

# Leveraging Machine Learning to Study How Temperament Scores Predict Pre-Term Birth Status.

The material contained herein is supplementary to the article named in the title and  
submitted to the journal, XXX.

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This supplemental appendix provides machine learning analyses figures and tables in support of the following  
paper: "", submitted to XXXX.

## List of Figures

1	Accuracy Estimates: Chronological Age Group vs. Pre-Term Group - Itemized Variables. . .	3
2	Receiver Operator Curve: Chronological Age Group vs. Pre-Term Group - Itemized Variables.	4
3	Accuracy Estimates: Age Adjusted Group vs. Pre-Term Group - Itemized Variables. . . . .	5
4	Receiver Operator Curve: Age Adjusted Group vs. Pre-Term Group - Itemized Variables. . .	6
5	Accuracy Estimates: Chronological Age Group vs. Pre-Term Group - Factorized Variables. .	7
6	Receiver Operator Curve: Chronological Age Group vs. Pre-Term Group - Factorized Variables.	8
7	Accuracy Estimates: Age Adjusted Group vs. Pre-Term Group - Factorized Variables. . . . .	9
8	Receiver Operator Curve: Age Adjusted Group vs. Pre-Term Group - Factorized Variables. .	10
9	Feature Importance: Chronological Age Group vs. Pre-Term Group - Factorized Variables . .	11
10	Feature Importance: Age Adjusted Group vs. Pre-Term Group - Factorized Variables . . . .	12
11	Feature Importance: Chronological Age Group vs. Pre-Term Group - Itemized Variables . . .	13
12	Feature Importance: Age Adjusted Group vs. Pre-Term Group - Itemized Variables . . . . .	14
13	R2 Comparisons - Chronological Age Group VS Pre-Term Group, Factorized Variables VS. Itemized Variables. . . . .	16
14	AUC Comparisons - Chronological Age Group VS Pre-Term Group, Factorized Variables VS. Itemized Variables. . . . .	16
15	R2 Comparisons - Age Adjusted Group VS Pre-Term Group, Factorized Variables VS. Item- ized Variables. . . . .	17
16	AUC Comparisons - Age Adjusted Group VS Pre-Term Group, Factorized Variables VS. Itemized Variables. . . . .	17

## List of Tables

1	Model Results: Itemized Variables . . . . .	15
2	Model Results: Factorized Variables . . . . .	15

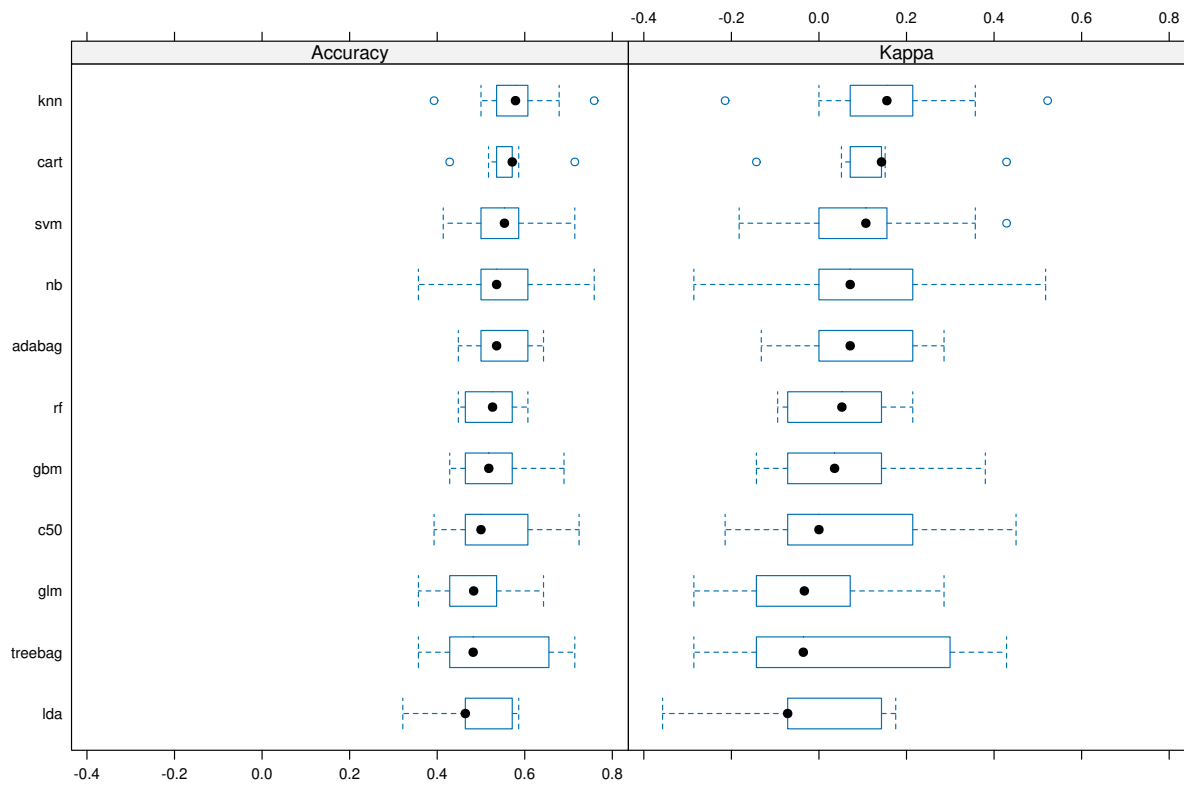


Figure S 1: Accuracy Estimates: Chronological Age Group vs. Pre-Term Group - Itemized Variables.

