Supplementary file1

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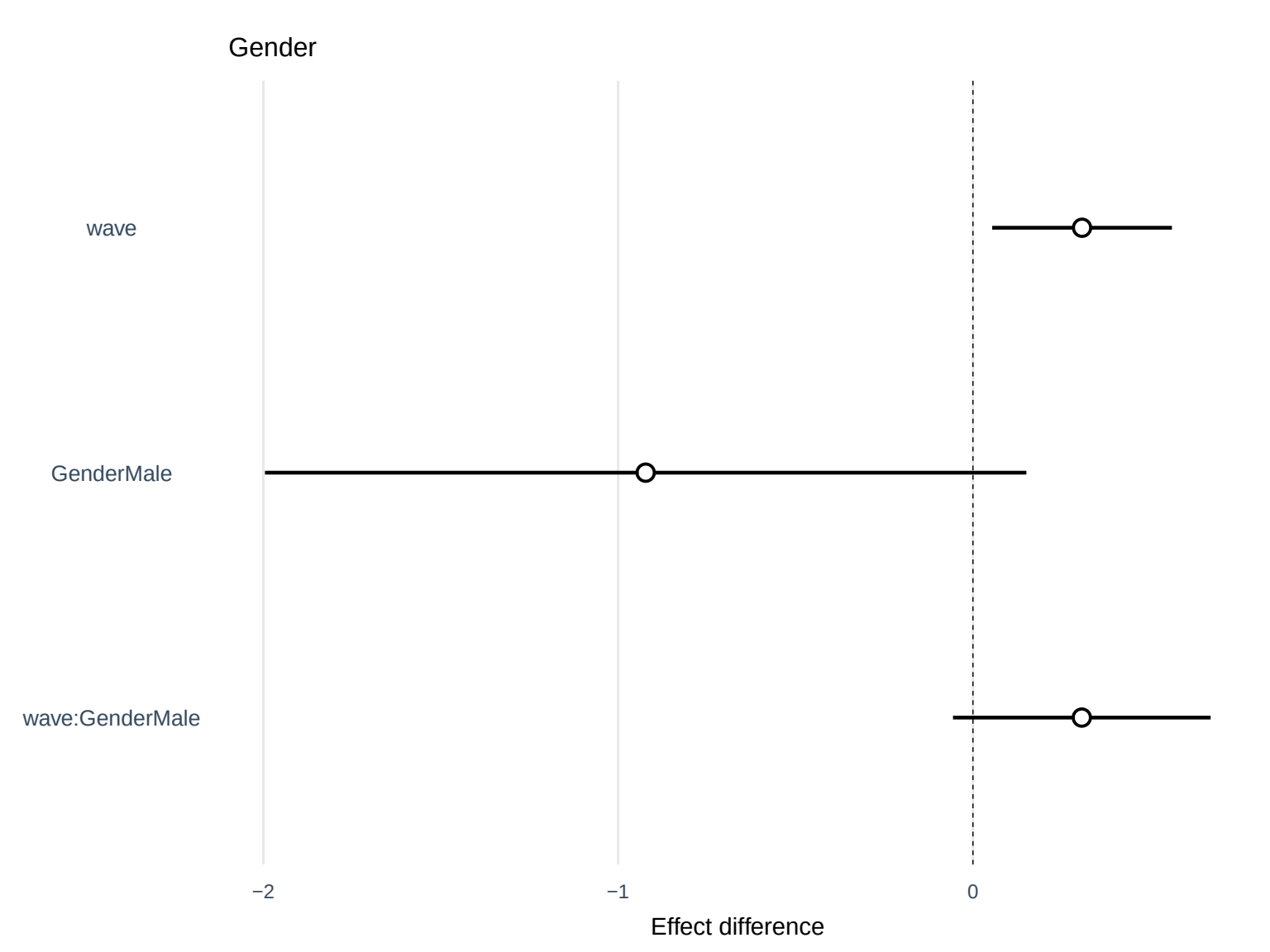
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wave
GenderMale
wave:GenderMale
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−1
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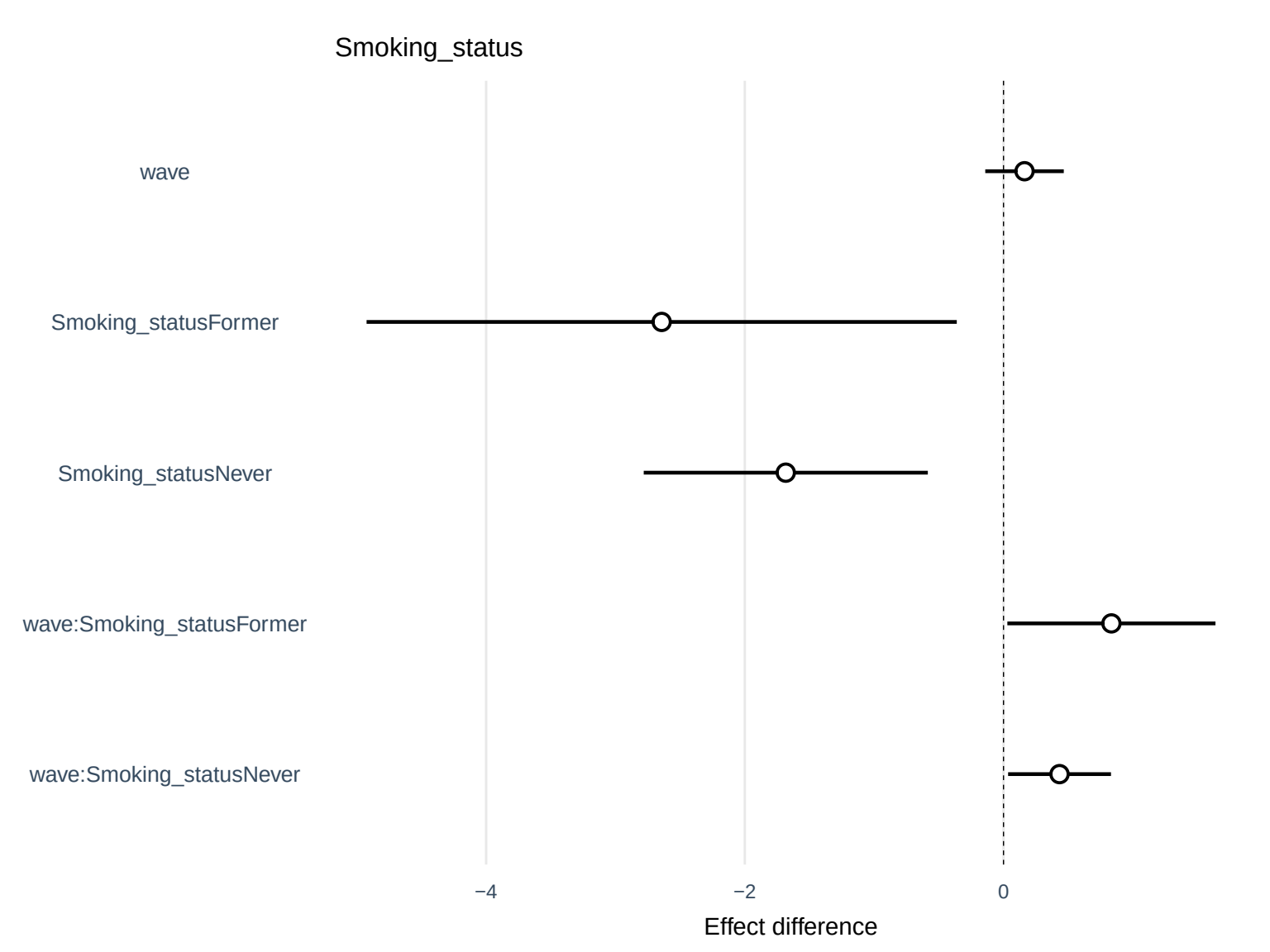
Effect difference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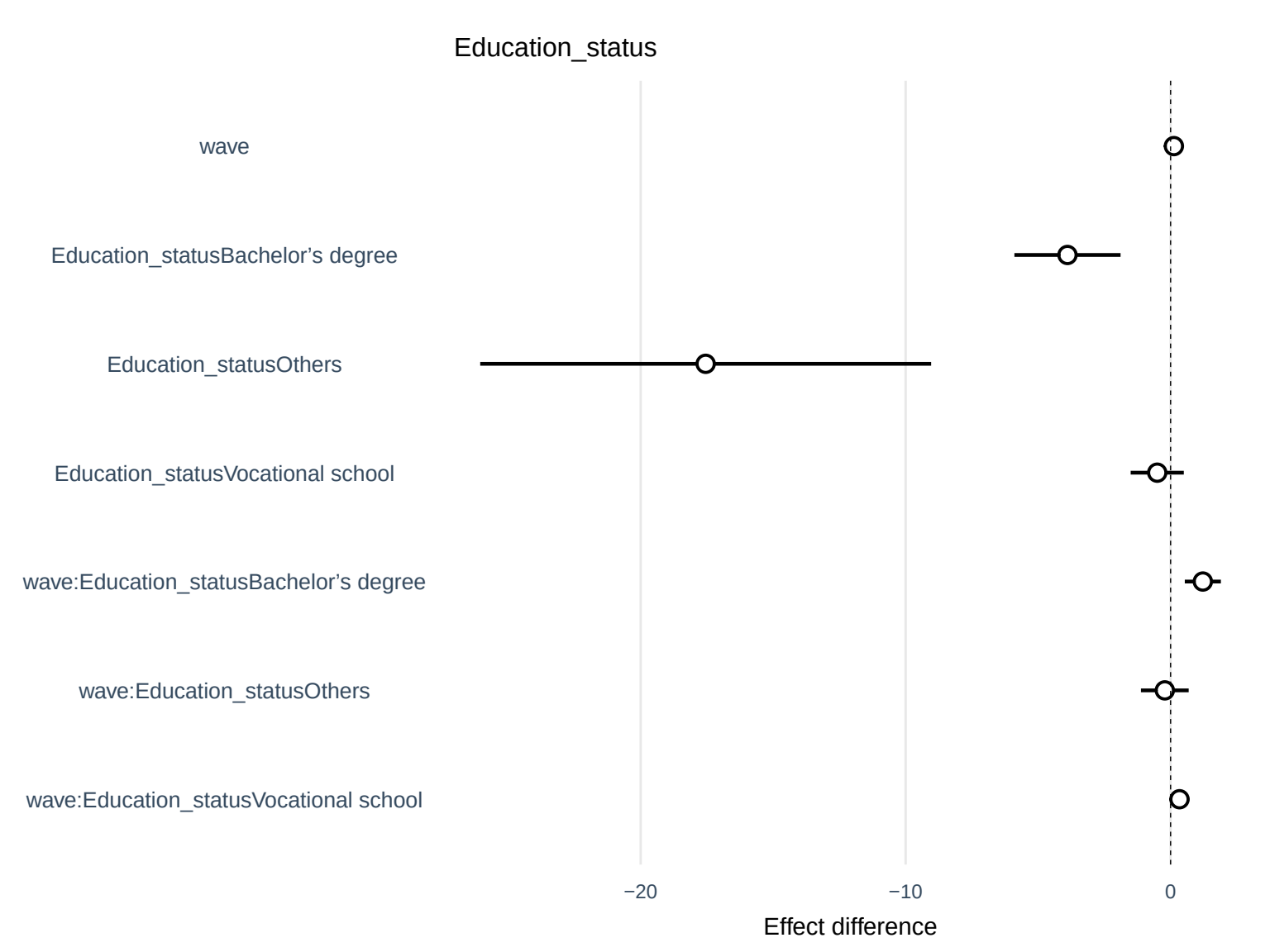
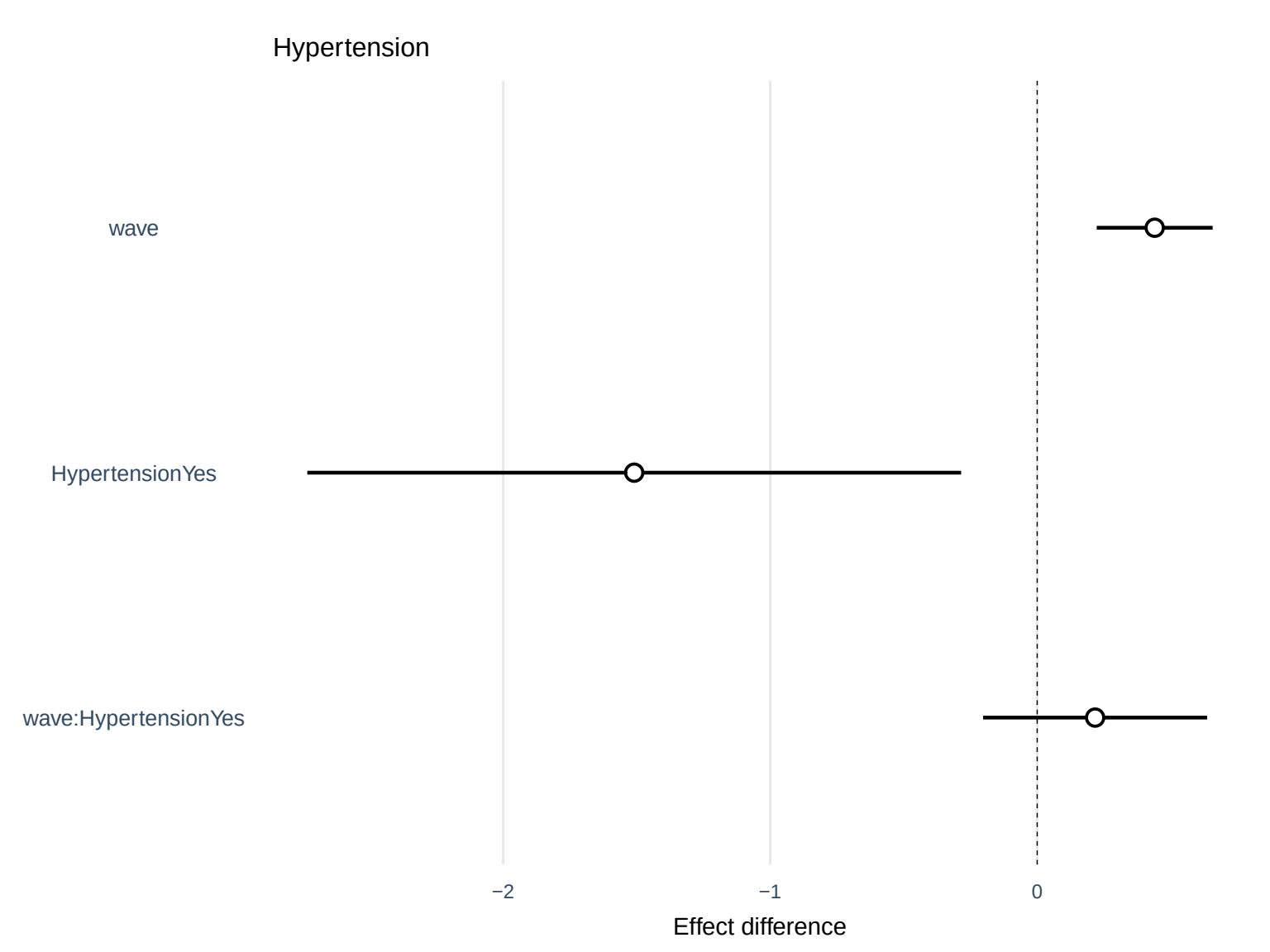
wave
Smoking_statusFormer
Smoking_statusNever
wave:Smoking_statusFormer
wave:Smoking_statusNever
−4
−2
0
Effect difference


