

Negative Binomial Mixed Models for Analyzing Longitudinal CD4 Count Data

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Supplementary Table 1 Comparison of covariance structure using the fitted model (Model 1)

Covariance Structure	Information Criteria					
	-2log ℓ	AIC	AICC	BIC	CAIC	HQIC
AR(1)	89116.94	89116.94	89161.09	89237.05	89259.05	89191.63
CS	89135.76	89179.76	89179.91	89255.87	89277.87	89210.45
Toep	89113.46	89159.46	89159.62	89239.03	89262.03	89191.54
UN	87781.28	87833.28	87833.48	87923.23	87949.23	87869.54
VC	88069.85	88115.85	88116.00	88195.42	88218.42	88147.93
ARH(1)	87968.69	88016.69	88016.86	88099.72	88123.72	88050.17
CSH	87893.60	87941.60	87941.78	88024.63	88048.63	87975.08
ToepH	87888.63	87938.63	87938.81	88025.12	88050.12	87973.50

Supplementary Table 2 Comparison of fixed effects results across different covariance structure using Model 1

Covariates	UN		AR(1)		CS		Toep	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Intercept	6.4697	0.04982	6.4724	0.03423	6.4861	0.03410	6.4799	0.03439
Time in month	0.007824	0.000989	0.008516	0.01060	0.01439	0.01051	0.008272	0.01082
Sqrt_Time	-0.08649	0.009307	-0.08950	0.01180	-0.08434	0.01170	-0.08886	0.01201
ART Initiation (Post)	0.2301	0.01238	0.2284	0.01263	0.2363	0.01265	0.2277	0.01264
Baseline BMI category (ref.=Normal weight)								
Obese	0.4815	0.1113	0.6076	0.07836	0.5097	0.07765	0.6350	0.07813
Overweight	0.02561	0.04975	0.02687	0.03466	0.02072	0.03441	0.02970	0.03448
Underweight	0.005901	0.07927	0.09673	0.05503	0.03837	0.05470	0.09359	0.05481
Baseline HIV viral load category (ref.= Low VL)								
High VL	-0.2393	0.05157	-0.3307	0.03345	-0.3234	0.03321	-0.3377	0.03330
Medium VL	-0.1258	0.04587	-0.1527	0.03130	-0.1254	0.03112	-0.1567	0.03116
Undetectable	0.1377	0.2901	-0.04788	0.2242	0.1338	0.2256	-0.01985	0.2218
Number of sexual partners (ref.= Stable partner)								
Many partners	-0.1560	0.09394	-0.05213	0.06388	-0.1506	0.06352	-0.04274	0.06393
No partner	-0.04821	0.04993	-0.03423	0.03459	-0.05490	0.03434	-0.03322	0.03438
Age group in years(ref.= < 20)								
20-29	0.01166	0.03104	0.02553	0.02516	0.006652	0.02519	0.02065	0.02543
30-39	0.02852	0.03432	0.04911	0.02849	0.03351	0.02850	0.04303	0.02871
40-49	-0.00719	0.04545	0.007849	0.04070	0.01926	0.04068	-0.00114	0.04084
50-59	-0.05694	0.06662	-0.06551	0.06134	-0.03957	0.06135	-0.06503	0.06143
≥ 60	0.2082	0.1532	-0.2185	0.1606	0.2020	0.1601	-0.1844	0.1612
Education attainment (ref.= Secondary or high school)								
Primary school	-0.04509	0.09084	0.1126	0.06341	-0.00666	0.06299	0.09430	0.06306
Residence of participant (ref.= Urban)								
Rural	-0.00373	0.03947	0.003881	0.02707	0.01729	0.02689	0.003076	0.02694

Supplementary Table 3 Unstructured covariance Parameter Estimates

Cov Parm	Subject	Estimate
UN(1,1)	PID	0.1131
UN(2,1)	PID	0.000739
UN(2,2)	PID	0.000155
UN(3,1)	PID	-0.01754
UN(3,2)	PID	-0.00137
UN(3,3)	PID	0.01556
Scale		0.04205