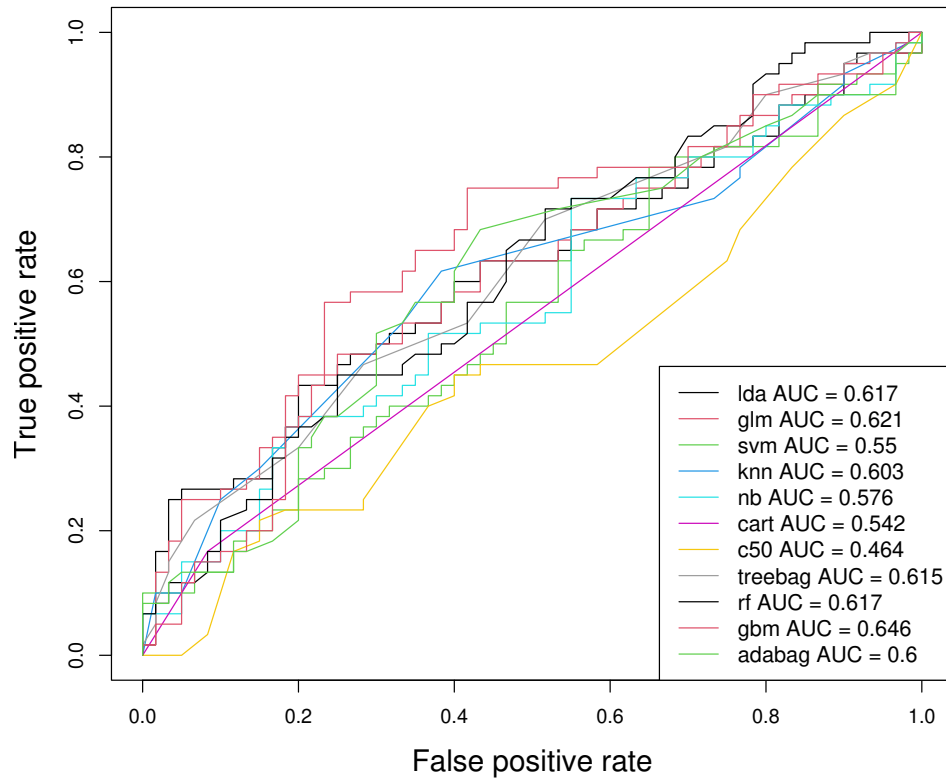


Figure S 2: Receiver Operator Curve: Chronological Age Group vs. Pre-Term Group - Itemized Variables.

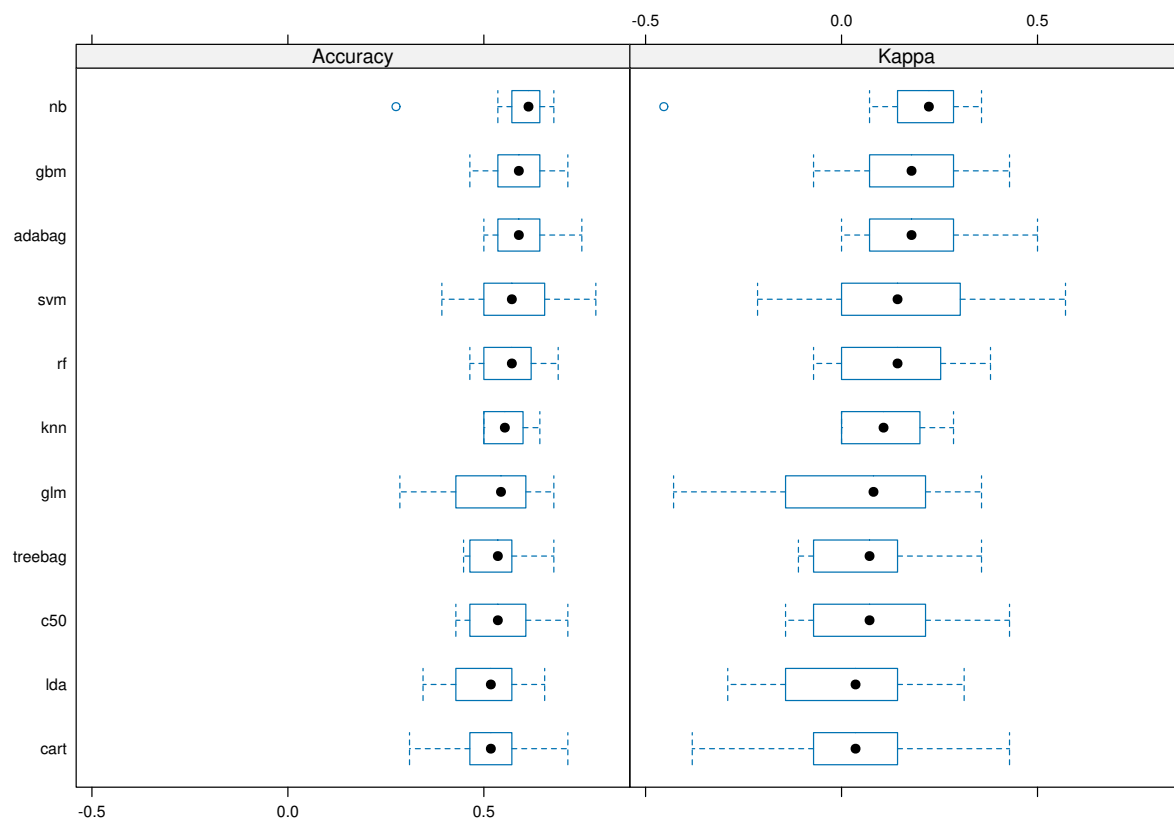


Figure S 3: Accuracy Estimates: Age Adjusted Group vs. Pre-Term Group - Itemized Variables.

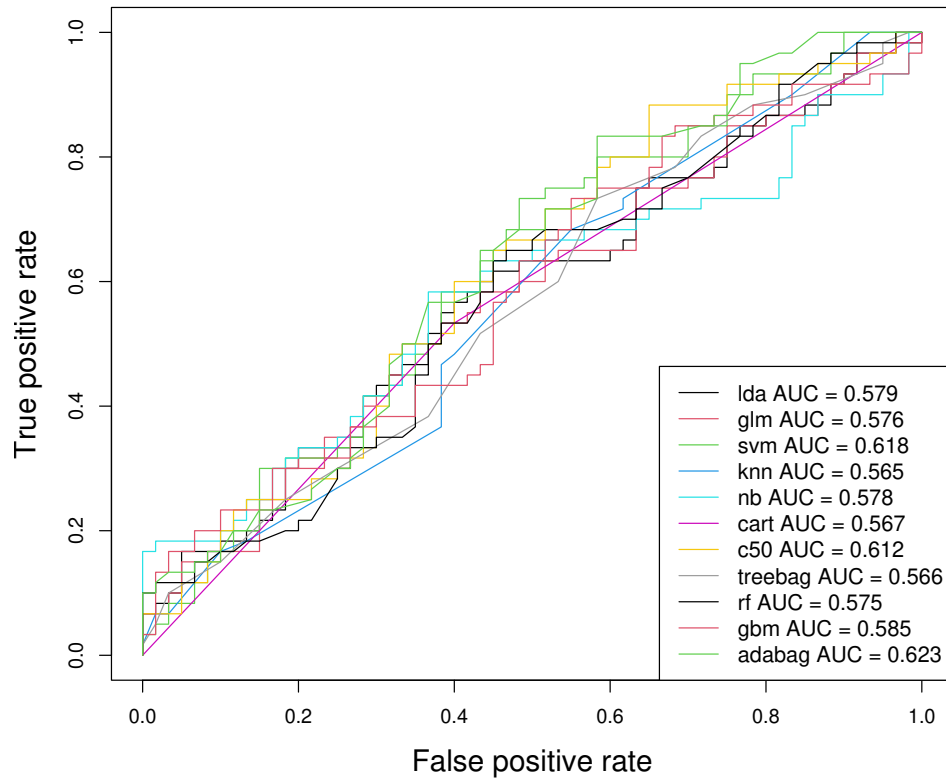


Figure S 4: Receiver Operator Curve: Age Adjusted Group vs. Pre-Term Group - Itemized Variables.