Education_status
wave
Education_statusBachelor’s degree
Education_statusOthers
Education_statusVocational school
wave:Education_statusBachelor’s degree
wave:Education_statusOthers
wave:Education_statusVocational school
−20
−10
0
Effect difference


Hypertension
wave
HypertensionYes
wave:HypertensionYes
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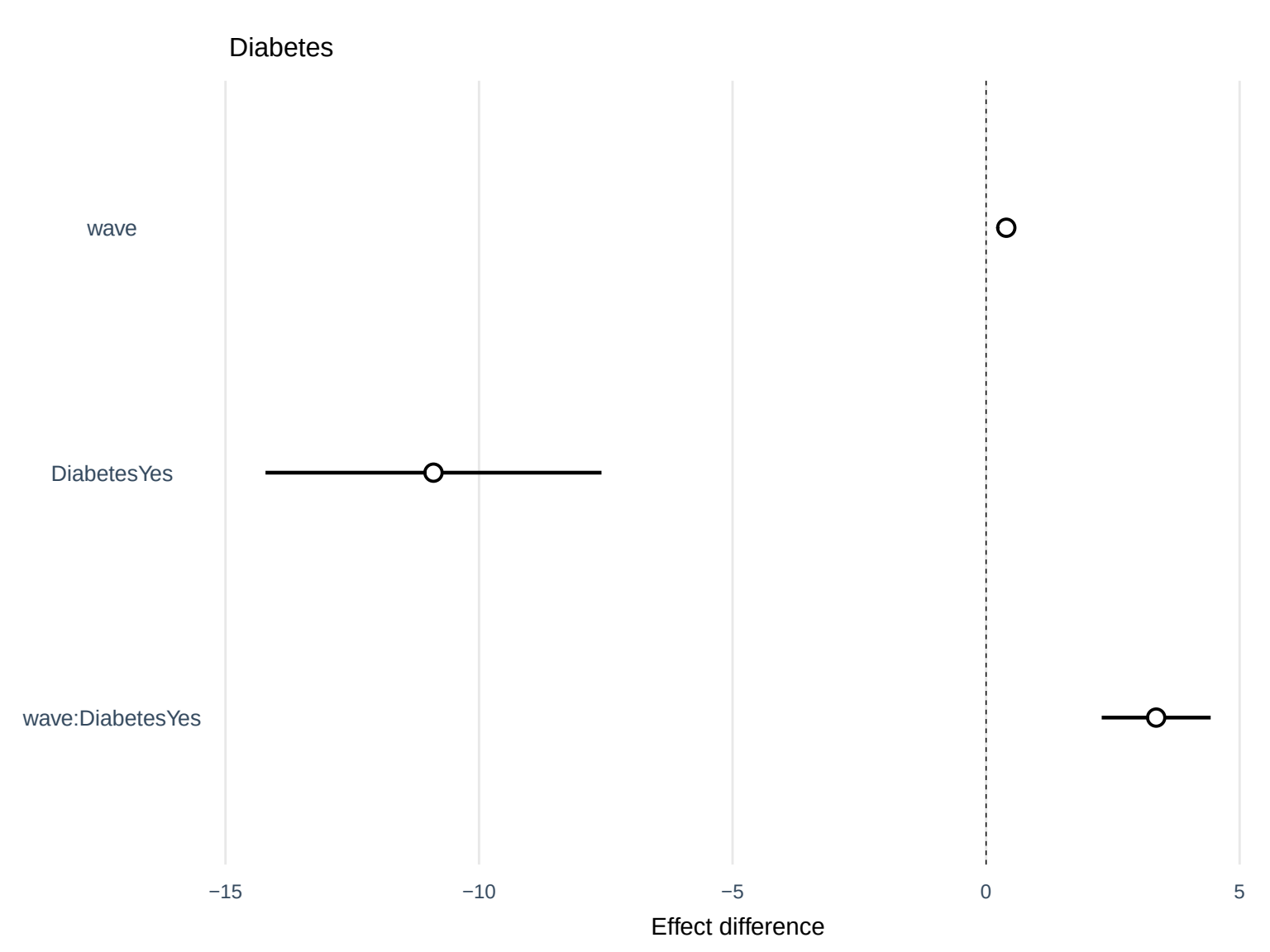
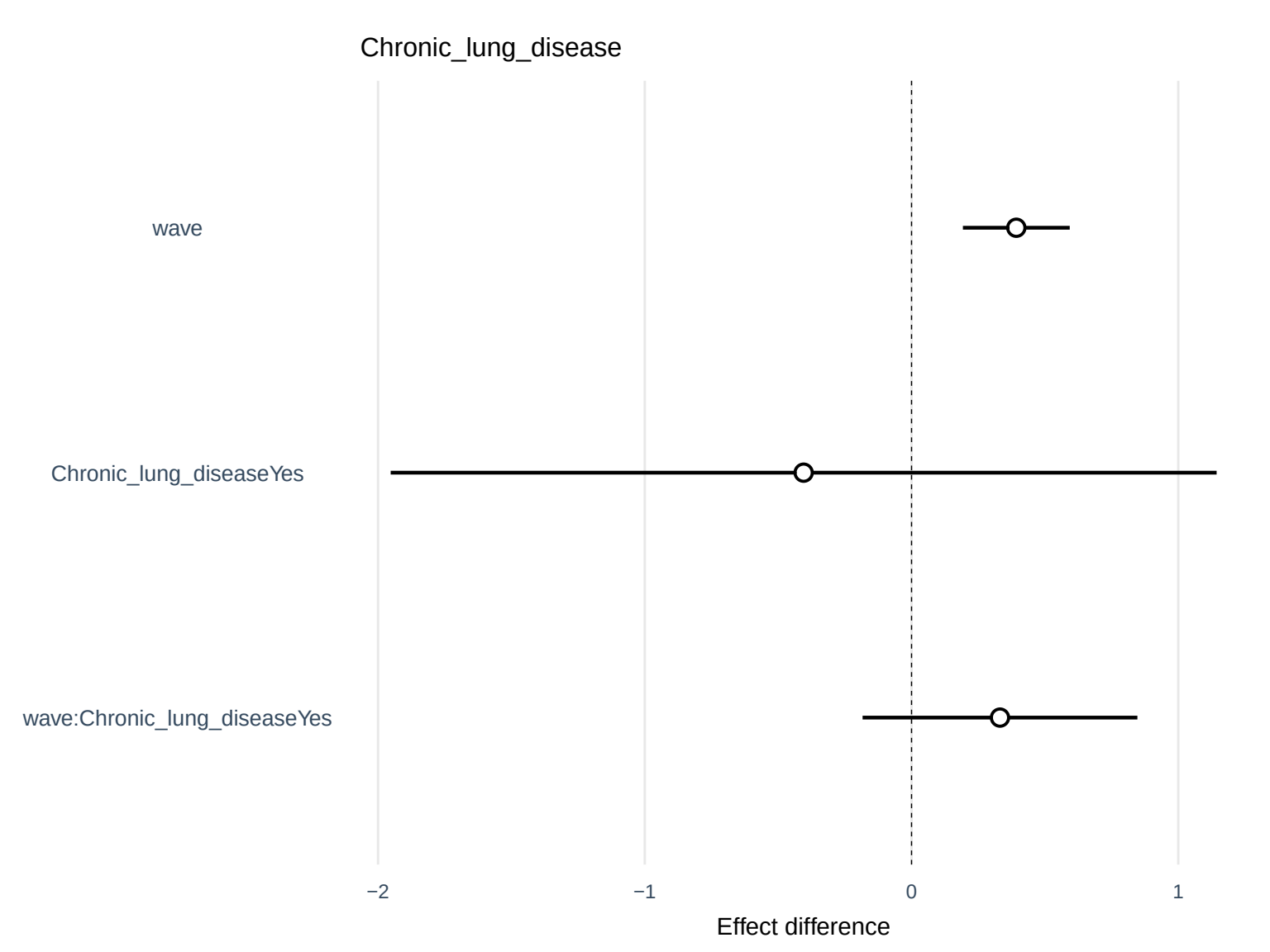
−1
0
Effect difference


