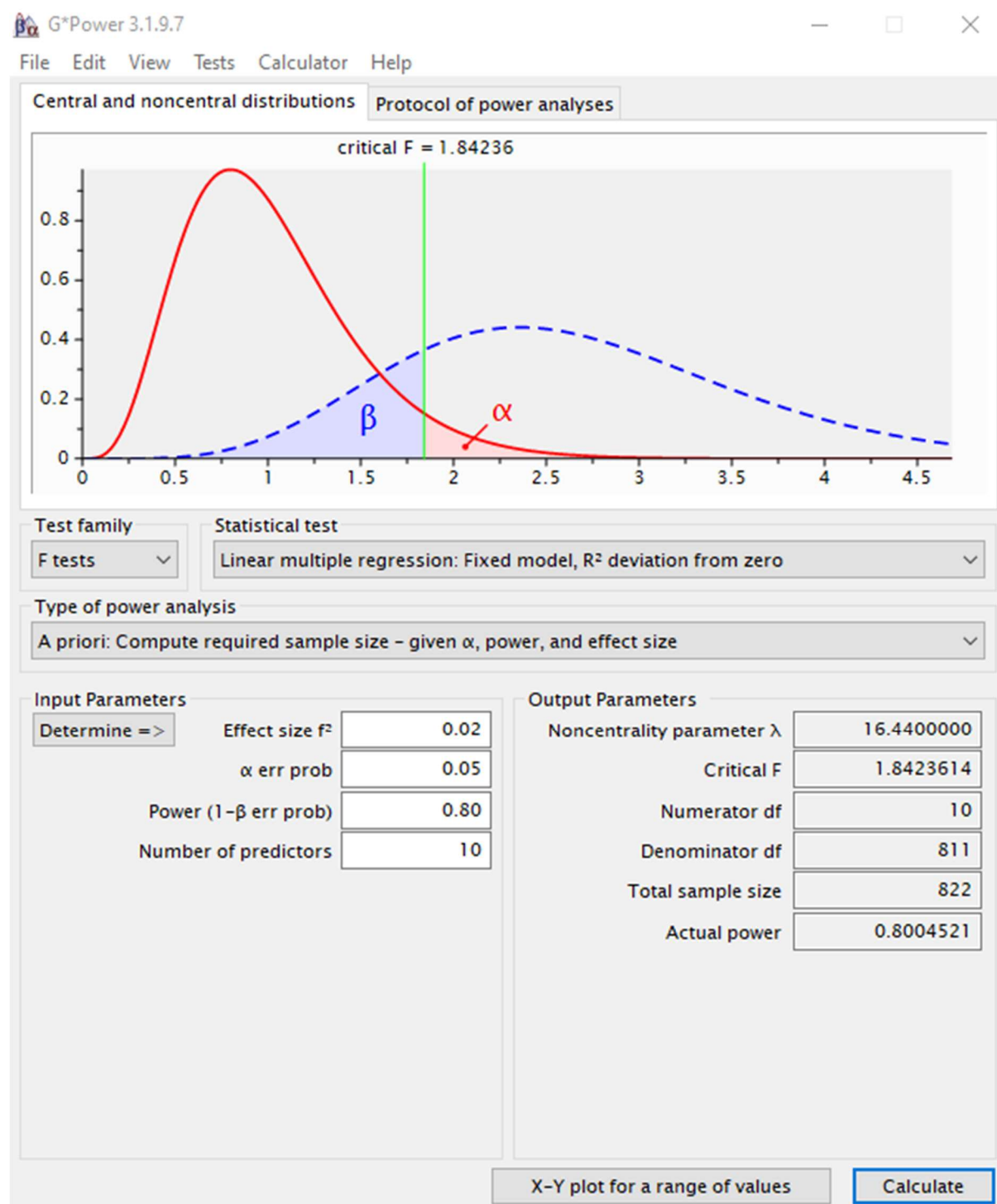
Dear Sir or Madam,

please find below the supplementary material for the multiple regression analysis.