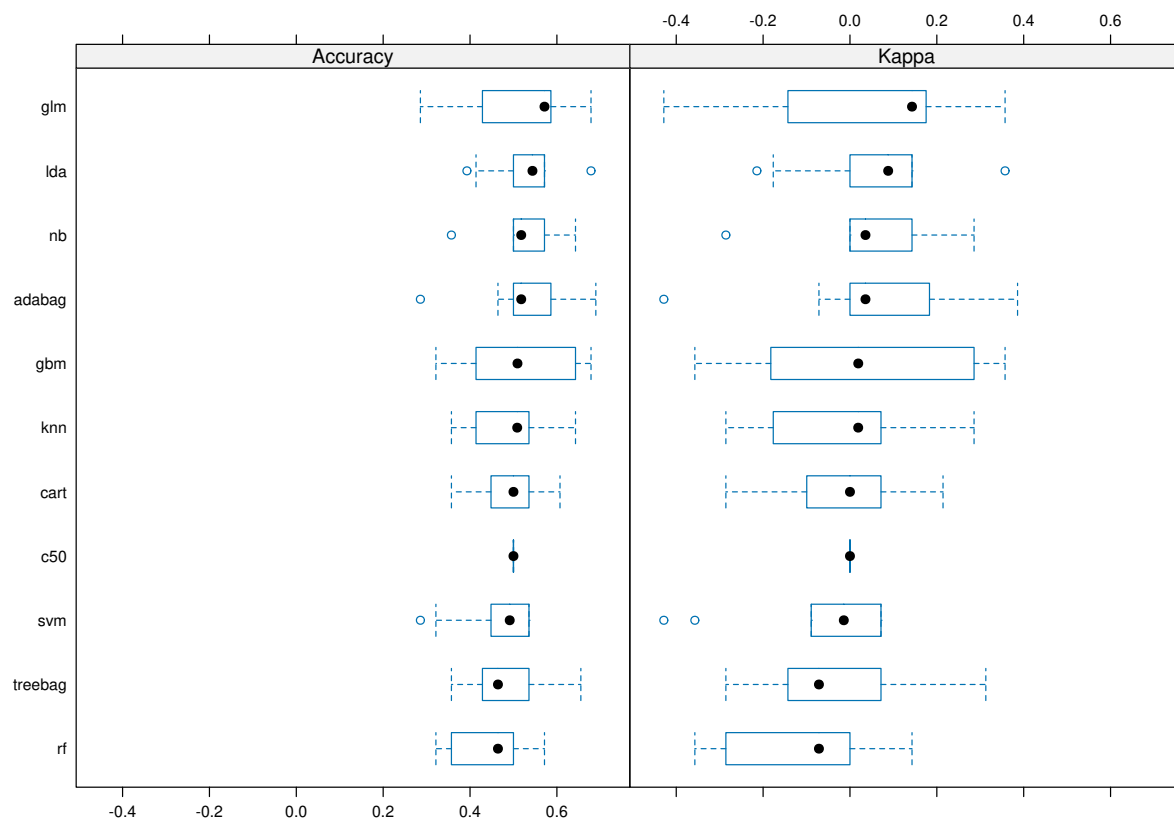


Figure S 5: Accuracy Estimates: Chronological Age Group vs. Pre-Term Group - Factorized Variables.

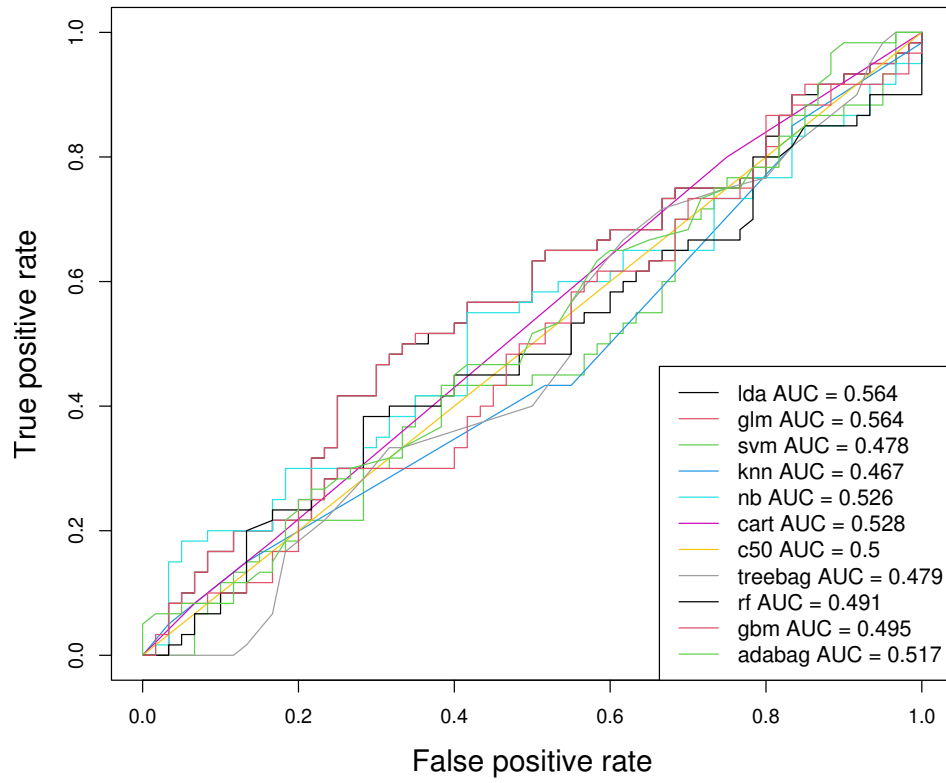


Figure S 6: Receiver Operator Curve: Chronological Age Group vs. Pre-Term Group - Factorized Variables.