Diabetes
wave
DiabetesYes
wave:DiabetesYes
−15
−10
−5
0
5
Effect difference


Chronic_lung_disease
wave
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−1
0
1
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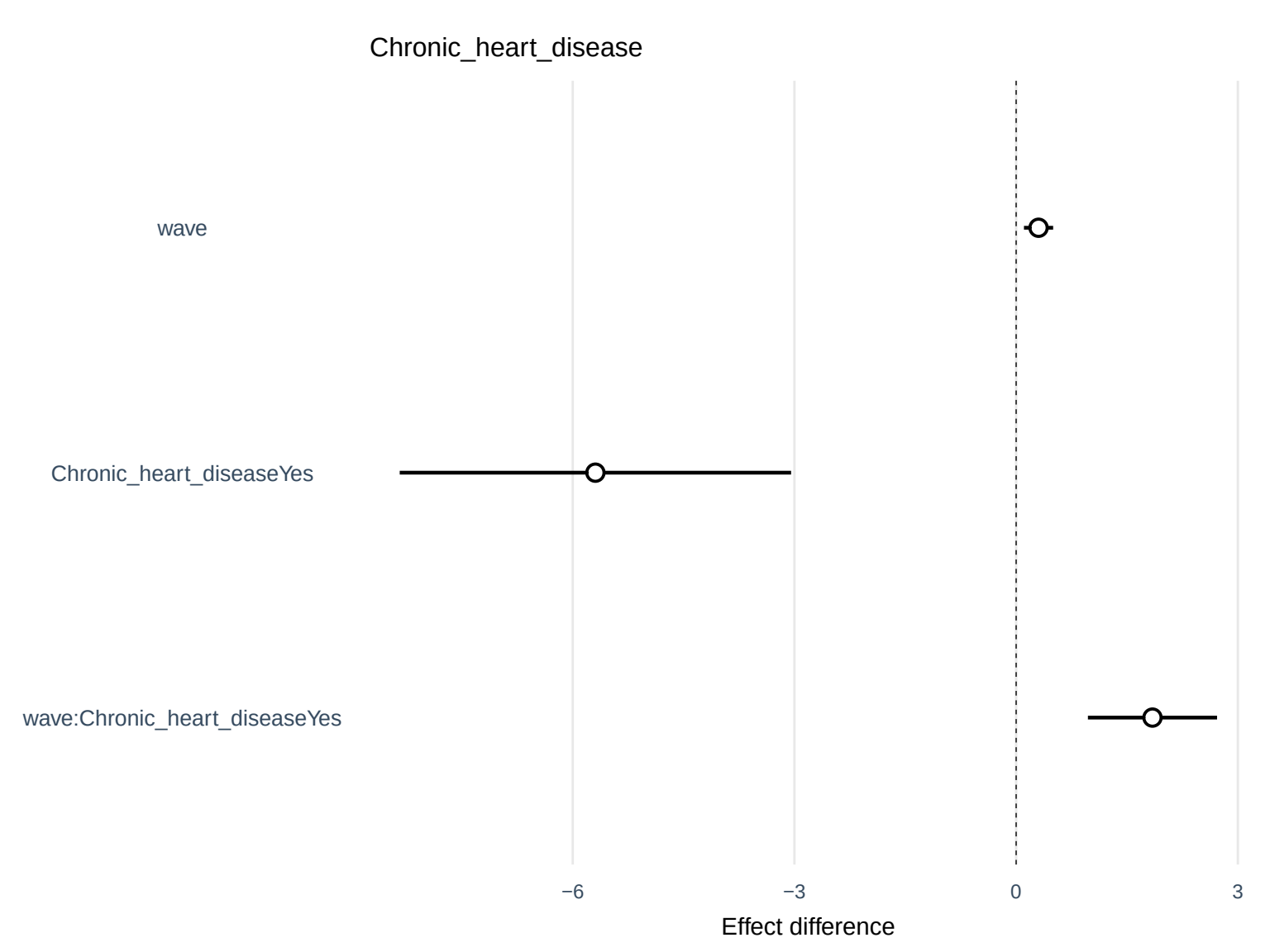
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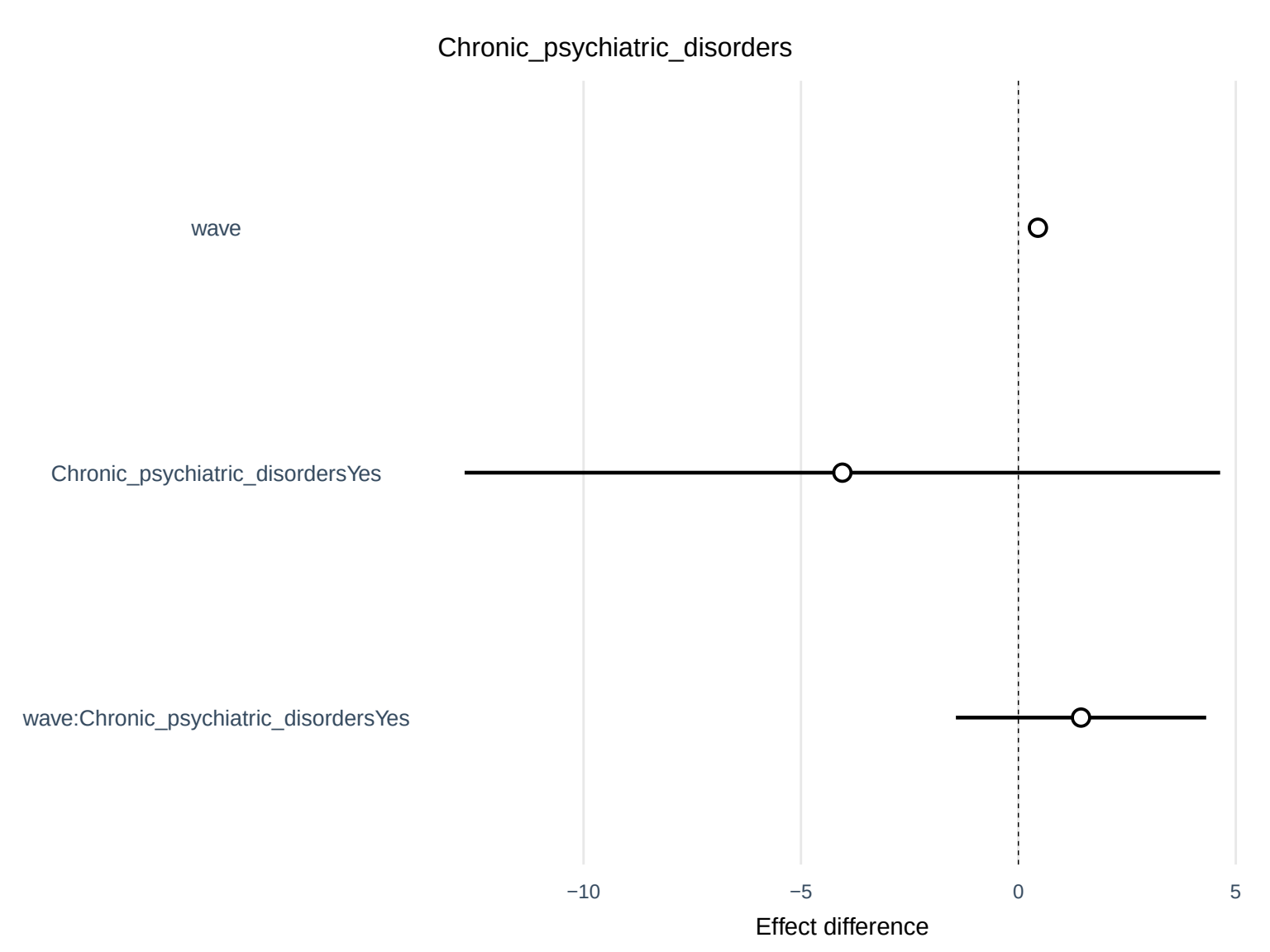
wave
Chronic_heart_diseaseYes
wave:Chronic_heart_diseaseYes
−6
−3
0
3
Effect difference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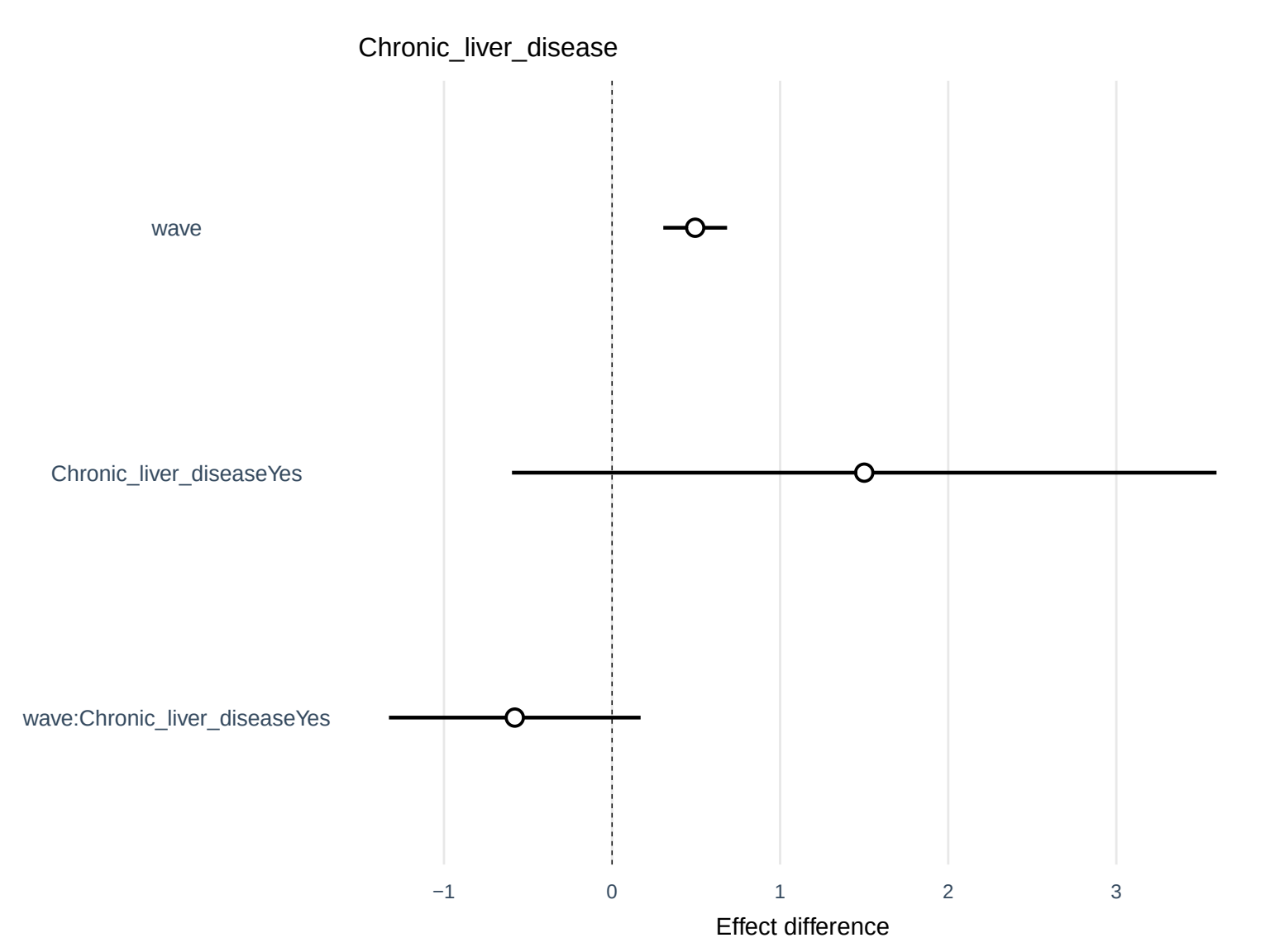
wave:Chronic_psychiatric_disordersYes
−10
−5
0
5