Methods – Multiple Regression analysis

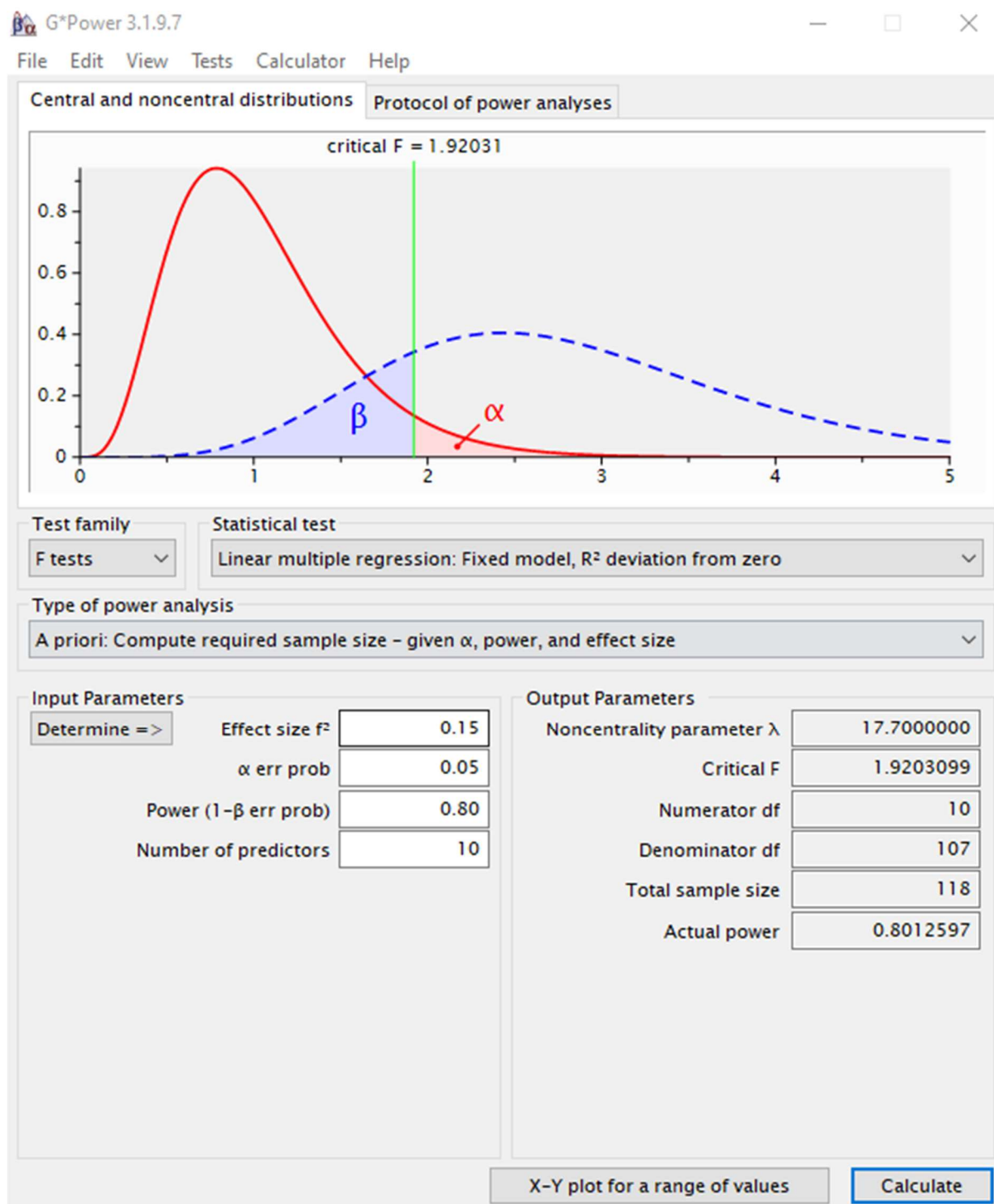
1. A priori – Power analysis