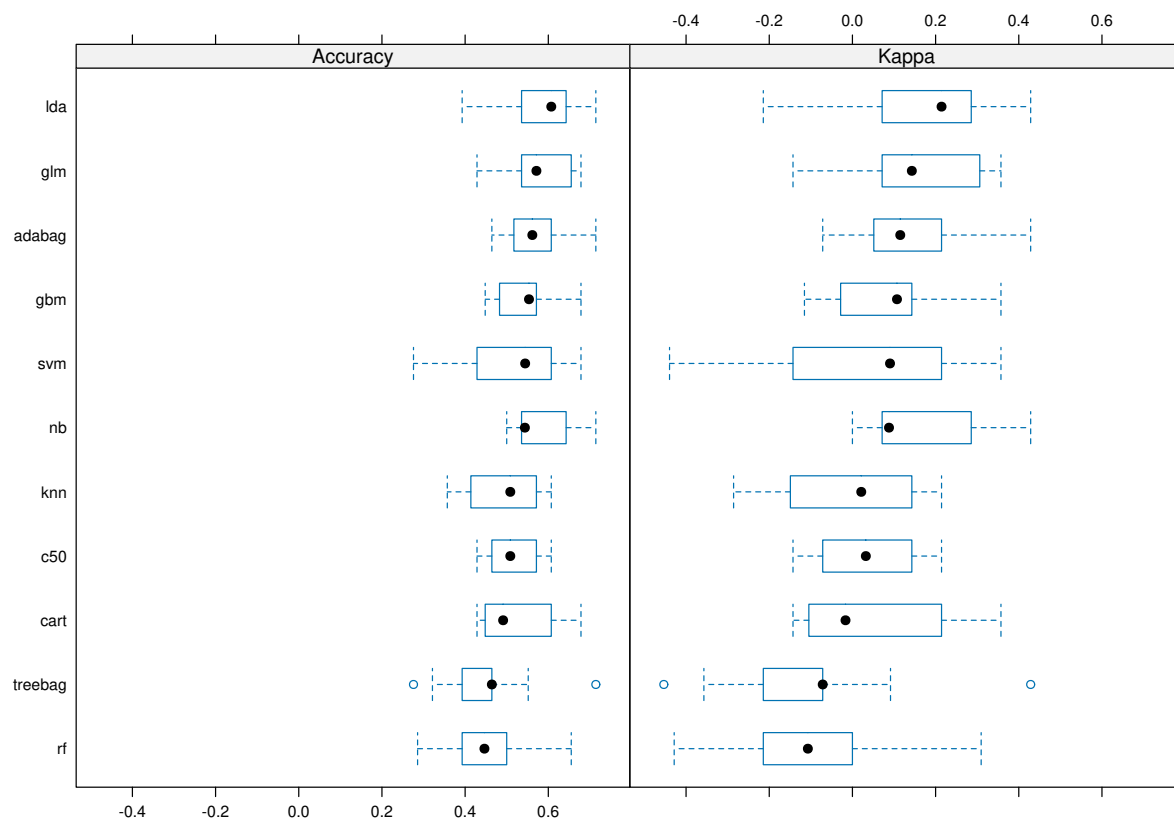


Figure S 7: Accuracy Estimates: Age Adjusted Group vs. Pre-Term Group - Factorized Variables.

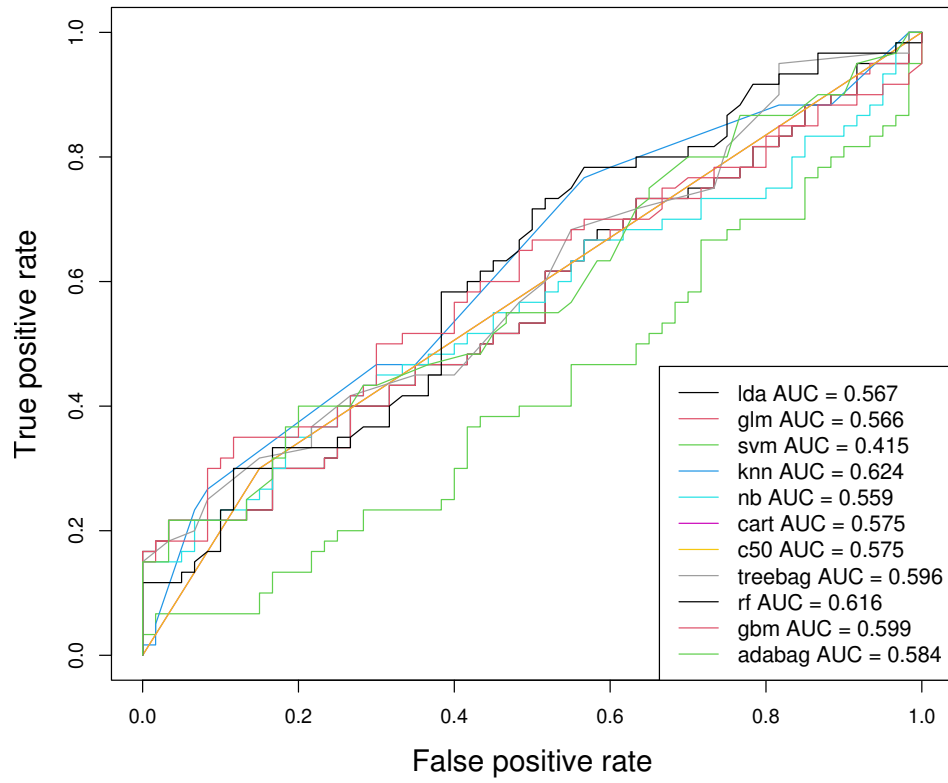


Figure S 8: Receiver Operator Curve: Age Adjusted Group vs. Pre-Term Group - Factorized Variables.