Effect difference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0
1
2
3
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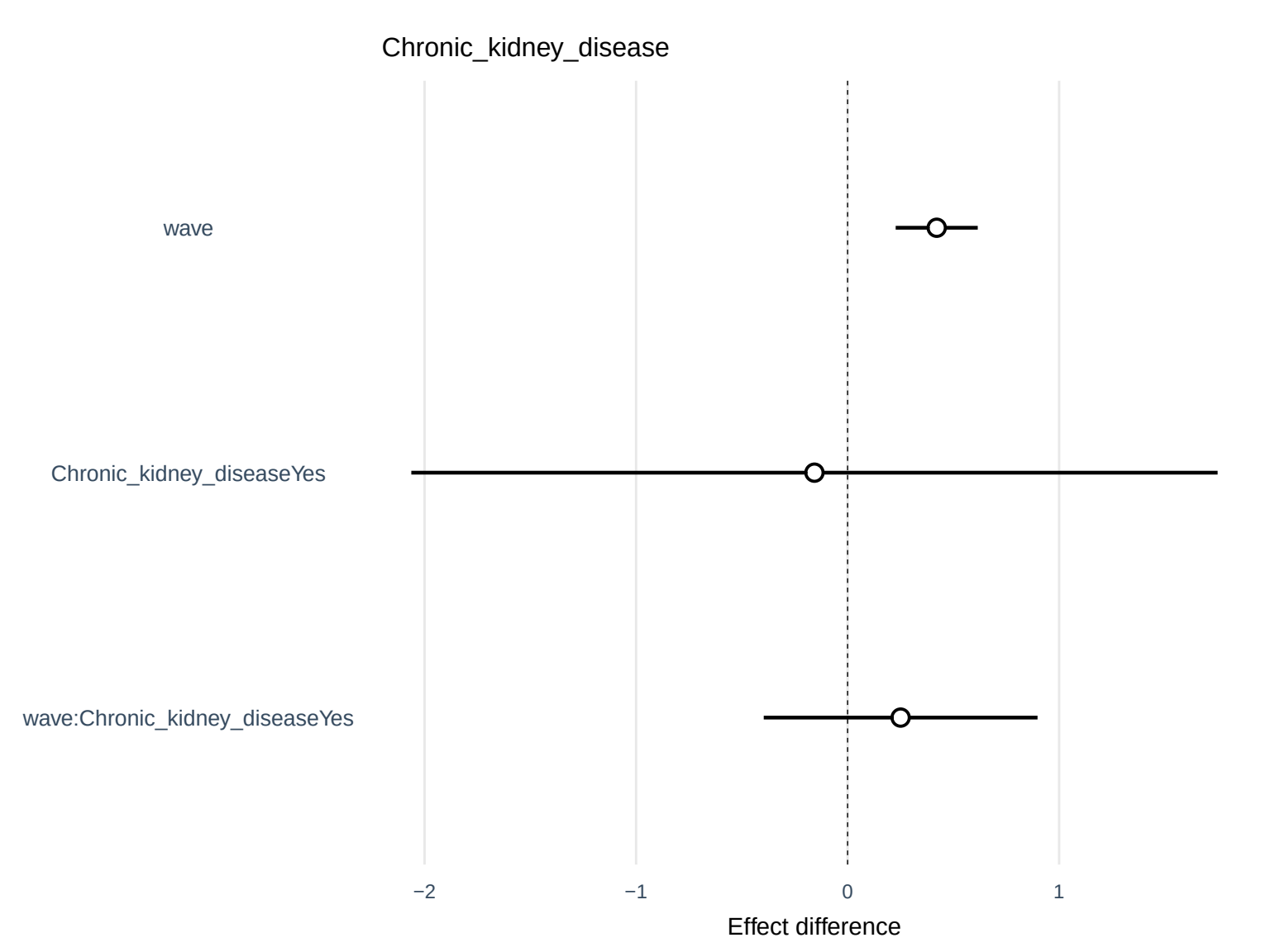
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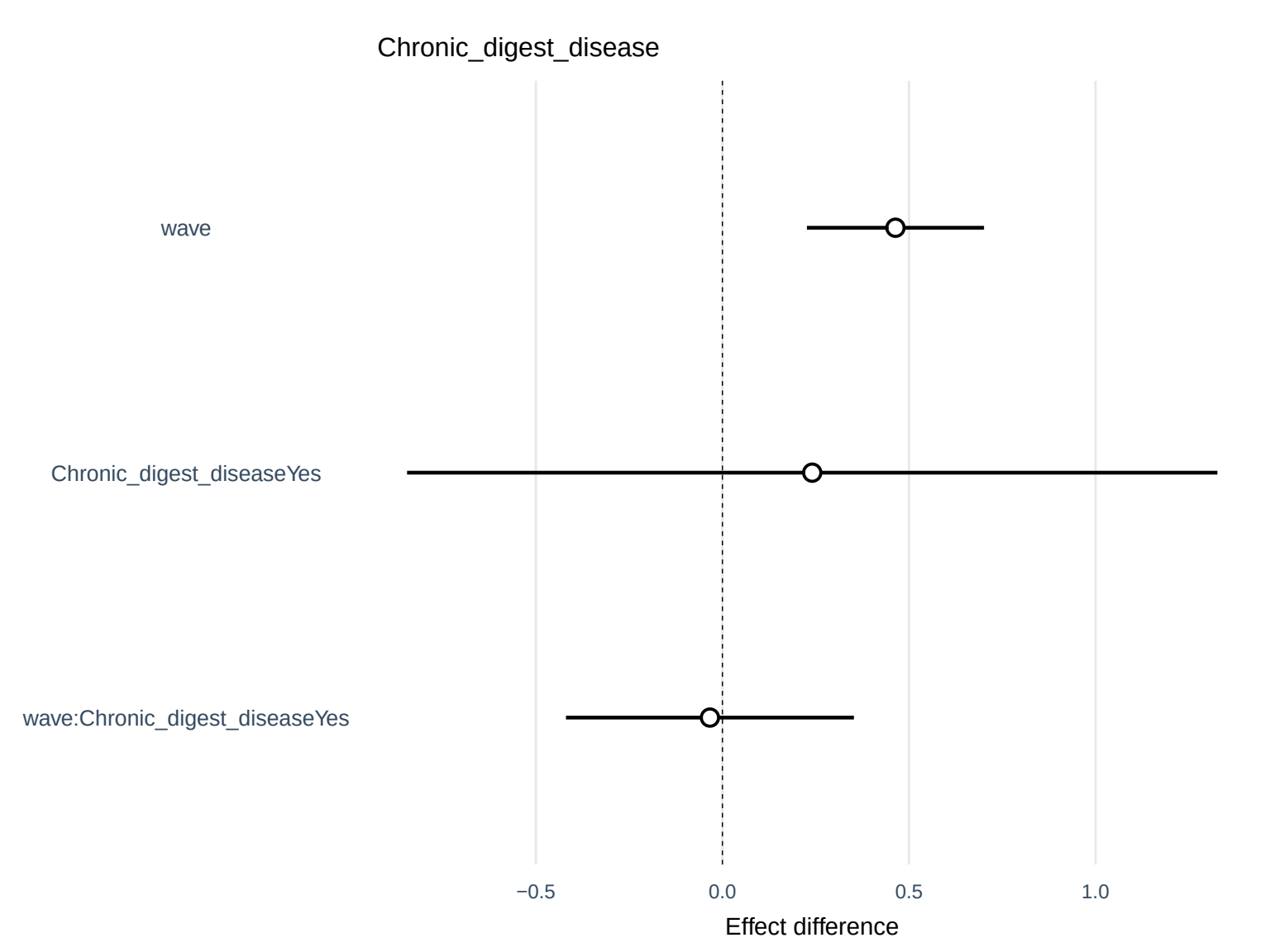
wave:Chronic_kidney_diseaseYes
−2
−1
0
1
Effect difference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Chronic_digest_diseaseYes
wave:Chronic_digest_diseaseYes
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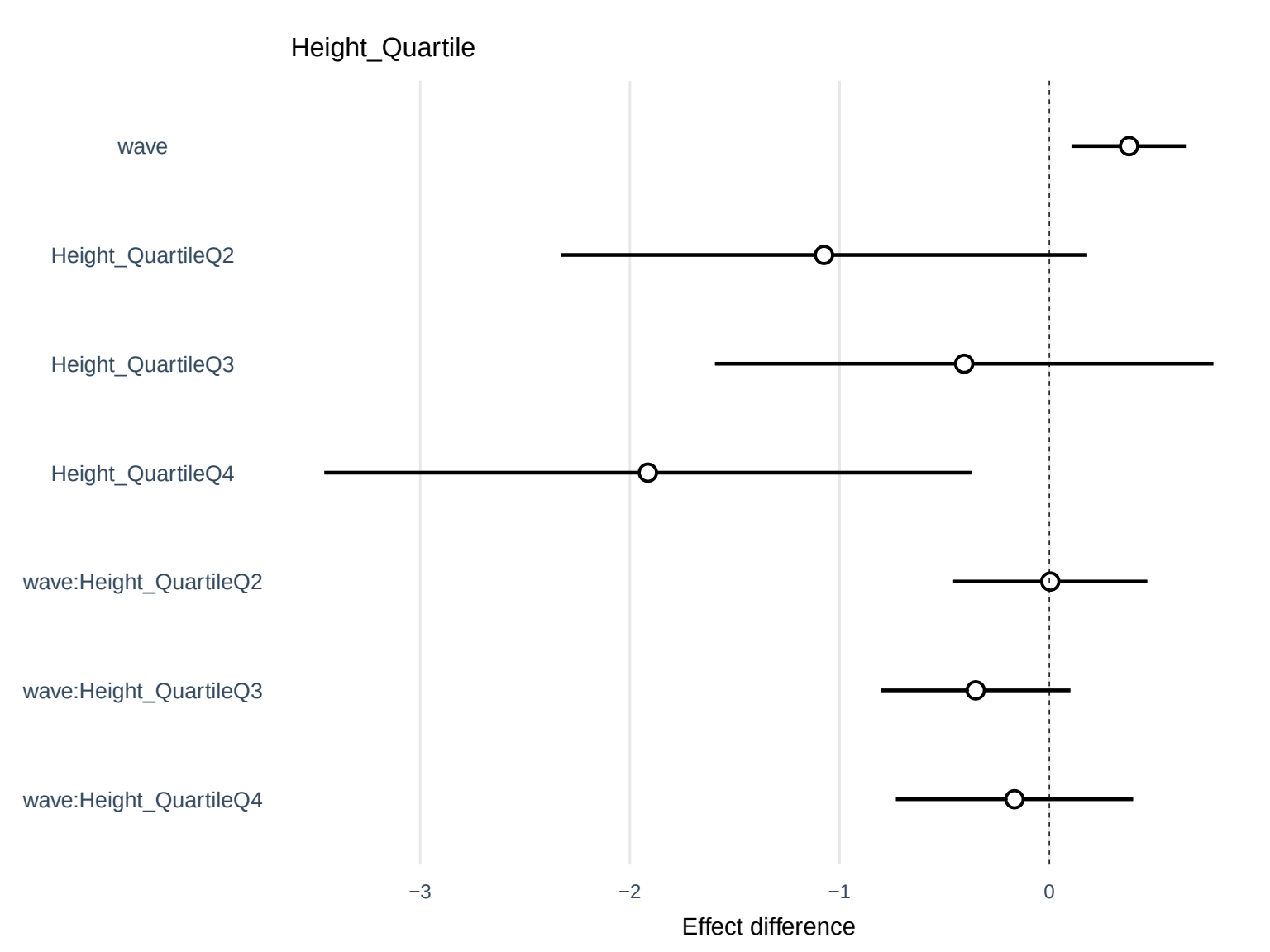
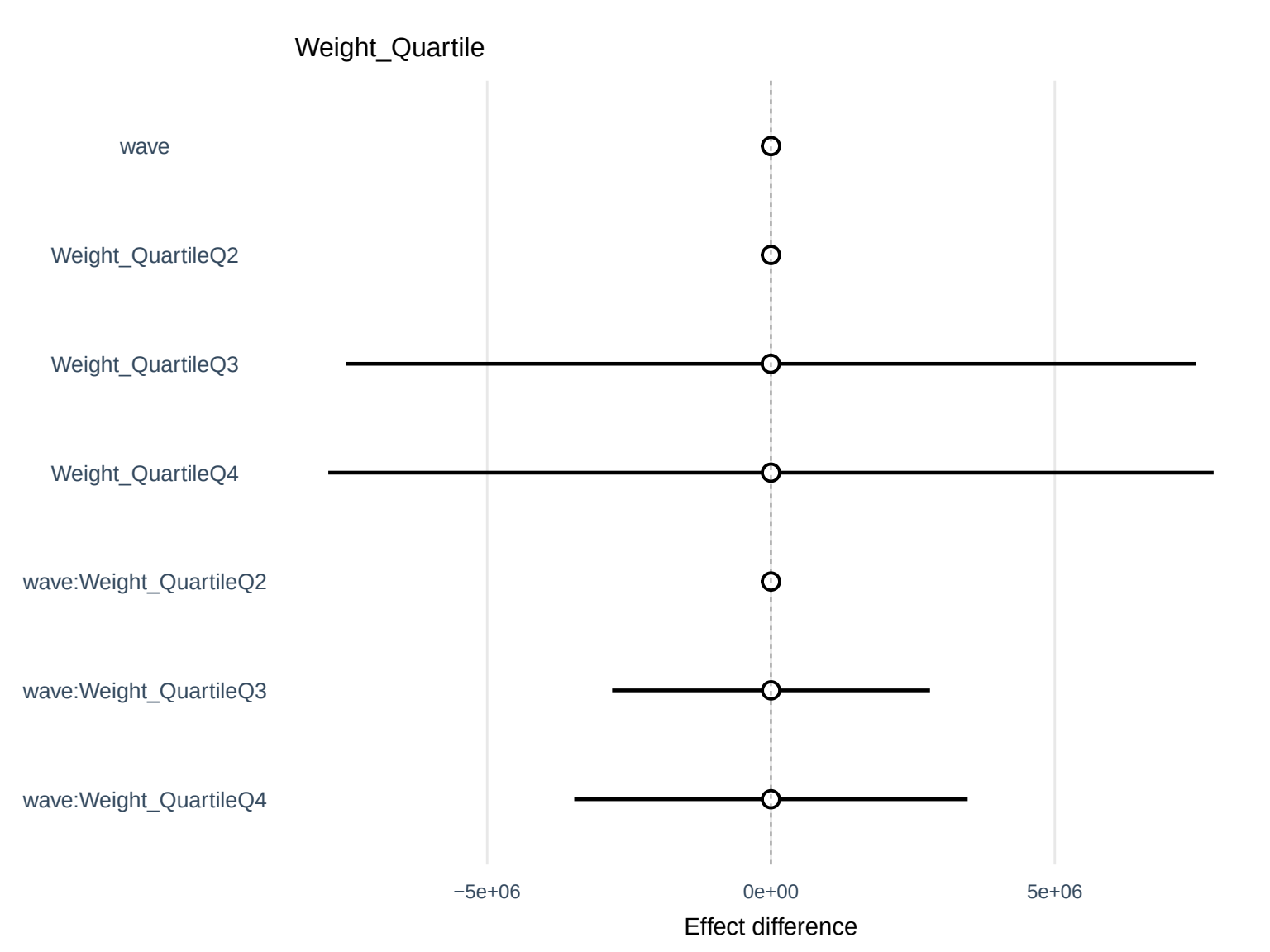
0.0
0.5
1.0
Effect difference