Small effect



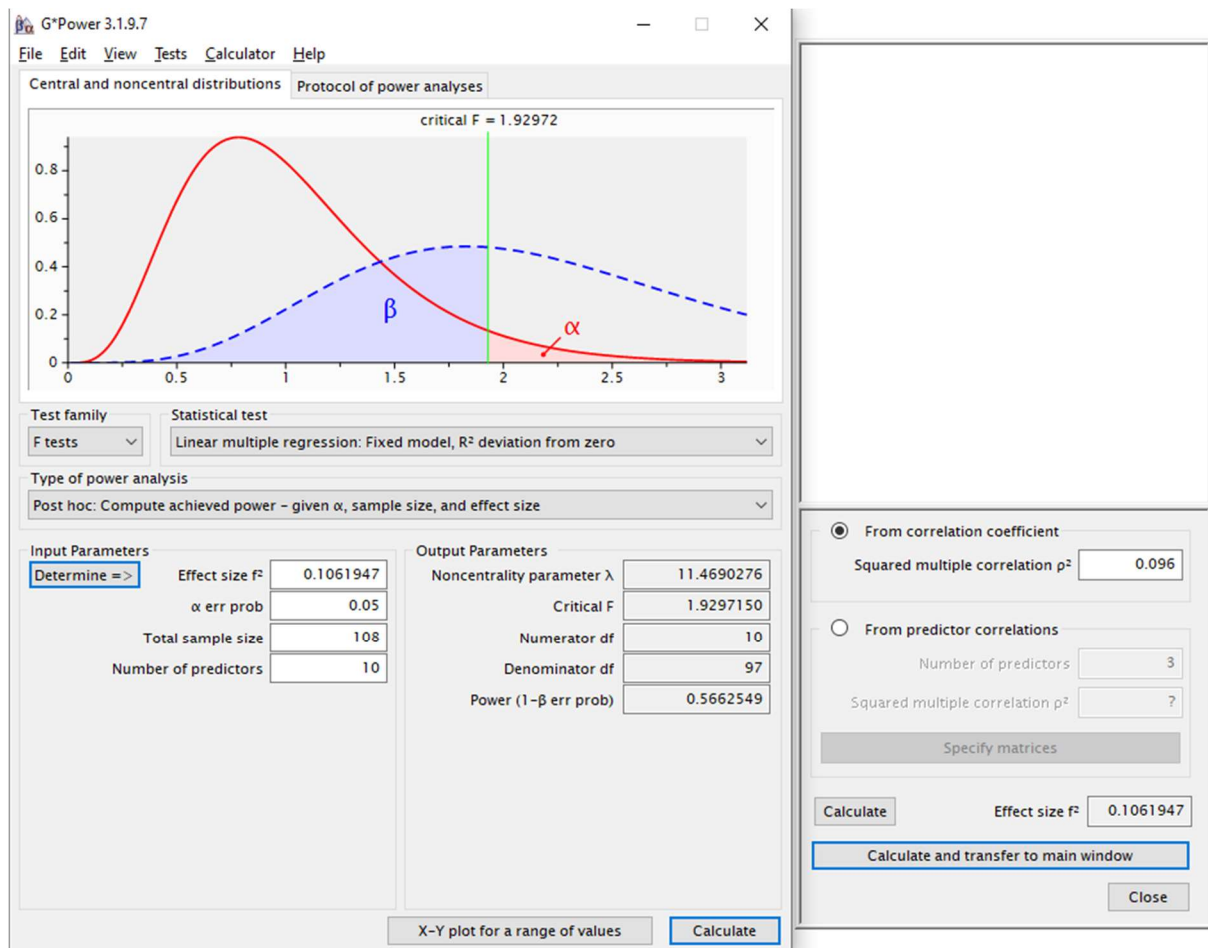
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Medium effect