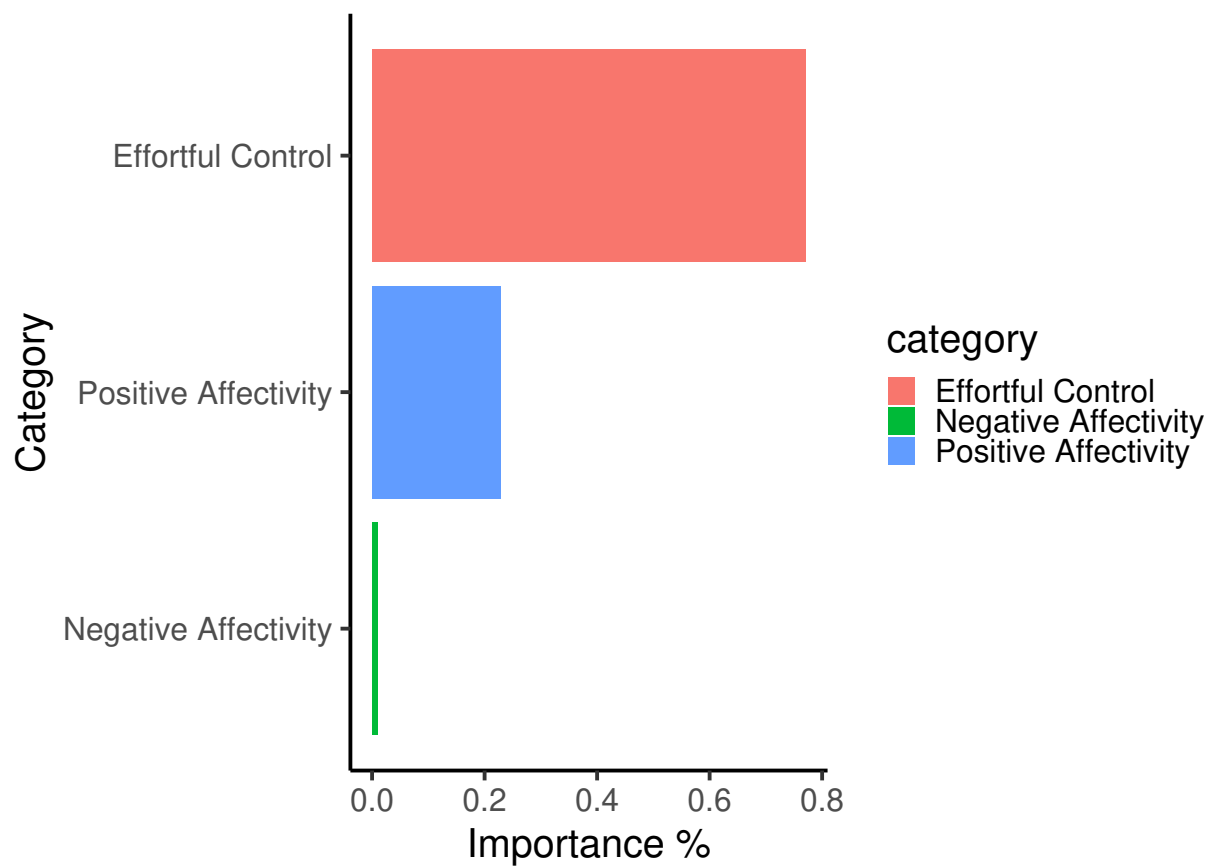


Figure S 9: Feature Importance: Chronological Age Group vs. Pre-Term Group - Factorized Variables

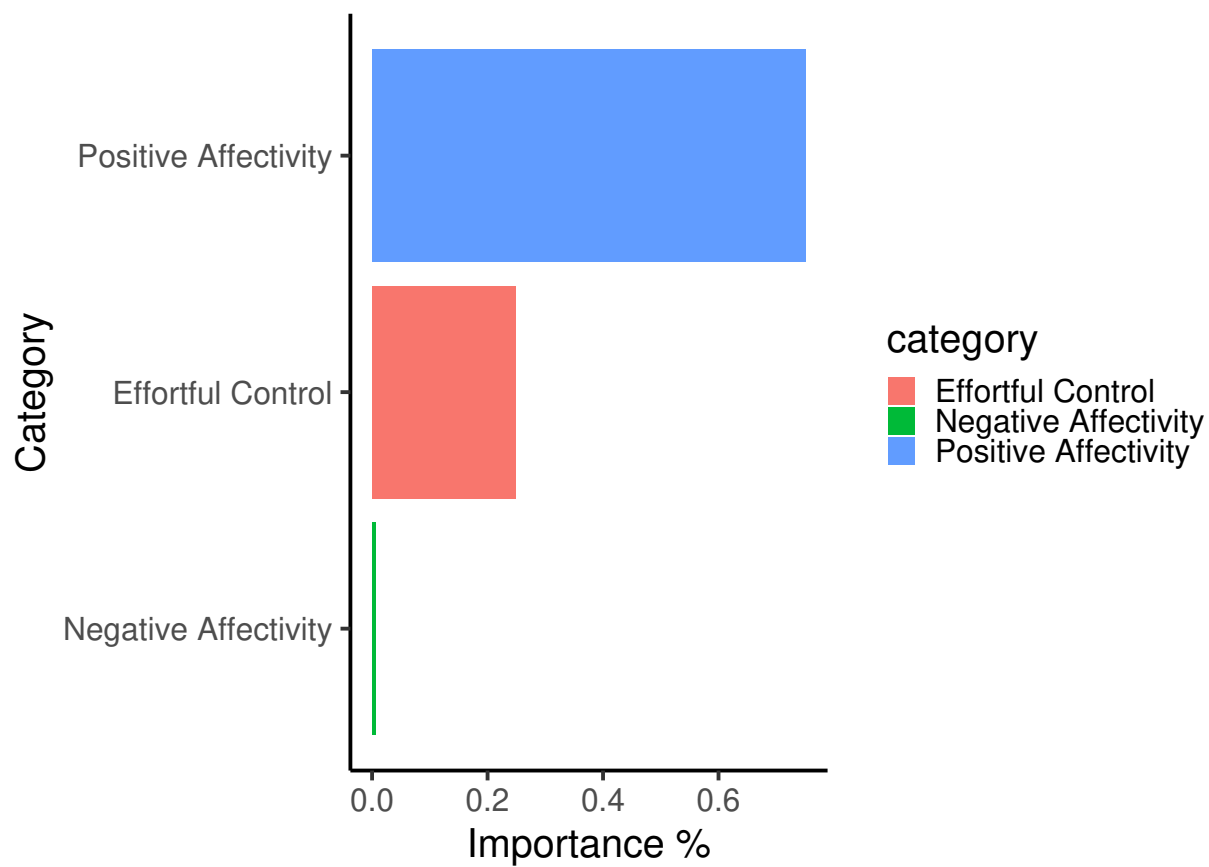


Figure S 10: Feature Importance: Age Adjusted Group vs. Pre-Term Group - Factorized Variables