Height_Quartile
wave
Height_QuartileQ2
Height_QuartileQ3
Height_QuartileQ4
wave:Height_QuartileQ2
wave:Height_QuartileQ3
wave:Height_QuartileQ4
−3
−2
−1
0
Effect difference


Weight_Quartile
wave
Weight_QuartileQ2
Weight_QuartileQ3
Weight_QuartileQ4
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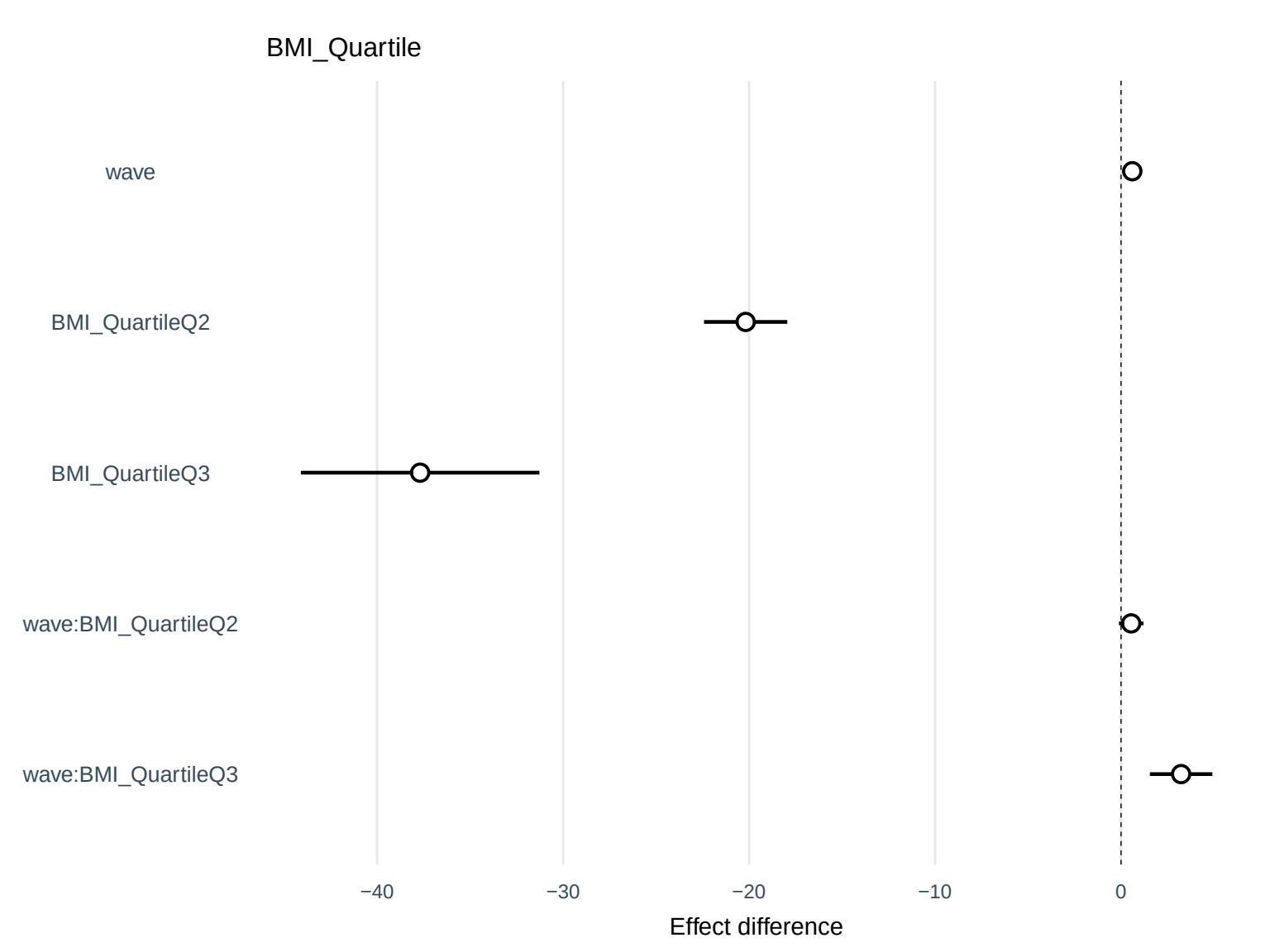
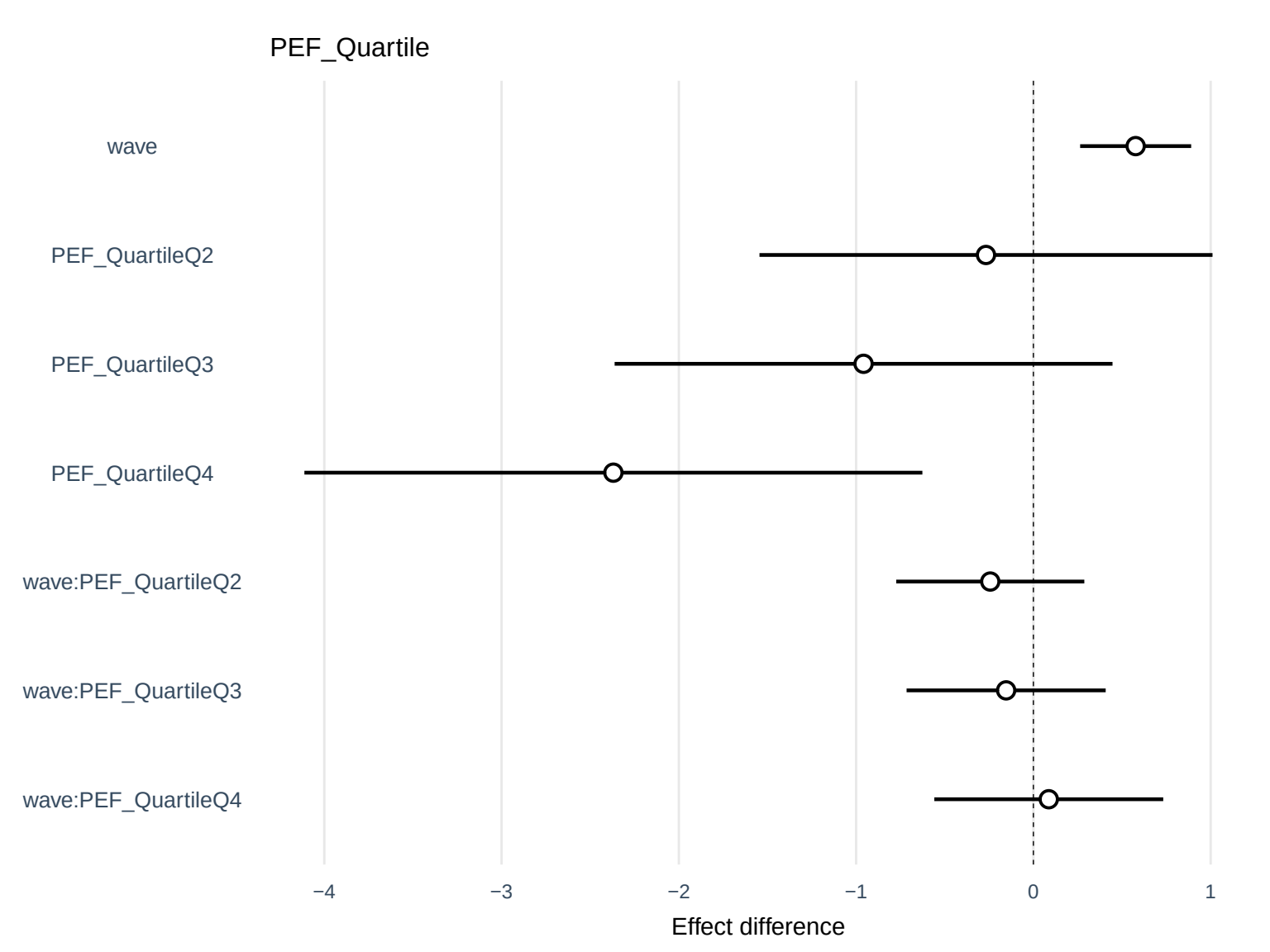
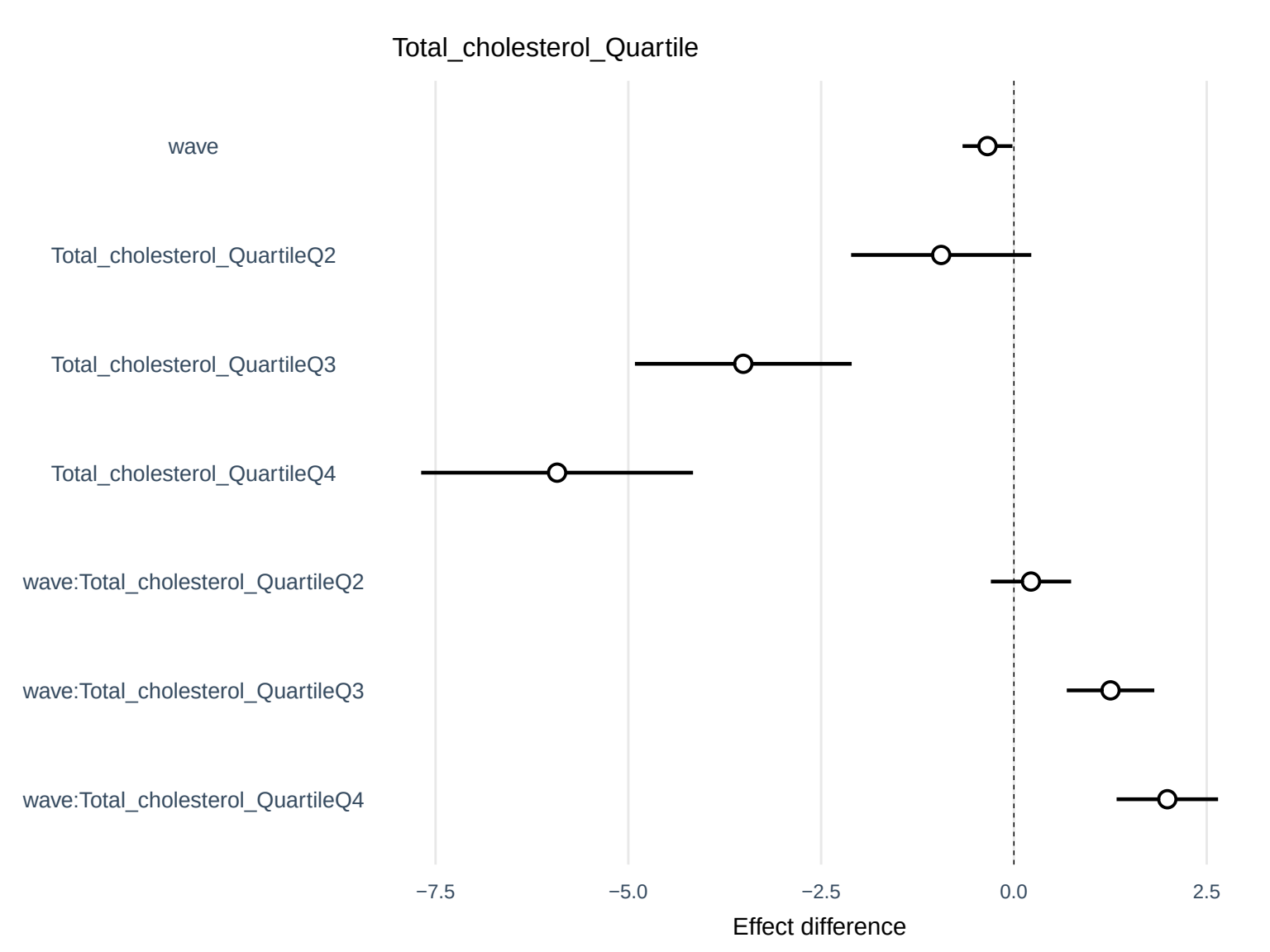
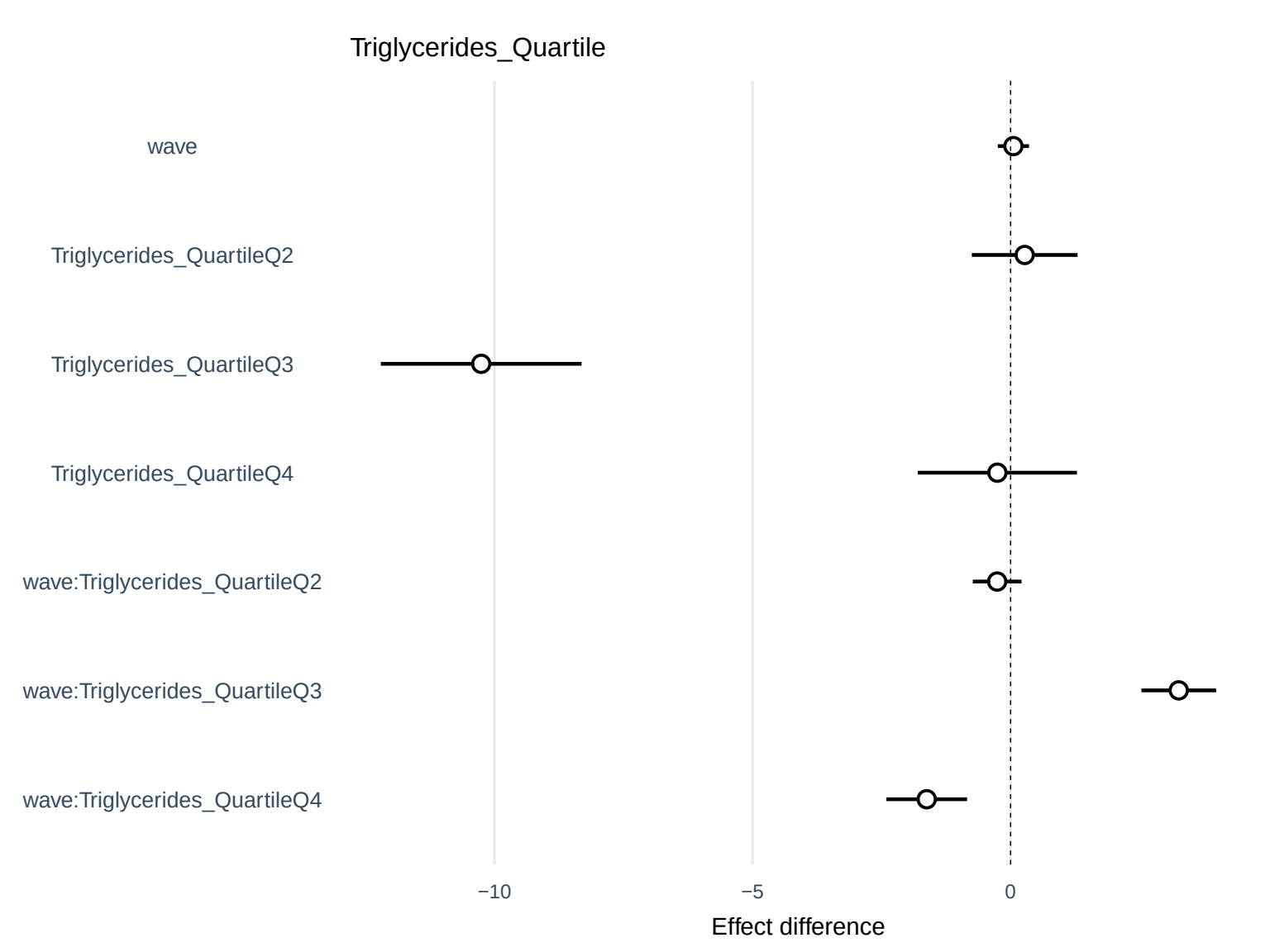
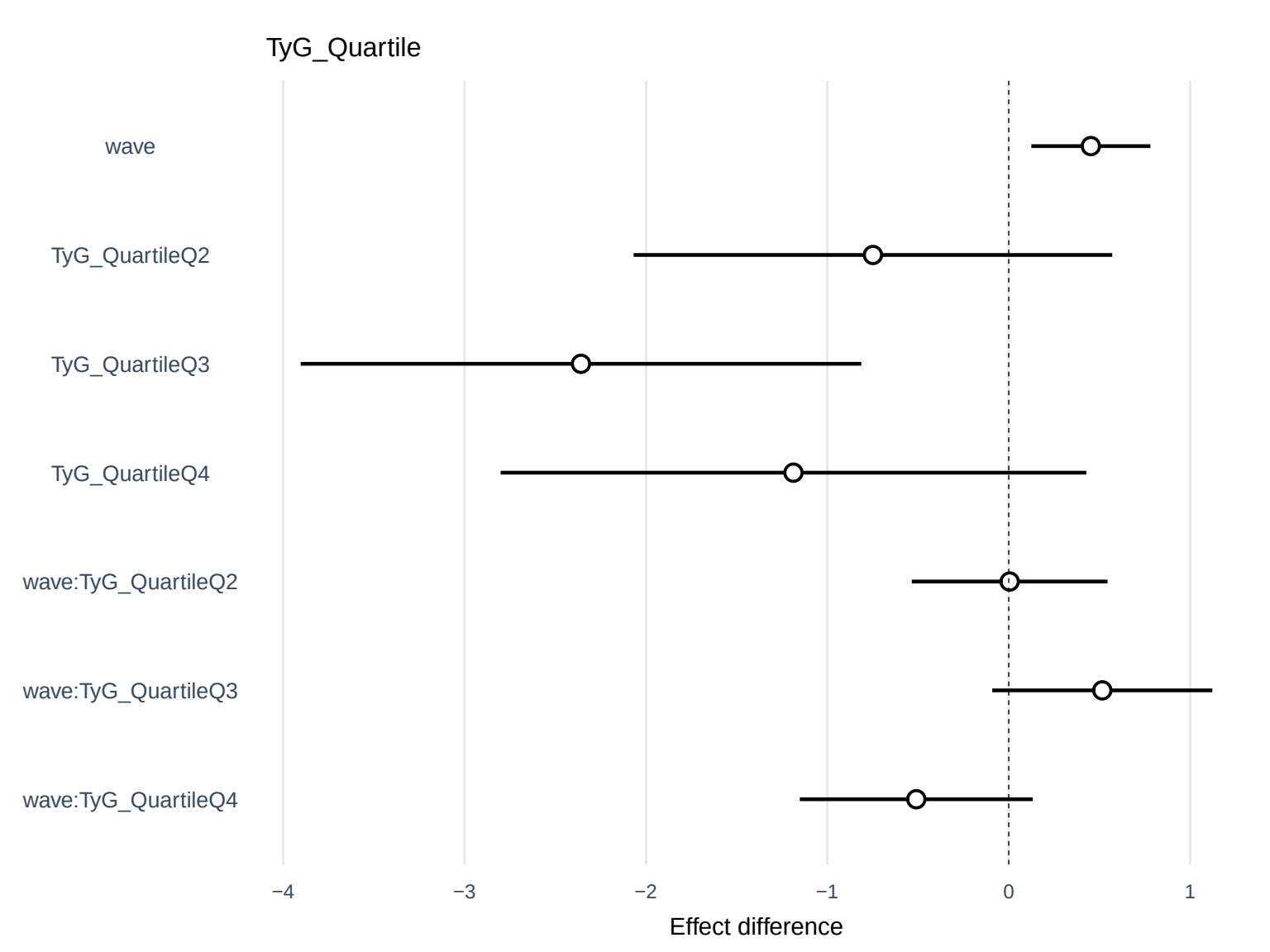
wave:Weight_QuartileQ3
wave:Weight_QuartileQ4
−5e+06
0e+00
5e+06
Effect difference

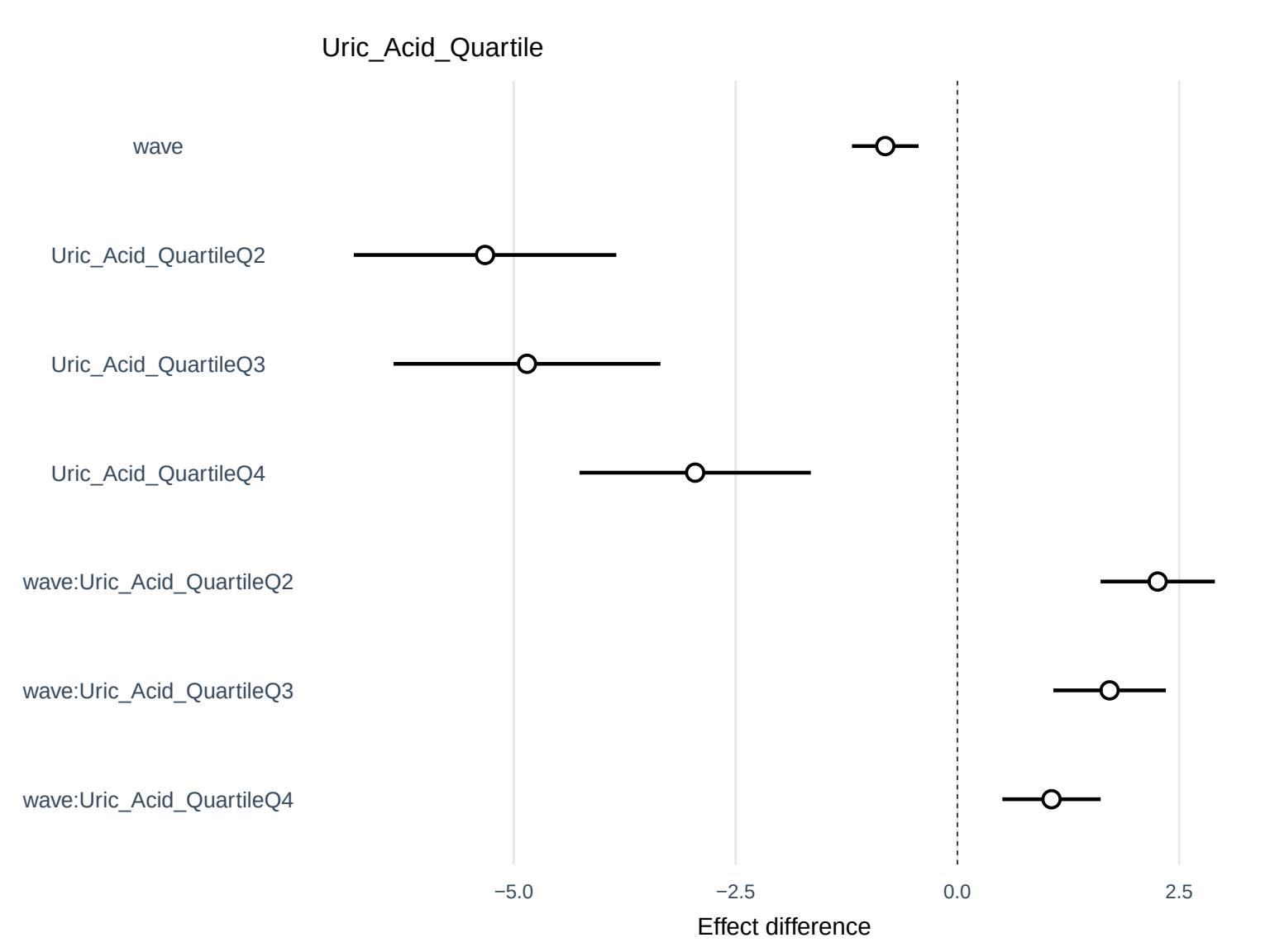

BMI_Quartile
wave
BMI_QuartileQ2
BMI_QuartileQ3
wave:BMI_QuartileQ2
wave:BMI_QuartileQ3
−40
−30
−20
−10
0
Effect difference