Post hoc – Power analysis

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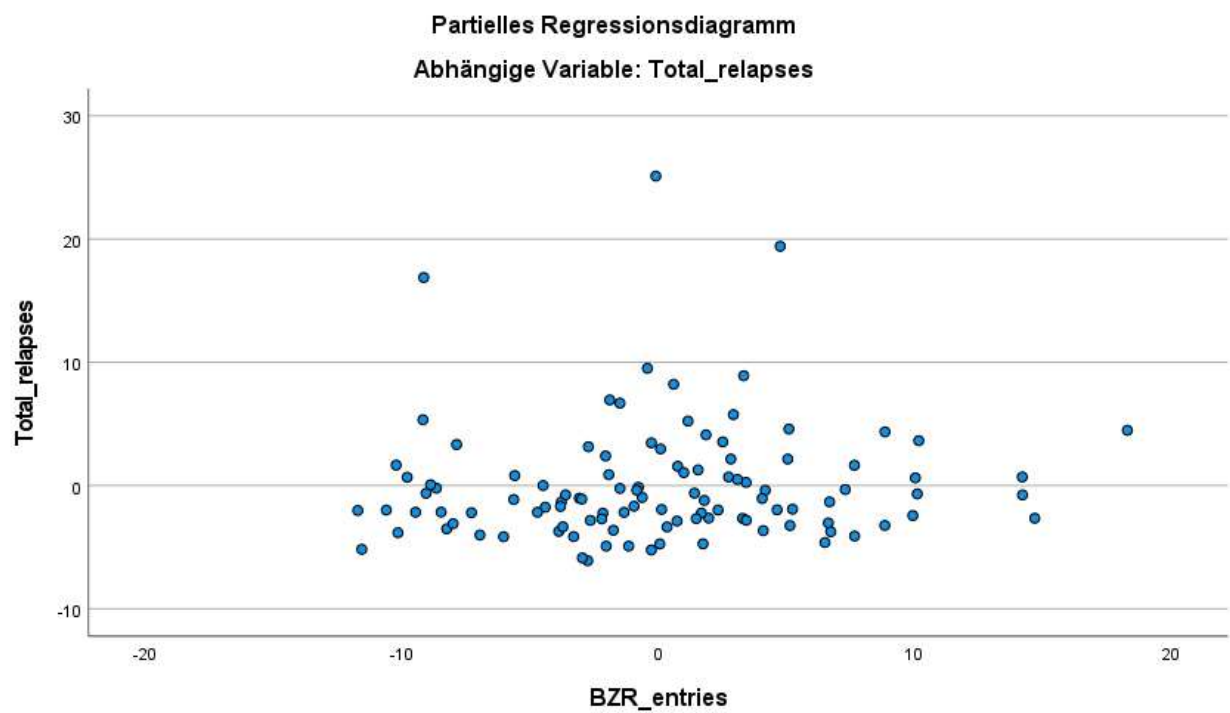
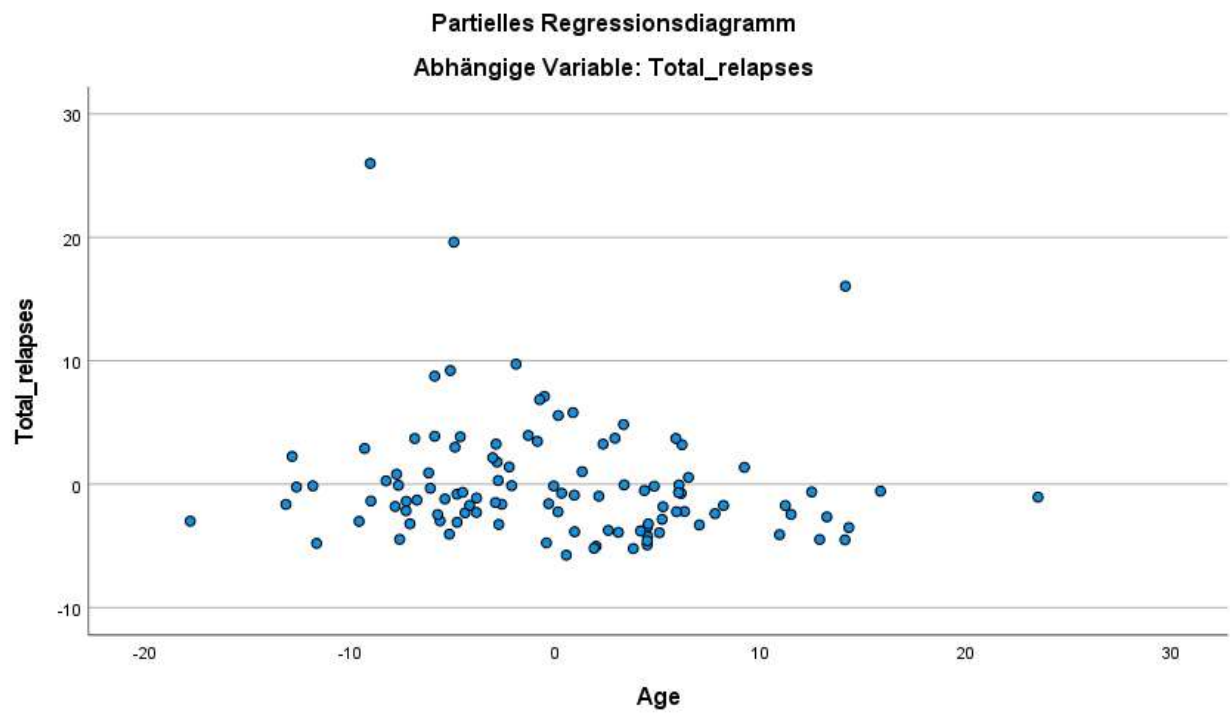