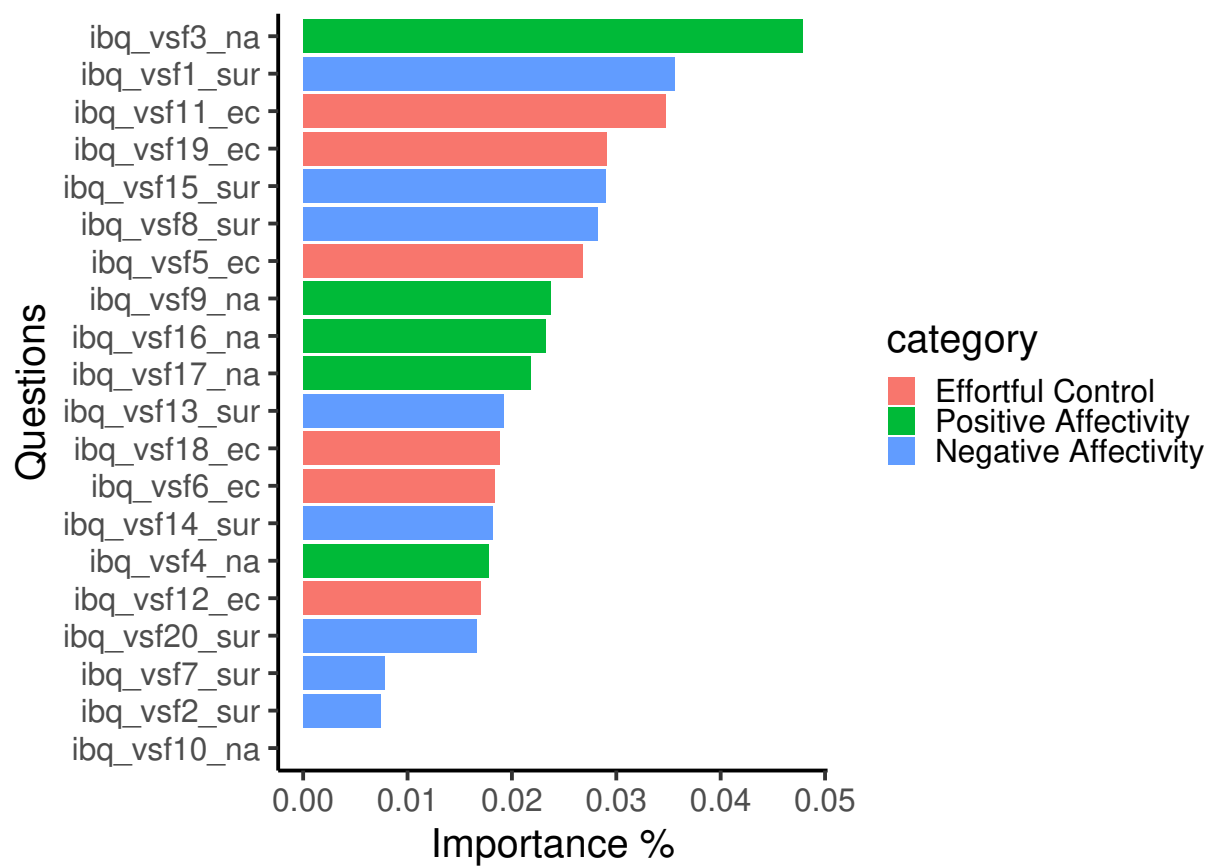


Figure S 11: Feature Importance: Chronological Age Group vs. Pre-Term Group - Itemized Variables

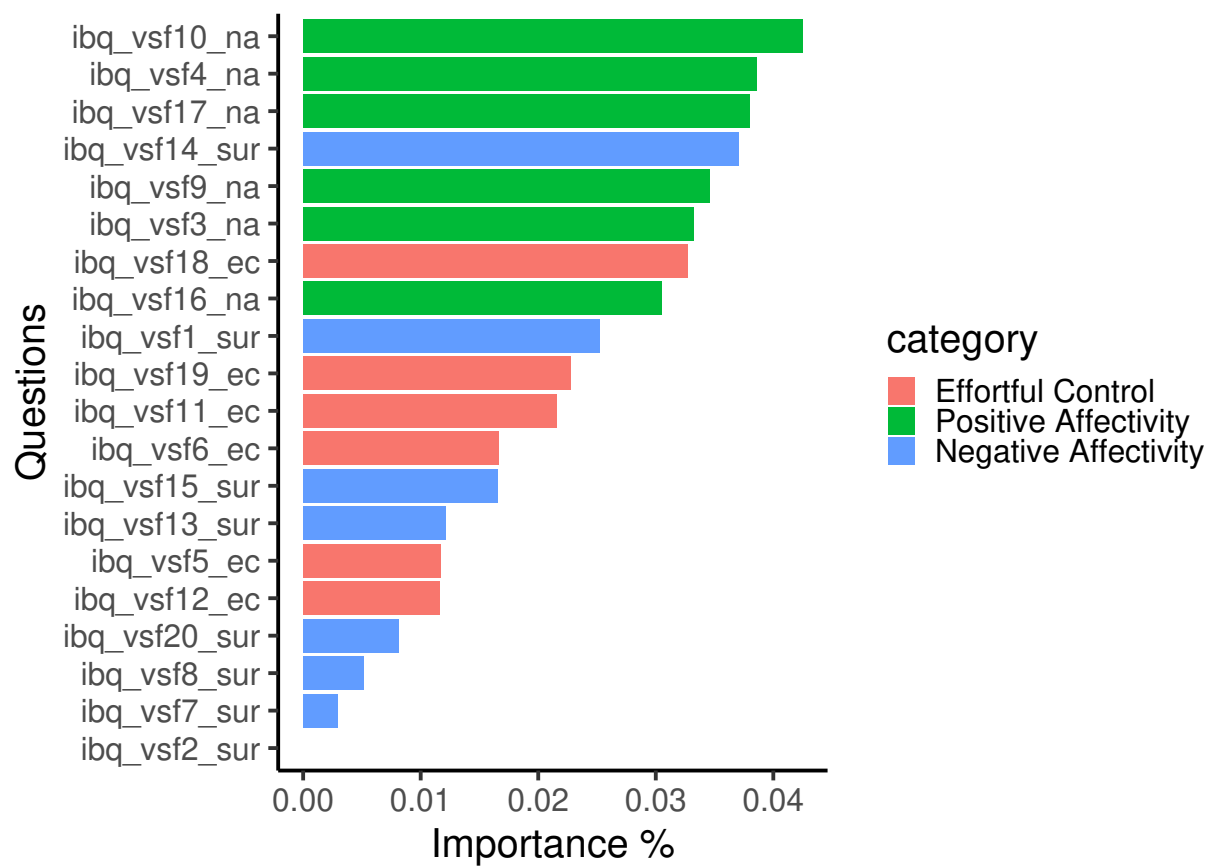


Figure S 12: Feature Importance: Age Adjusted Group vs. Pre-Term Group - Itemized Variables