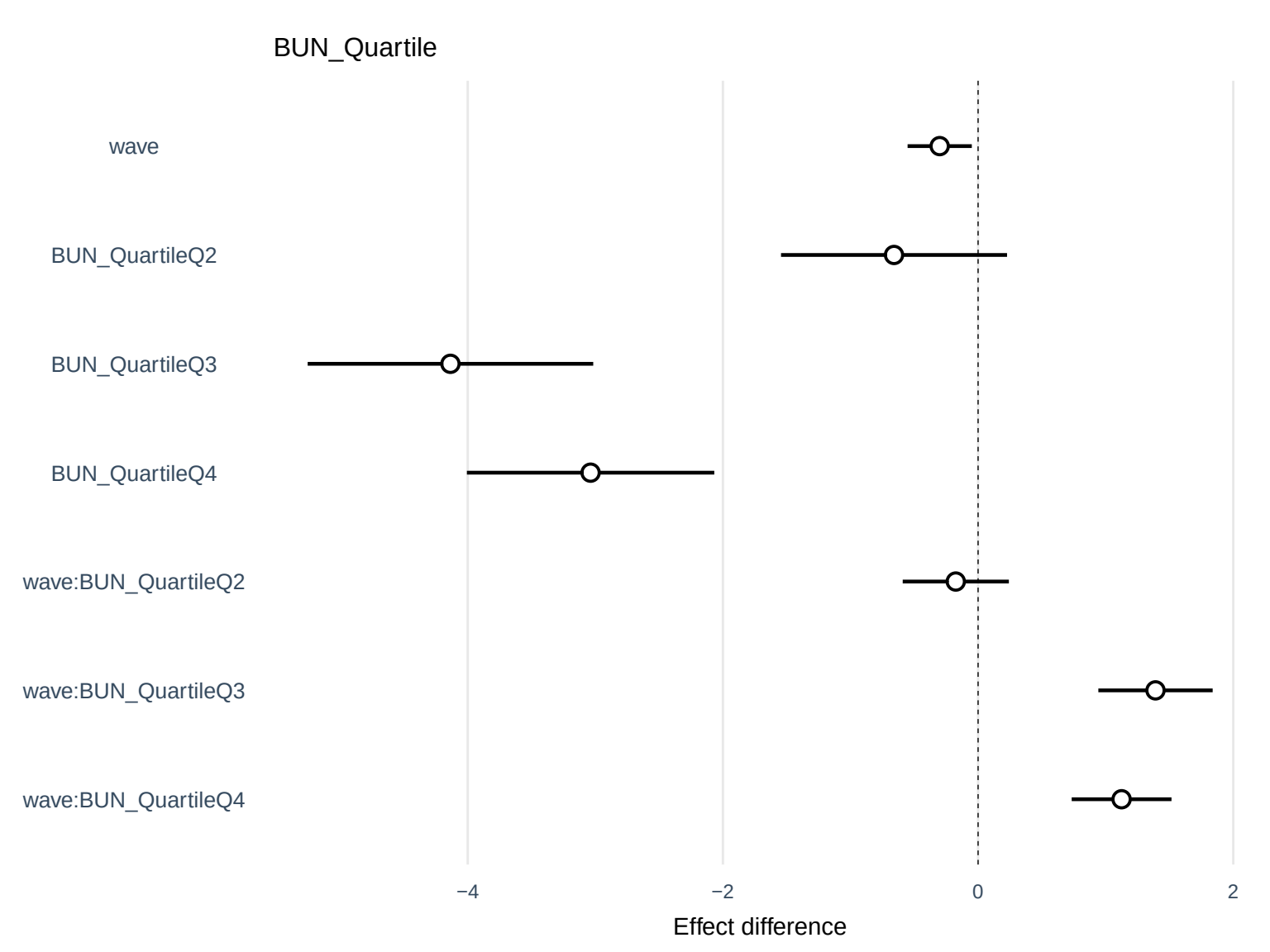

PEF_Quartile
wave
PEF_QuartileQ2
PEF_QuartileQ3
PEF_QuartileQ4
wave:PEF_QuartileQ2
wave:PEF_QuartileQ3
wave:PEF_QuartileQ4
−4
−3
−2
−1
0
1
Effect difference

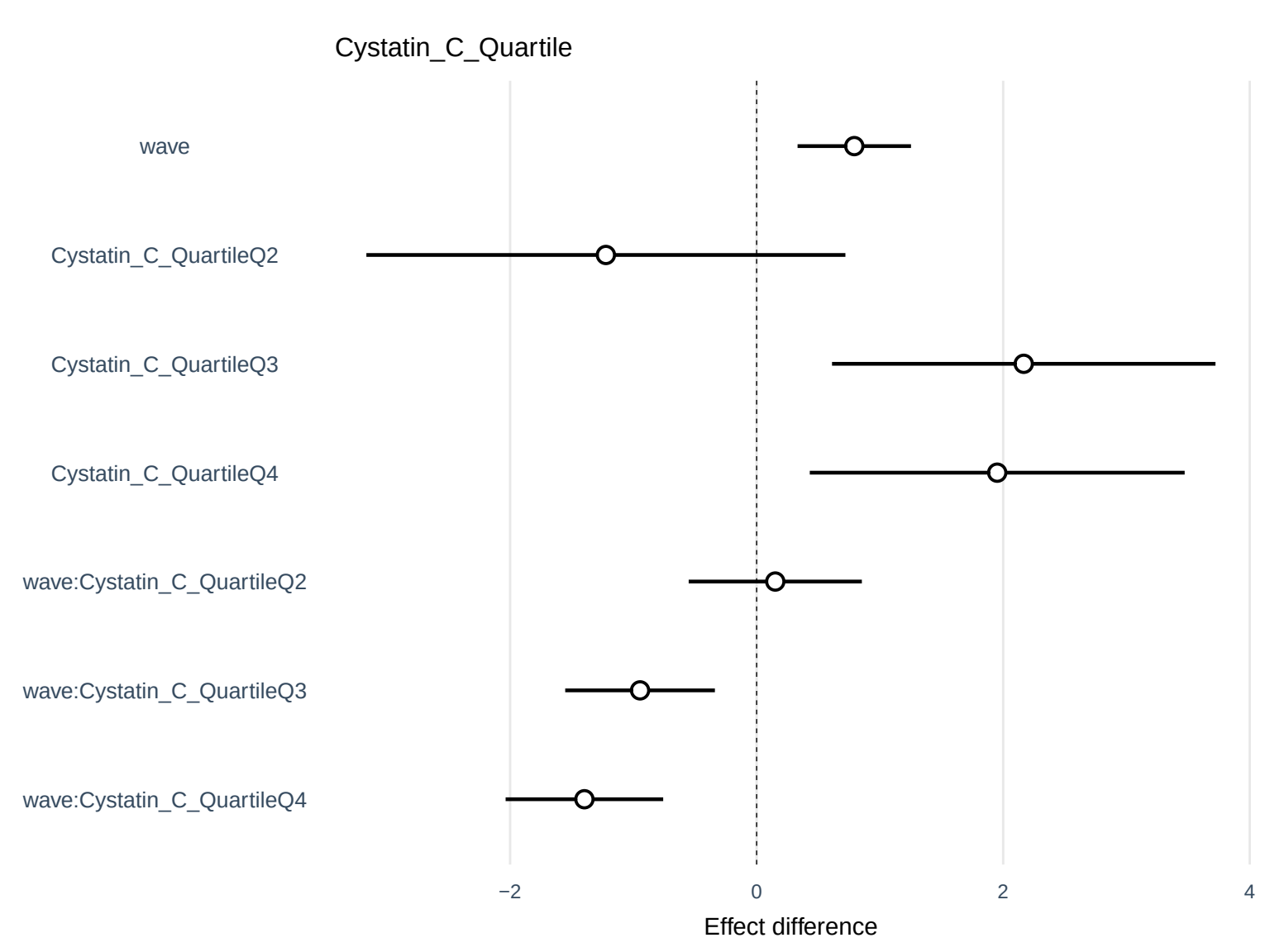

Total_cholesterol_Quartile
wave
Total_cholesterol_QuartileQ2
Total_cholesterol_QuartileQ3
Total_cholesterol_QuartileQ4
wave:Total_cholesterol_QuartileQ2
wave:Total_cholesterol_QuartileQ3
wave:Total_cholesterol_QuartileQ4
−7.5
−5.0
−2.5
0.0
2.5
Effect difference

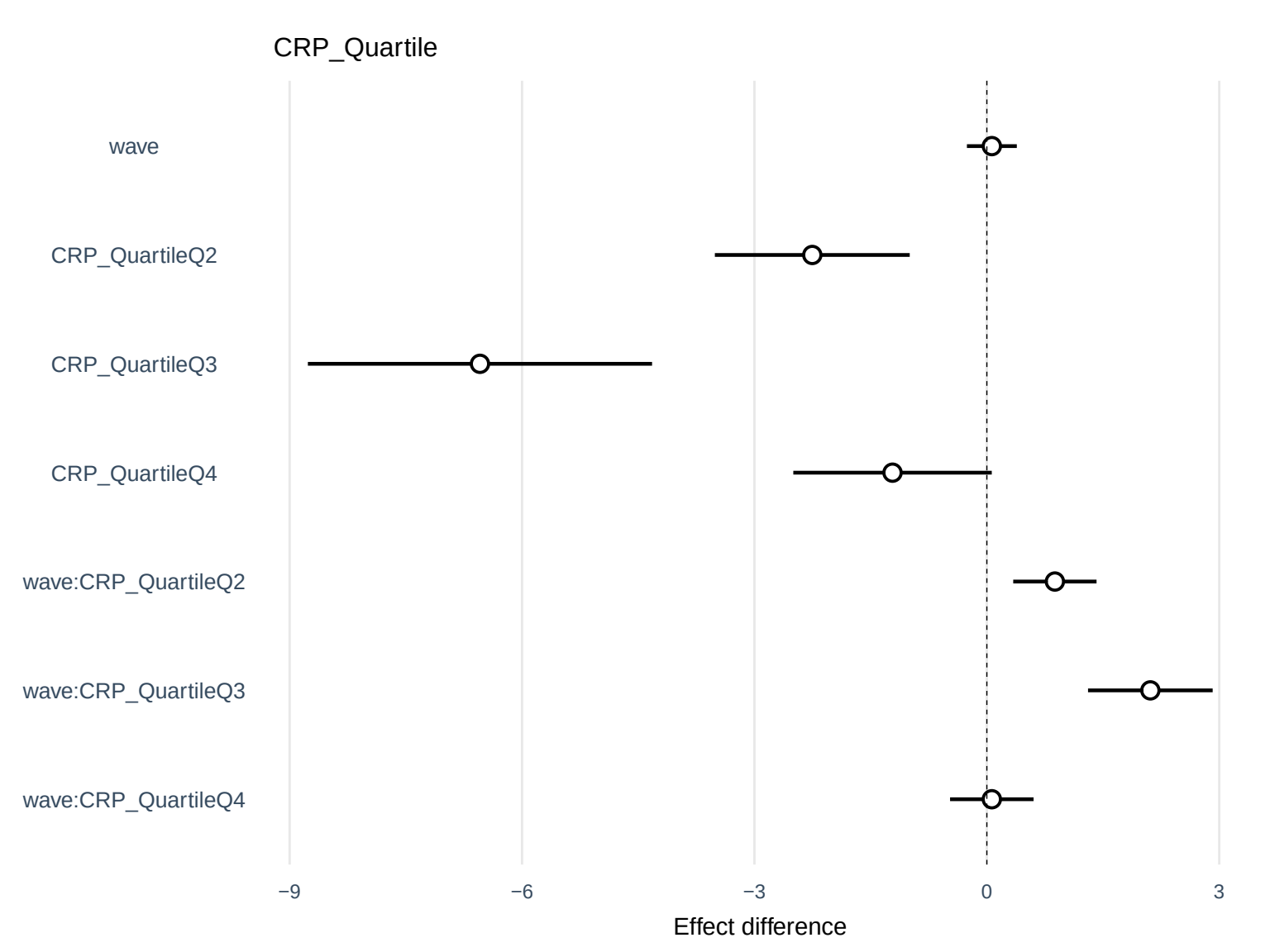

Triglycerides_Quartile
wave
Triglycerides_QuartileQ2
Triglycerides_QuartileQ3
Triglycerides_QuartileQ4
wave:Triglycerides_QuartileQ2
wave:Triglycerides_QuartileQ3
wave:Triglycerides_QuartileQ4
−10
−5
0
Effect difference

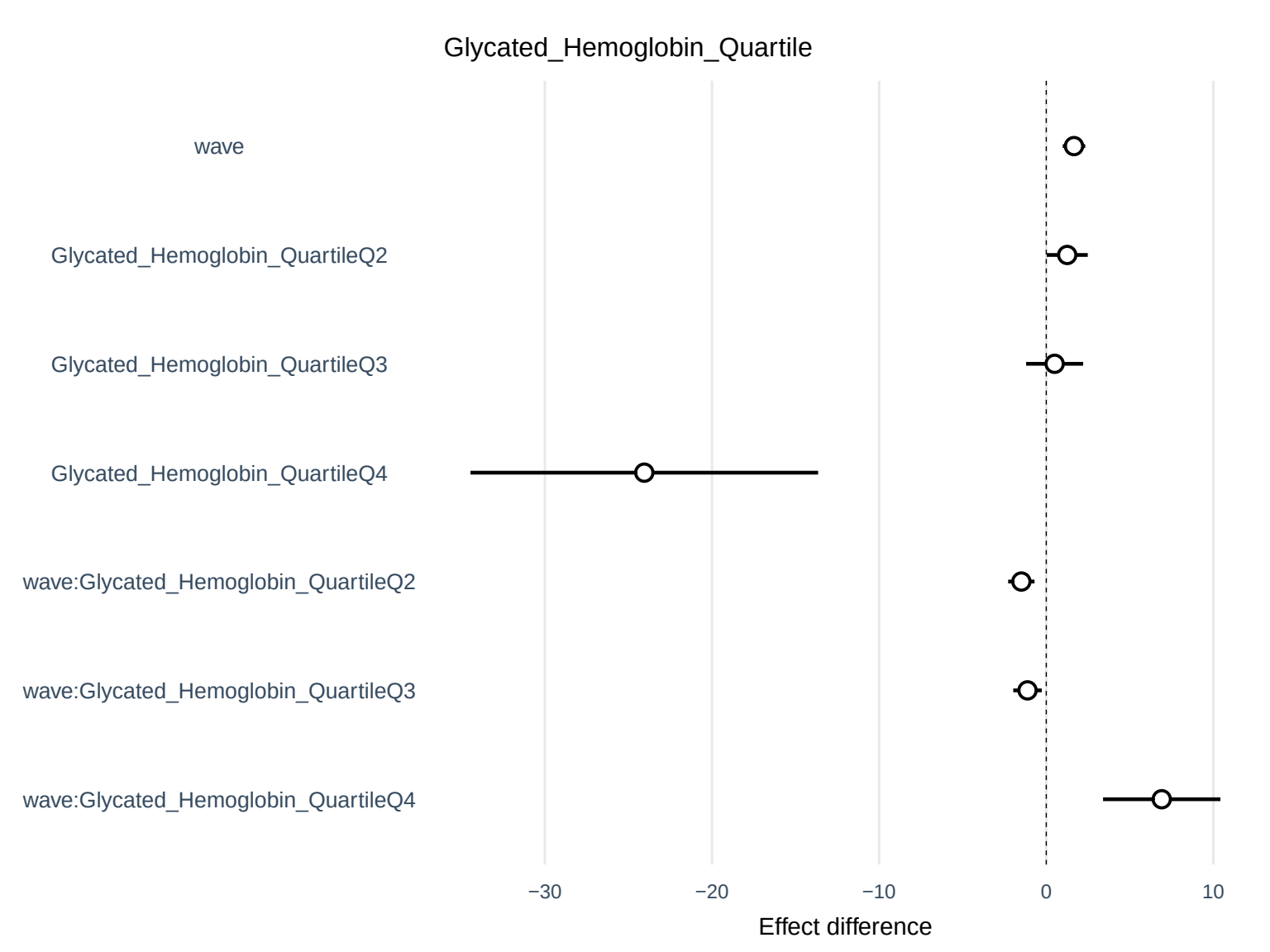

TyG_Quartile
wave
TyG_QuartileQ2
TyG_QuartileQ3
TyG_QuartileQ4
wave:TyG_QuartileQ2
wave:TyG_QuartileQ3
wave:TyG_QuartileQ4
−4
−3
−2
−1
0
1
Effect difference