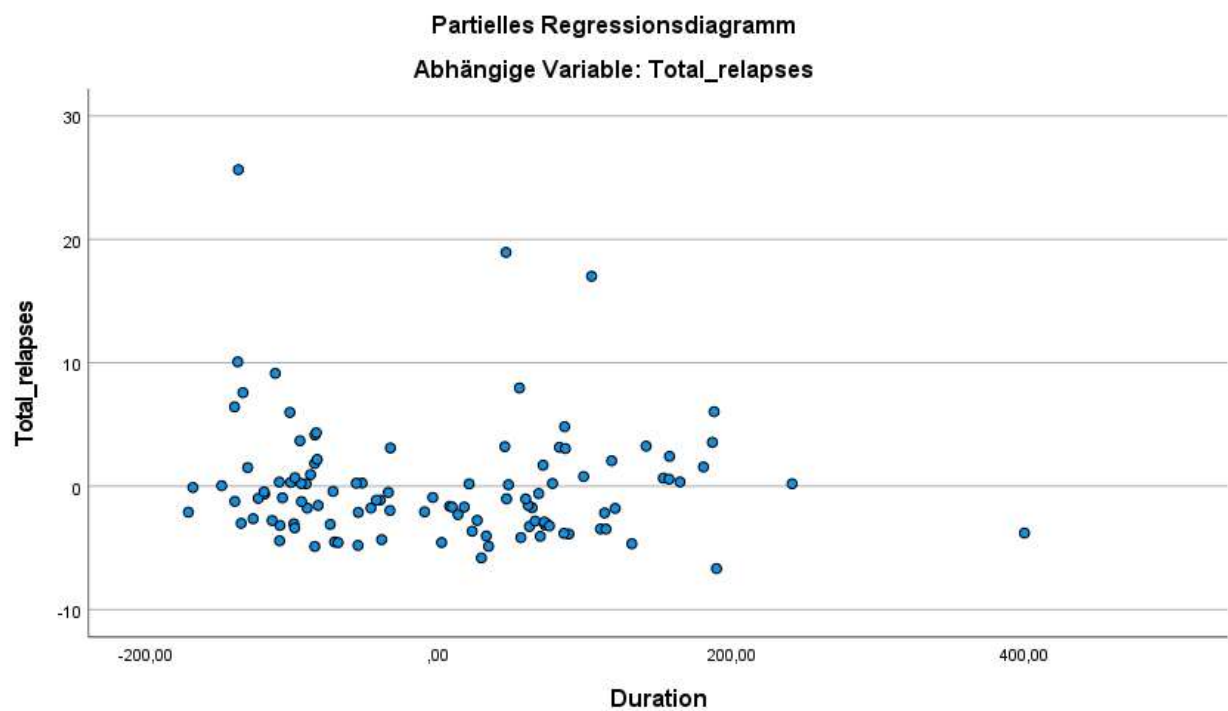
Power is at ~ 56.6% which leaves a high Type II (~43.4%) Error. Chances are high that the model was just not able to detect the effect. You should have a Power of at least 80% (Döring, 2023).