Table S 1: Model Results: Itemized Variables

models	Chronological VS. Pre-Term: Itemized			Adjusted Age VS. Pre-Term: Itemized		
	accuracy	kappa	AUC	accuracy	kappa	AUC
lda	0.493	-0.014	0.617	0.504	0.009	0.579
glm	0.490	-0.021	0.621	0.524	0.047	0.576
svm	0.493	-0.016	0.550	0.557	0.113	0.618
knn	0.581	0.162	0.603	0.542	0.085	0.565
nb	0.542	0.084	0.576	0.579	0.156	0.578
cart	0.539	0.078	0.542	0.490	-0.020	0.567
c5.0	0.475	-0.051	0.464	0.514	0.029	0.612
bagging	0.517	0.032	0.615	0.532	0.063	0.566
rf	0.500	0.001	0.617	0.574	0.149	0.575
gbm	0.503	0.008	0.646	0.582	0.163	0.585
adabag	0.543	0.084	0.600	0.546	0.093	0.623

Table S 2: Model Results: Factorized Variables

models	Chronological VS. Pre-Term: Factorized			Adjusted Age VS. Pre-Term: Factorized		
	accuracy	kappa	AUC	accuracy	kappa	AUC
lda	0.532	0.064	0.564	0.581	0.162	0.567
glm	0.525	0.050	0.564	0.585	0.169	0.566
svm	0.457	-0.083	0.478	0.519	0.038	0.415
knn	0.458	-0.086	0.467	0.497	-0.004	0.624
nb	0.525	0.050	0.526	0.578	0.156	0.559
cart	0.493	-0.014	0.528	0.504	0.008	0.575
c5.0	0.497	-0.007	0.500	0.514	0.029	0.575
bagging	0.485	-0.029	0.479	0.454	-0.093	0.596
rf	0.447	-0.105	0.491	0.449	-0.102	0.616
gbm	0.489	-0.022	0.495	0.547	0.093	0.599
adabag	0.492	-0.014	0.517	0.568	0.135	0.584

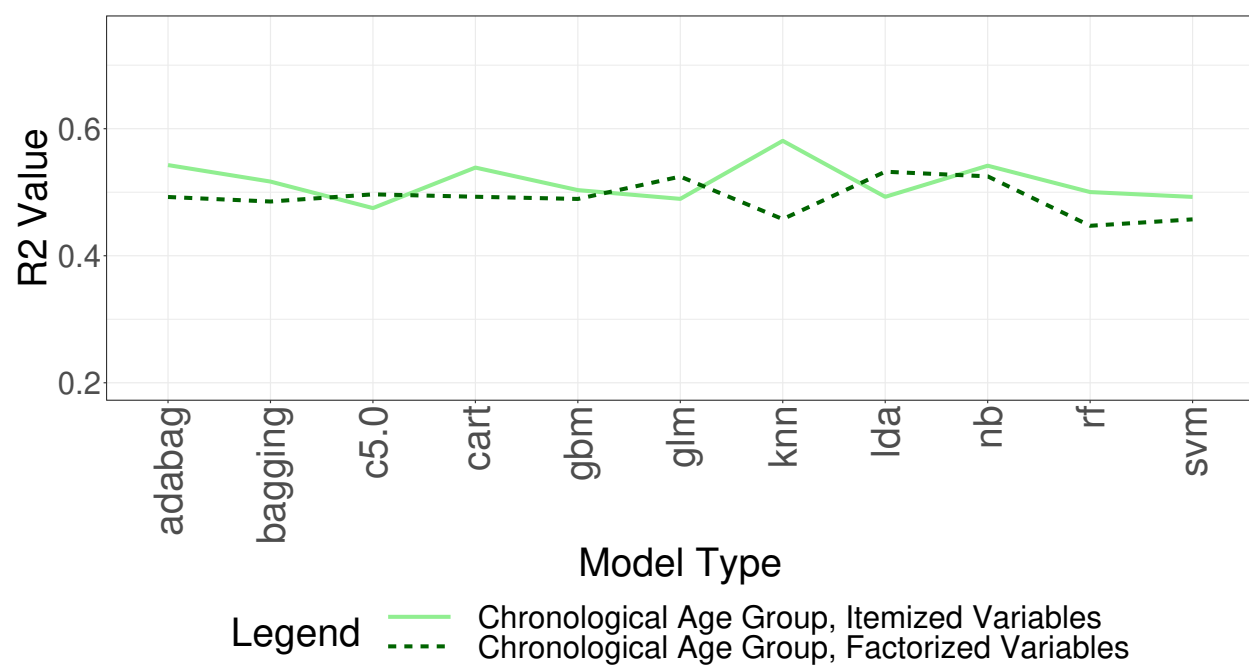


Figure S 13: R2 Comparisons - Chronological Age Group VS Pre-Term Group, Factorized Variables VS. Itemized Variables.

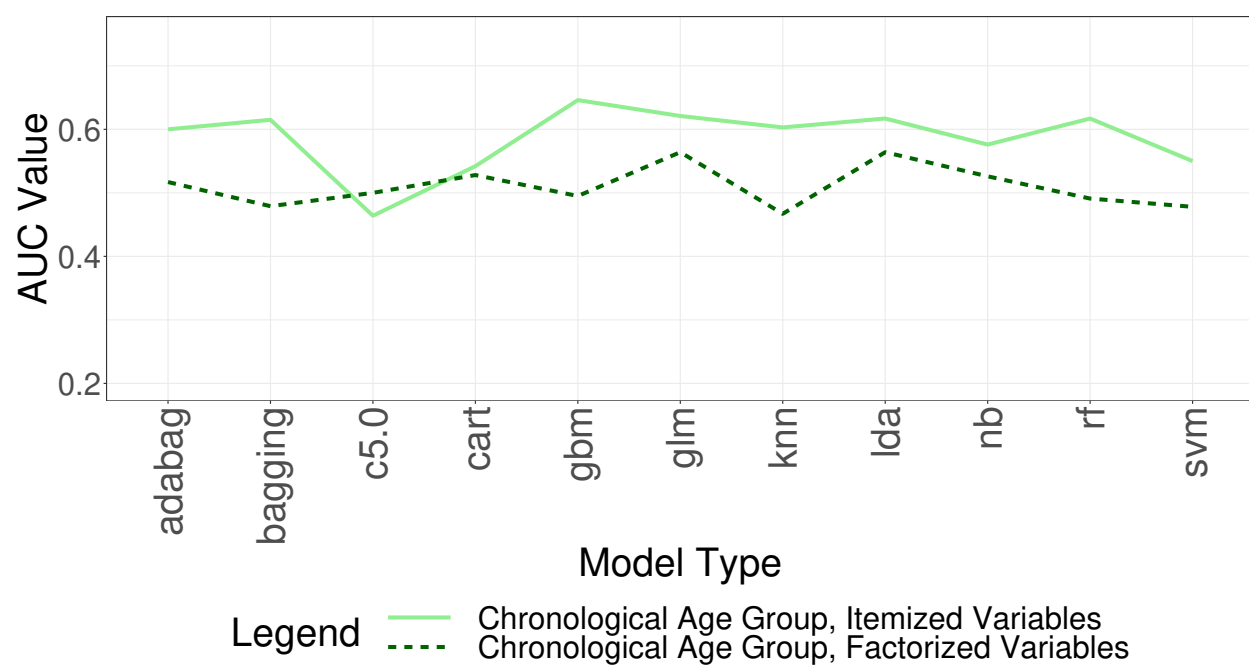


Figure S 14: AUC Comparisons - Chronological Age Group VS Pre-Term Group, Factorized Variables VS. Itemized Variables.