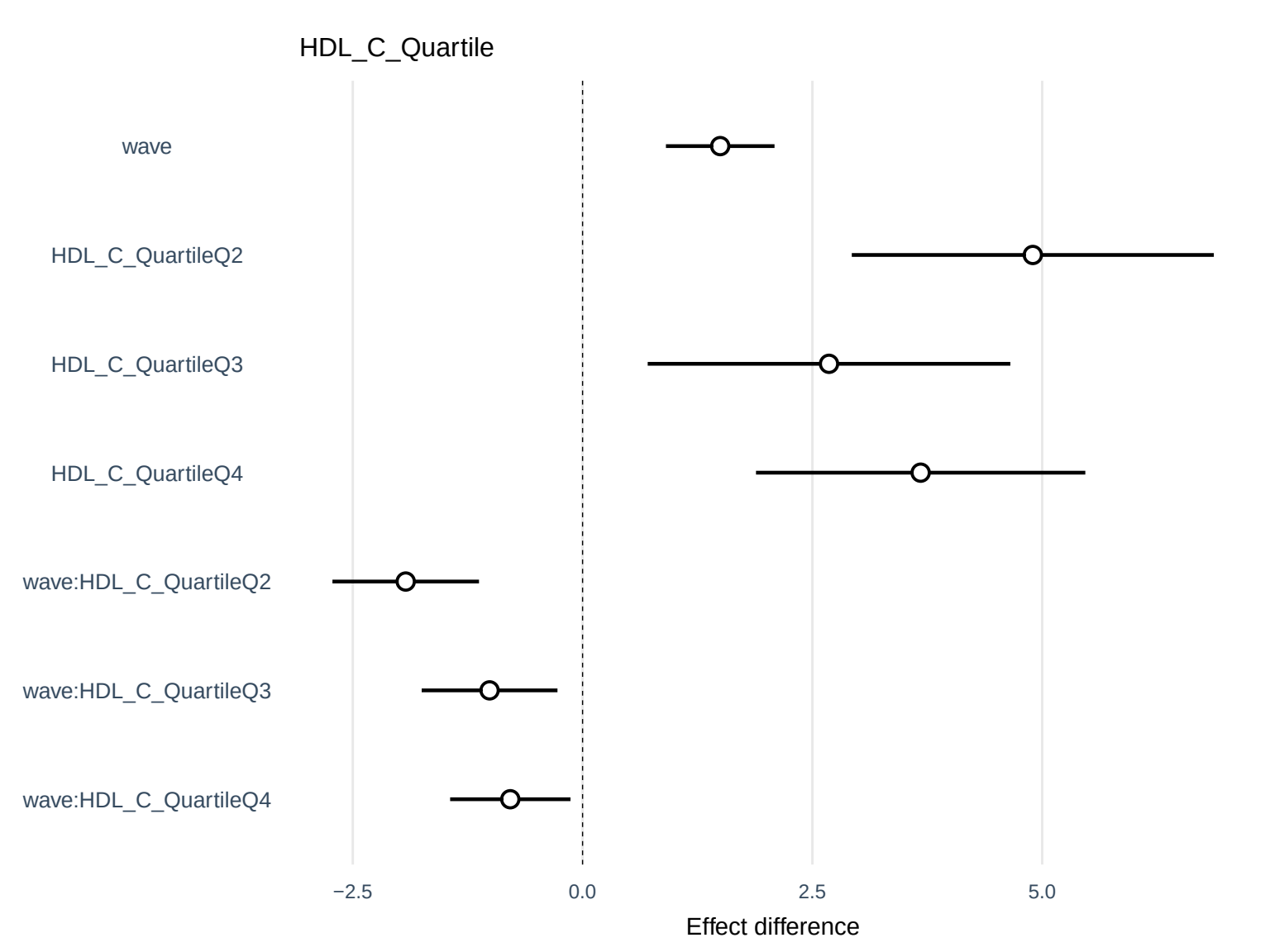

Uric_Acid_Quartile
wave
Uric_Acid_QuartileQ2
Uric_Acid_QuartileQ3
Uric_Acid_QuartileQ4
wave:Uric_Acid_QuartileQ2
wave:Uric_Acid_QuartileQ3
wave:Uric_Acid_QuartileQ4
−5.0
−2.5
0.0
2.5
Effect difference

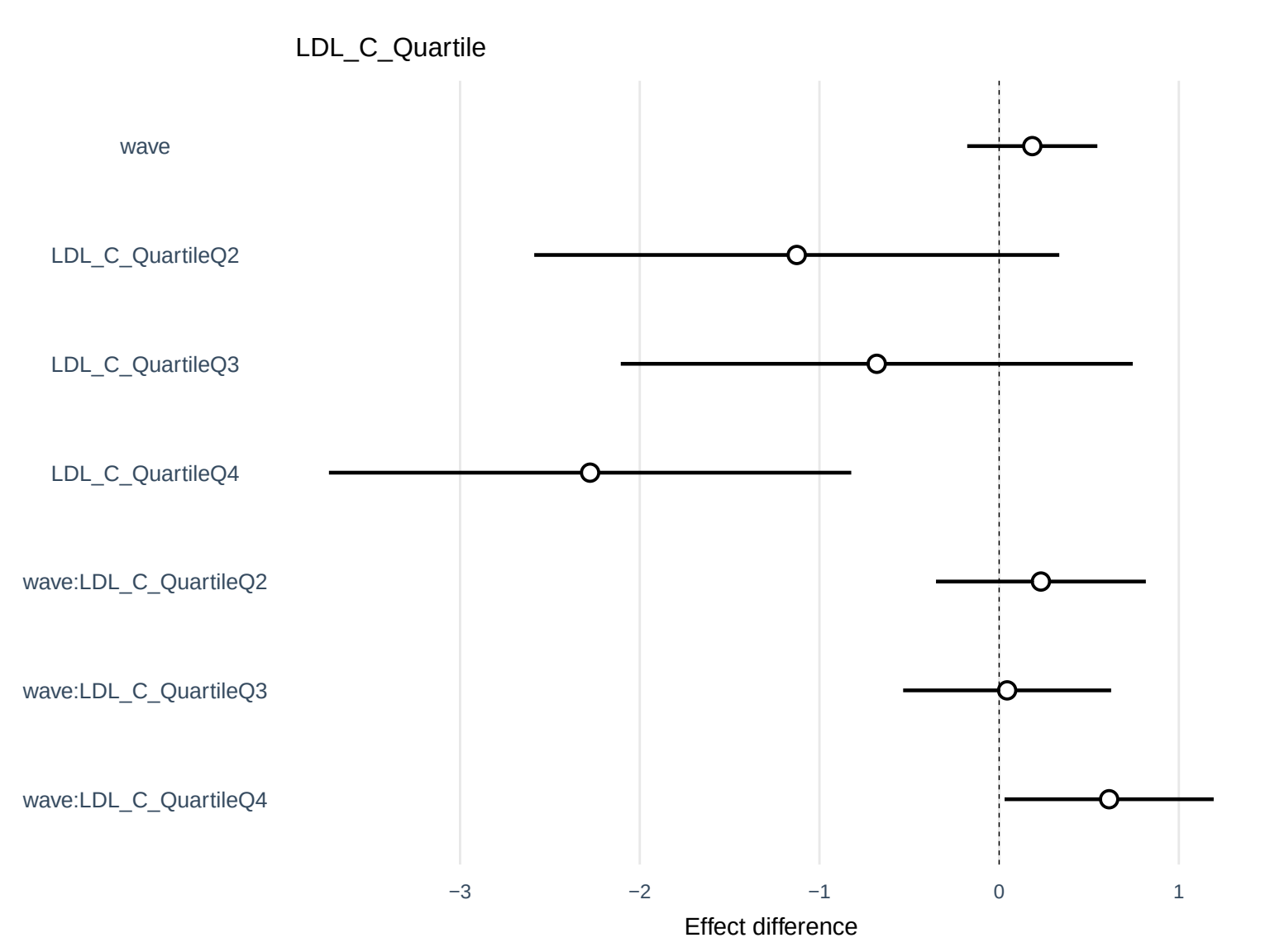

BUN_Quartile
wave
BUN_QuartileQ2
BUN_QuartileQ3
BUN_QuartileQ4
wave:BUN_QuartileQ2
wave:BUN_QuartileQ3
wave:BUN_QuartileQ4
−4
−2
0
2
Effect difference


Cystatin_C_Quartile
wave
Cystatin_C_QuartileQ2
Cystatin_C_QuartileQ3
Cystatin_C_QuartileQ4
wave:Cystatin_C_QuartileQ2
wave:Cystatin_C_QuartileQ3
wave:Cystatin_C_QuartileQ4
−2
0
2
4
Effect difference


CRP_Quartile
wave
CRP_QuartileQ2
CRP_QuartileQ3
CRP_QuartileQ4
wave:CRP_QuartileQ2
wave:CRP_QuartileQ3
wave:CRP_QuartileQ4
−9
−6
−3
0
3
Effect difference


Glycated_Hemoglobin_Quartile
wave
Glycated_Hemoglobin_QuartileQ2
Glycated_Hemoglobin_QuartileQ3
Glycated_Hemoglobin_QuartileQ4
wave:Glycated_Hemoglobin_QuartileQ2
wave:Glycated_Hemoglobin_QuartileQ3
wave:Glycated_Hemoglobin_QuartileQ4
−30
−20
−10
0
10
Effect difference


HDL_C_Quartile
wave
HDL_C_QuartileQ2
HDL_C_QuartileQ3
HDL_C_QuartileQ4
wave:HDL_C_QuartileQ2
wave:HDL_C_QuartileQ3
wave:HDL_C_QuartileQ4
−2.5
0.0
2.5
5.0
Effect difference


LDL_C_Quartile
wave
LDL_C_QuartileQ2
LDL_C_QuartileQ3
LDL_C_QuartileQ4
wave:LDL_C_QuartileQ2
wave:LDL_C_QuartileQ3
wave:LDL_C_QuartileQ4
−3
−2
−1
0
1
Effect difference

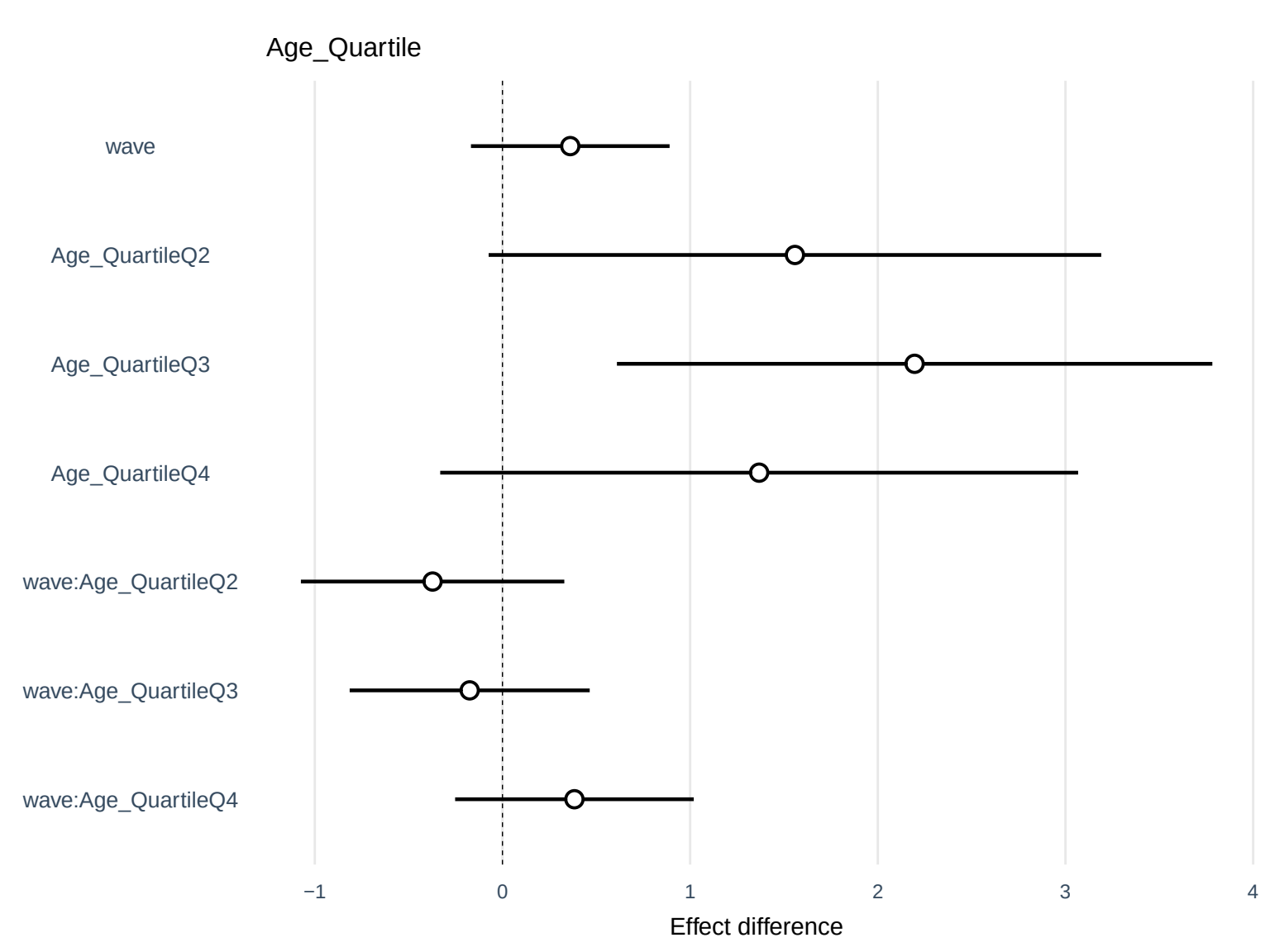

Age_Quartile
wave
Age_QuartileQ2
Age_QuartileQ3
Age_QuartileQ4
wave:Age_QuartileQ2
wave:Age_QuartileQ3
wave:Age_QuartileQ4
−1
0
1
2
3
4
Effect difference

Figure S2: Learning curves of machine learning algorithms.