Assumptions

I. Linear relationship (metric variables only)

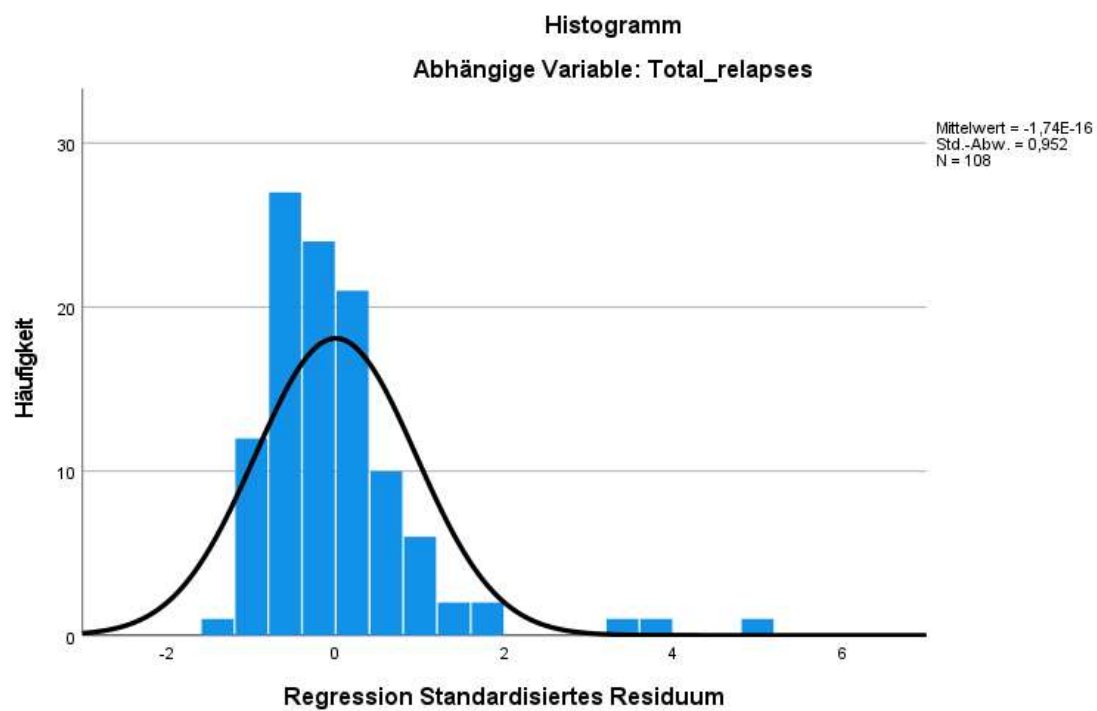
According to the scatterplots, the linear relationship for the metric independent variables can be assumed. Linear relationship for dummy-codes variables was not tested since they are not metric.