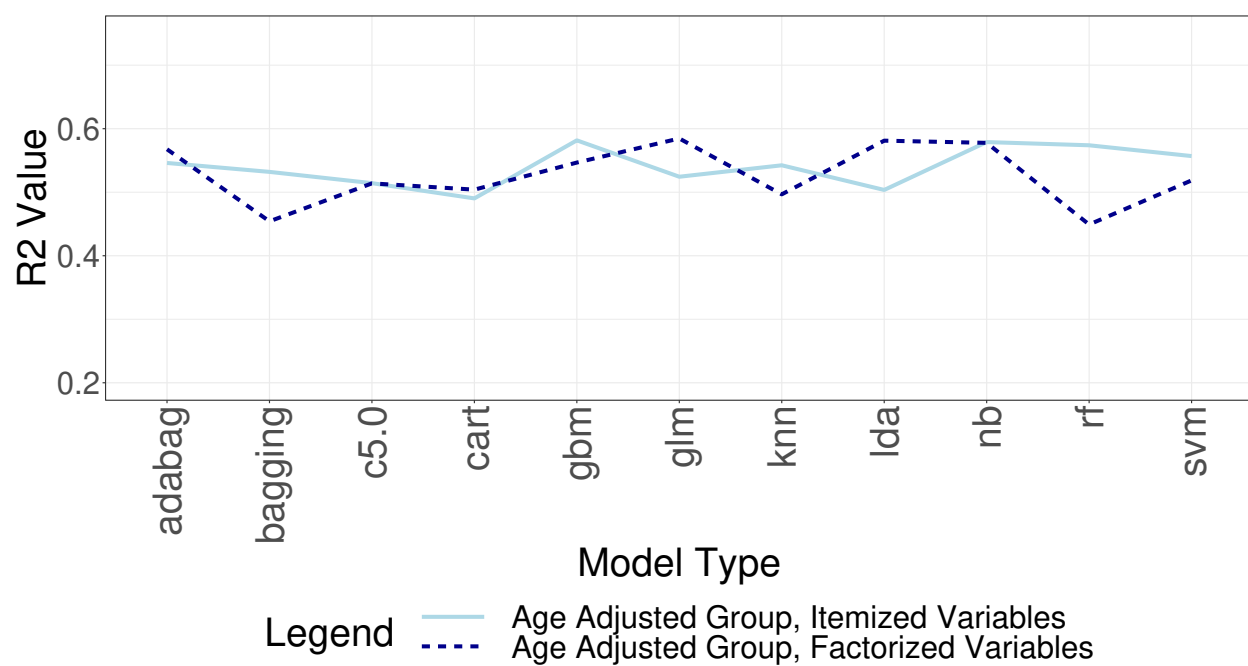


Figure S 15: R2 Comparisons - Age Adjusted Group VS Pre-Term Group, Factorized Variables VS. Itemized Variables.

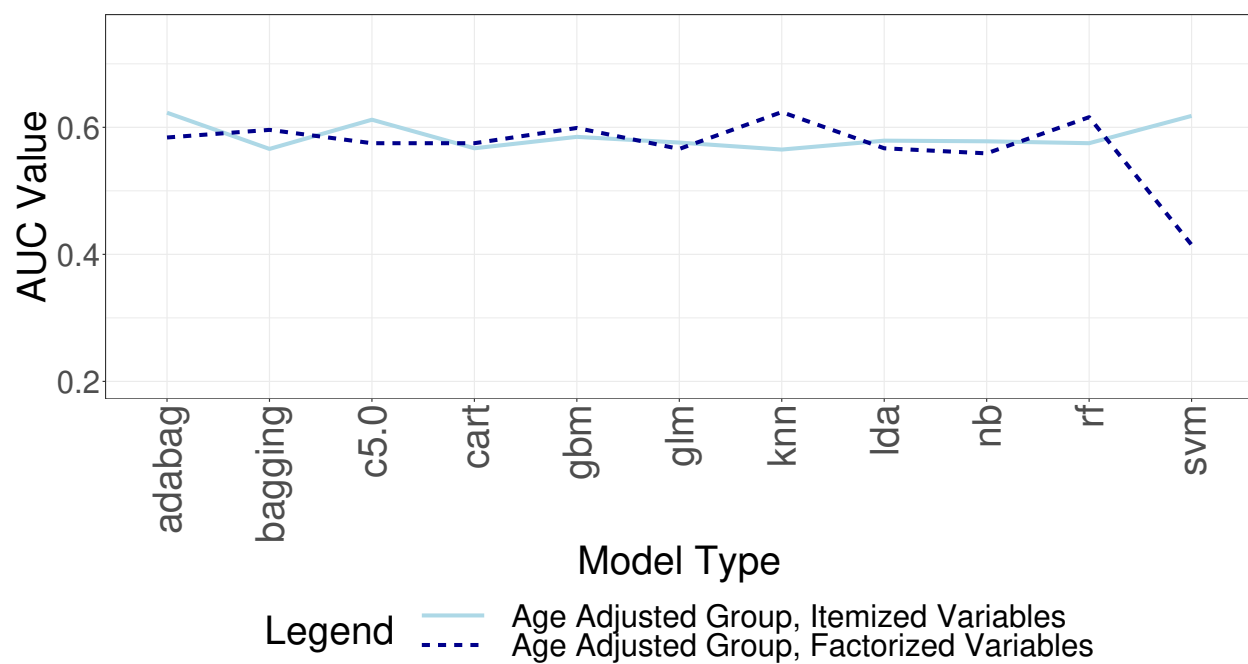


Figure S 16: AUC Comparisons - Age Adjusted Group VS Pre-Term Group, Factorized Variables VS. Itemized Variables.