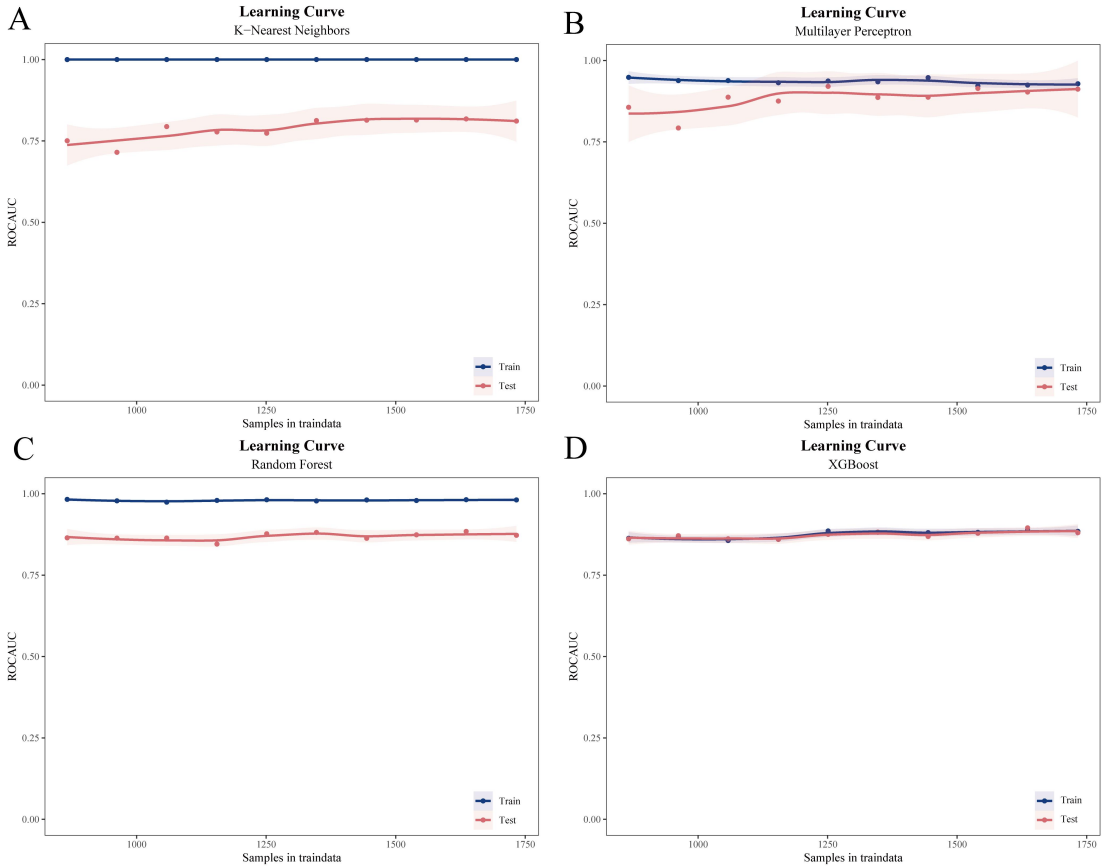


Figure S3: Calibration plots of machine learning algorithms in the training set.

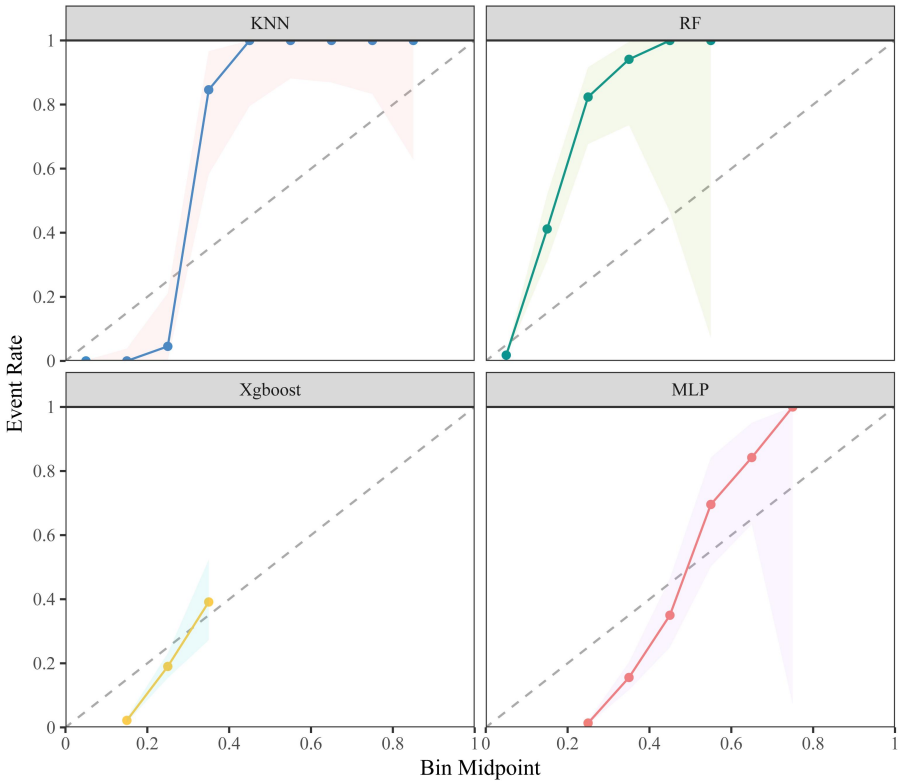


Figure S4: Calibration plots of machine learning algorithms in the test set.

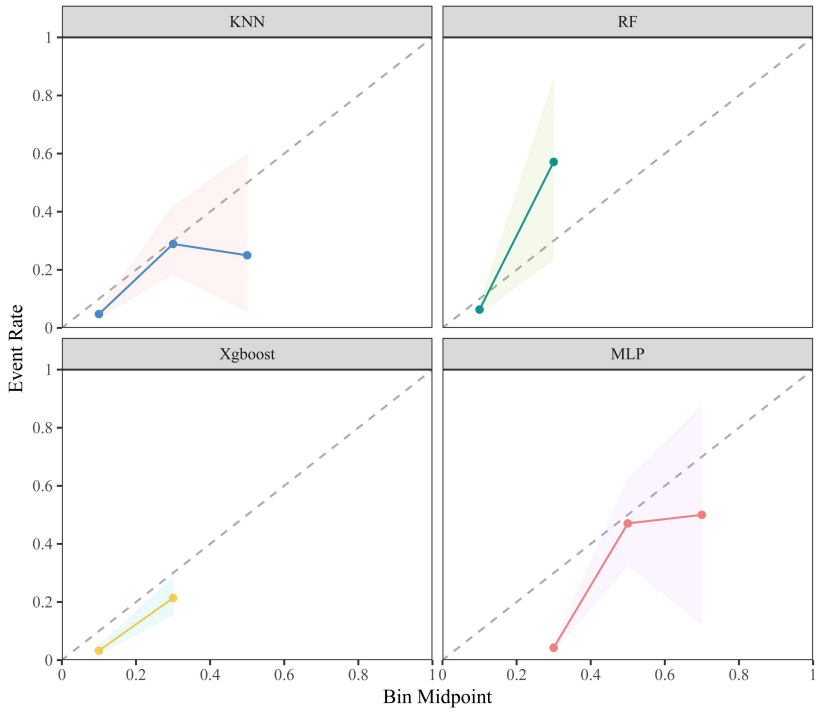
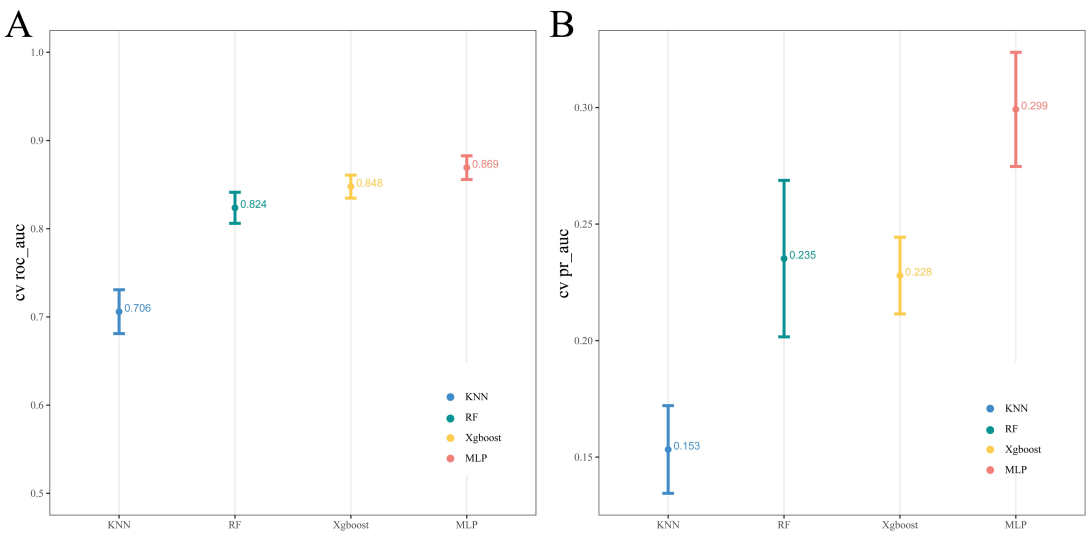


Figure S5: Cross-validation ROC and PR AUC plots of machine learning models: ROC



AUC plots (A), PR AUC plots (B).

Figure S6: Visualization of hyperparameter tuning results for the MLP model.

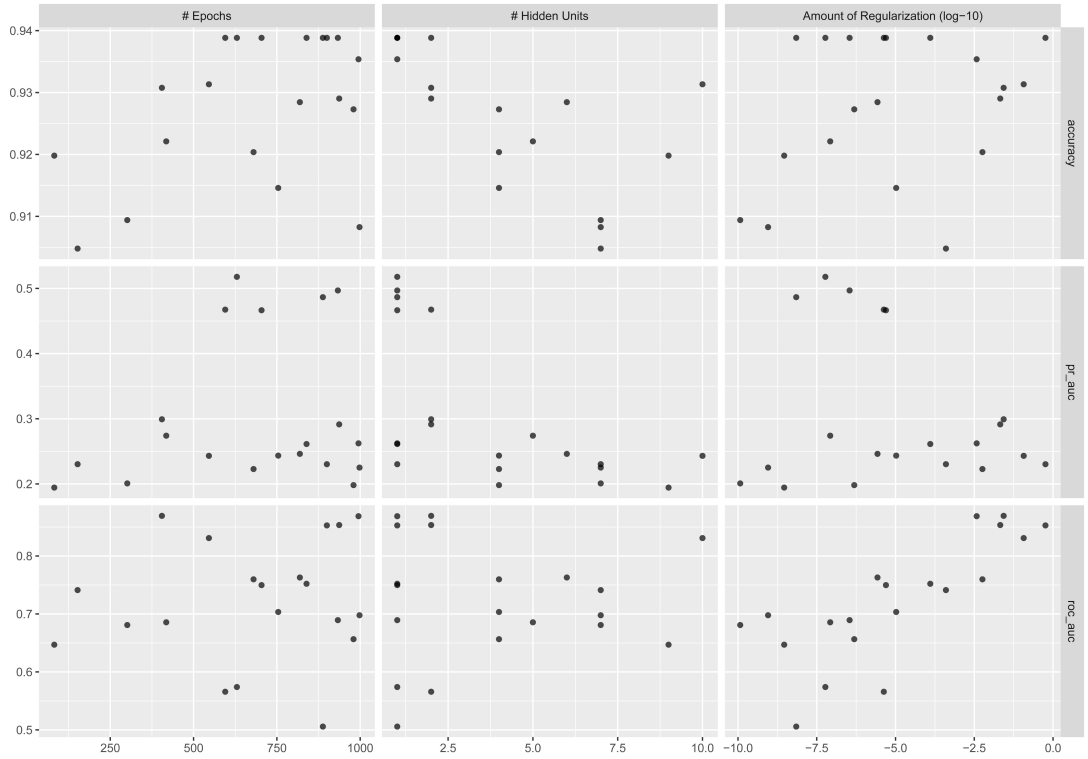
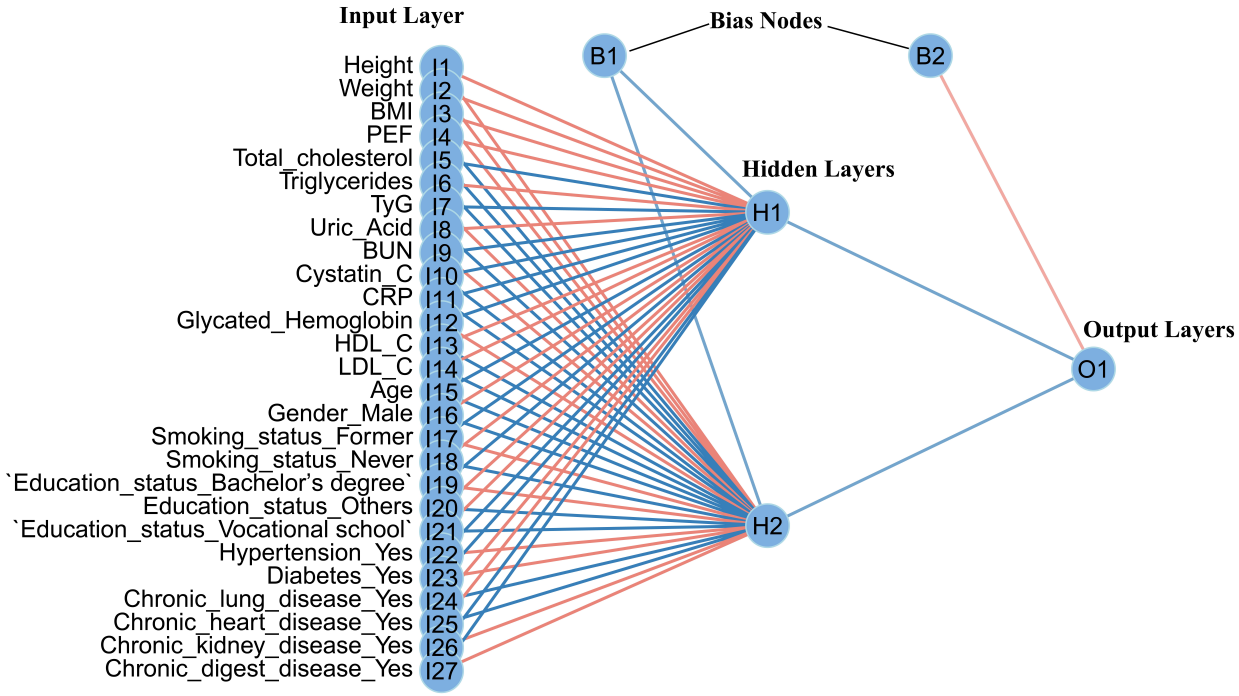



Figure S7. Illustration of the neural network structure. The numbers of input, hidden, and output layers are 1, 2, and 1, respectively.