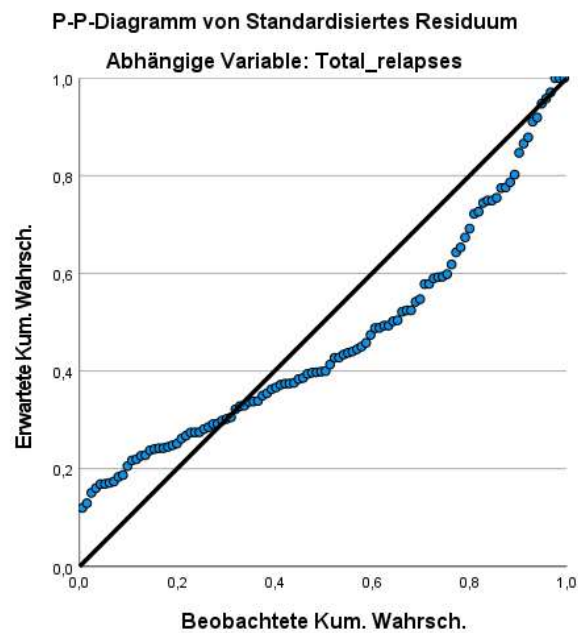


II. Independence of variables

III. Normality



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P-P-Plot shows assumption is not violated since the residuals fit along the line nicely.

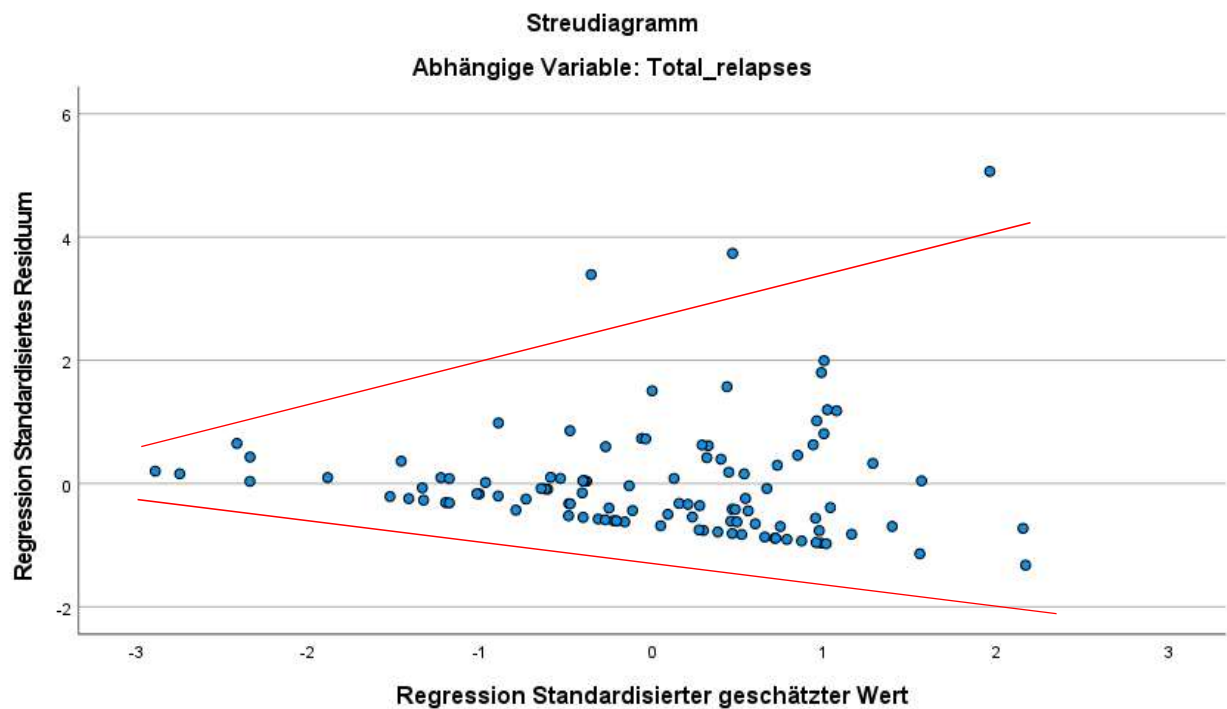
IV. Independence of errors

Assumption is met because Durbin-Watson value is between 1 and 3.

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate	Durbin-Watson-Statistic
1	,310 ^a	,096	,003	5,044	1,983

V. Homoscedasticity

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Assumption might be violated. Therefore we used the HC3-Method to control for heteroscedasticity afterwards.

VI. Multicollinearity

The collinearity statistics, Tolerance and VIF (Variance Inflation Factor) check the assumption of multicollinearity. As a rule of thumb, if $VIF < 10$ and tolerance is > 0.1 then assumption is not violated.

Coefficients ^a									
		non standardized Coefficients		Standardized Coefficients			95,0% Confidence Interval for B		Colinerarity Statistics
		Regression Coefficients (B)	Standard Error	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance VIF
1	(Konstante)	6,664	2,874		2,318	,023	,959	12,369	
	Age	-,098	,067	-,167	-1,468	,145	-,230	,034	,723 1,383
	BZR_entries	,060	,079	,082	,755	,452	-,097	,217	,798 1,254

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Comorbid_PD	-1,296	1,139	-,118	-1,138	,258	-3,556	,964	,872	1,147
Type_of_substance_user	,078	,932	,009	,084	,933	-1,771	1,927	,733	1,364
Förderschule	,033	2,055	,002	,016	,987	-4,047	4,112	,813	1,230
Hauptschule	1,438	1,214	,141	1,184	,239	-,972	3,848	,653	1,531
Realschule	2,153	1,443	,175	1,491	,139	-,712	5,017	,675	1,482
SUD	-,065	1,498	-,005	-,043	,966	-3,037	2,908	,574	1,741
AUD	-2,263	2,197	-,141	-1,030	,305	-6,623	2,097	,494	2,024
Duration	-,004	,005	-,086	-,859	,393	-,013	,005	,931	1,074

a. Abhängige Variable: Total_relapses

Results

We conducted a multiple regression analysis which yielded no significant results in the F-Test ($p > .05$).

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	262,093	10	26,209	1,030	,424 ^b
	Residual	2467,574	97	25,439		
	Total	2729,667	107			

a. Dependant Variable: Total_relapses

b. Predictors: (Constant), Duration, BZR_entries, SUD, Hauptschule, Comorbid_PD, Förderschule, Type_of_substance_user, Age, Realschule, AUD

Adjusted R square show negligibly small effect and shows that the model (if significant) can explain 0.3% of the Variance of the dependent variable.

Model Summary

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate	Durbin-Watson-Statistic
1	,310a	,096	,003	5,044	1,983

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We used HC3-Method to control for heteroscedasticity:

Parameter estimates with robust standard errors

Dependent Variable: Total_relapses

Parameter	Regression Coefficient (B)	Robuster Standard Error ^a	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Constant	6,664	5,242	1,271	,207	-3,740	17,067	,016
Age	-,098	,081	-1,215	,227	-,258	,062	,015
BZR_entries	,060	,070	,858	,393	-,079	,198	,008
Comorbid_PD	-1,296	1,442	-,899	,371	-4,157	1,566	,008
Type_of_substance_user	,078	,728	,107	,915	-1,368	1,523	,000
Förderschule	,033	1,528	,021	,983	-3,000	3,065	,000
Hauptschule	1,438	,982	1,464	,146	-,511	3,387	,022
Realschule	2,153	1,844	1,167	,246	-1,508	5,813	,014
SUD	-,065	2,515	-,026	,980	-5,055	4,926	,000
AUD	-2,263	2,110	-1,073	,286	-6,450	1,924	,012
Duration	-,004	,005	-,760	,449	-,014	,006	,006

a. HC3-Methode

Non-significant result since $p > .05$ and confidence intervals include 0.