



QEEG Clinical Report

BrainLens V0.4

Report Description



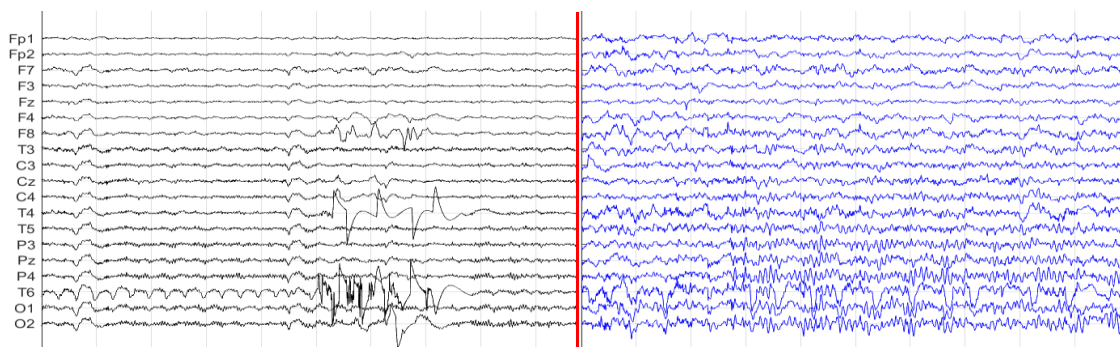
Personal & Clinical Data

Name	Hossein Niksefat	Date of Recording	16-Jun-2024
Date of Birth - Age	21-Mar-1976 - 48.24	Gender	Male
Handedness(R/L)	Right	Source of Referral	Dr Masjedi
Initial Diagnosis	Headache-Anger-Aggression-Sleep disorder-High anxiety		
Current Medication	Medication Free		

Dr Masjedi

Denoising Information (EC)

Raw EEG



Denoised EEG

Flat Channels



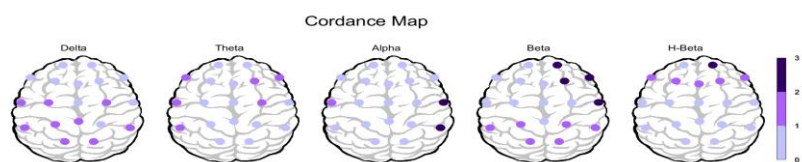
Rejected Channels



Number of Eye and Muscle Elements				Low Artifact Percentage	
Eye	1	Muscle	1		
Total Artifact Percentage				High Artifact Percentage	
					
EEG Quality		bad		Total Recording Time Remaining	42.13 sec

Pathological assessment for mood disorders

Compare to Mood Disorders Database



EEG Compatibility with Depression Diagnosis

Depression Table	EC	
Feature Name	Threshold	Region
Increased Global rAlpha	0.00	NAN
Increased global rTheta	0.00	NAN
Decreased rDelta	0.00	NAN
Increased rBeta	0.00	NAN
Left FAA	-0.24	Left FAA
Right OAA	0.00	NAN
Decreased Coherence (D, T)	-0.50	Decreased Coherence (D,T)
Increased Coherence (A, B)	0.00	NAN

depression

0 10 20 30 40 50 60 70 80 90 100

Depression Probability

EEG Compatibility with Anxiety Diagnosis

Anxiety Table	EC	
Feature Name	Threshold	Region
Decreased rAlpha	-0.50	LF-LT-RT-
Increased rBeta	0.00	NAN
Right FAA	0.00	NAN
Left OAA	-0.35	Left OAA
Increased IAF > 10.6	0.00	NAN

Anxiety

0 10 20 30 40 50 60 70 80 90 100

Anxiety Probability

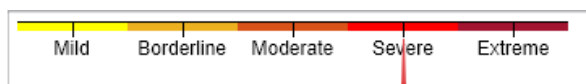
EEG Compatibility with Mood Swings Diagnosis *

Mood Swings Table		EC
Feature Name	Threshold	Region
Decreased rAlpha	-0.50	LF-LT-RT-
Increased (rDelta+rTheta)	1.00	LF-RF-MF-LT-RT-C-
Increased rBeta	0.00	NAN
Decreased Alpha Coherence	-0.50	Decreased Alpha Coherence
Right FAA	0.00	NAN

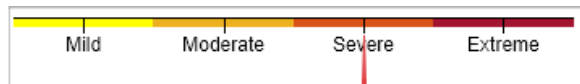
Mood Swings Probability

* This index can only be investigated if there are symptoms of mood swings (R/O BMD or R/O mood swings).

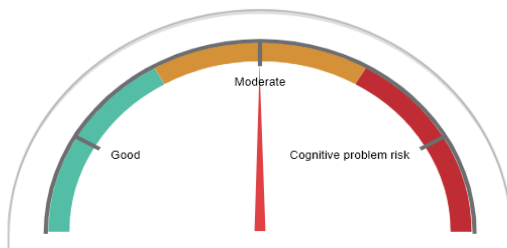
Depression Severity



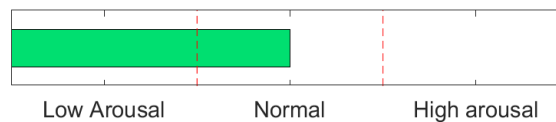
Anxiety Severity



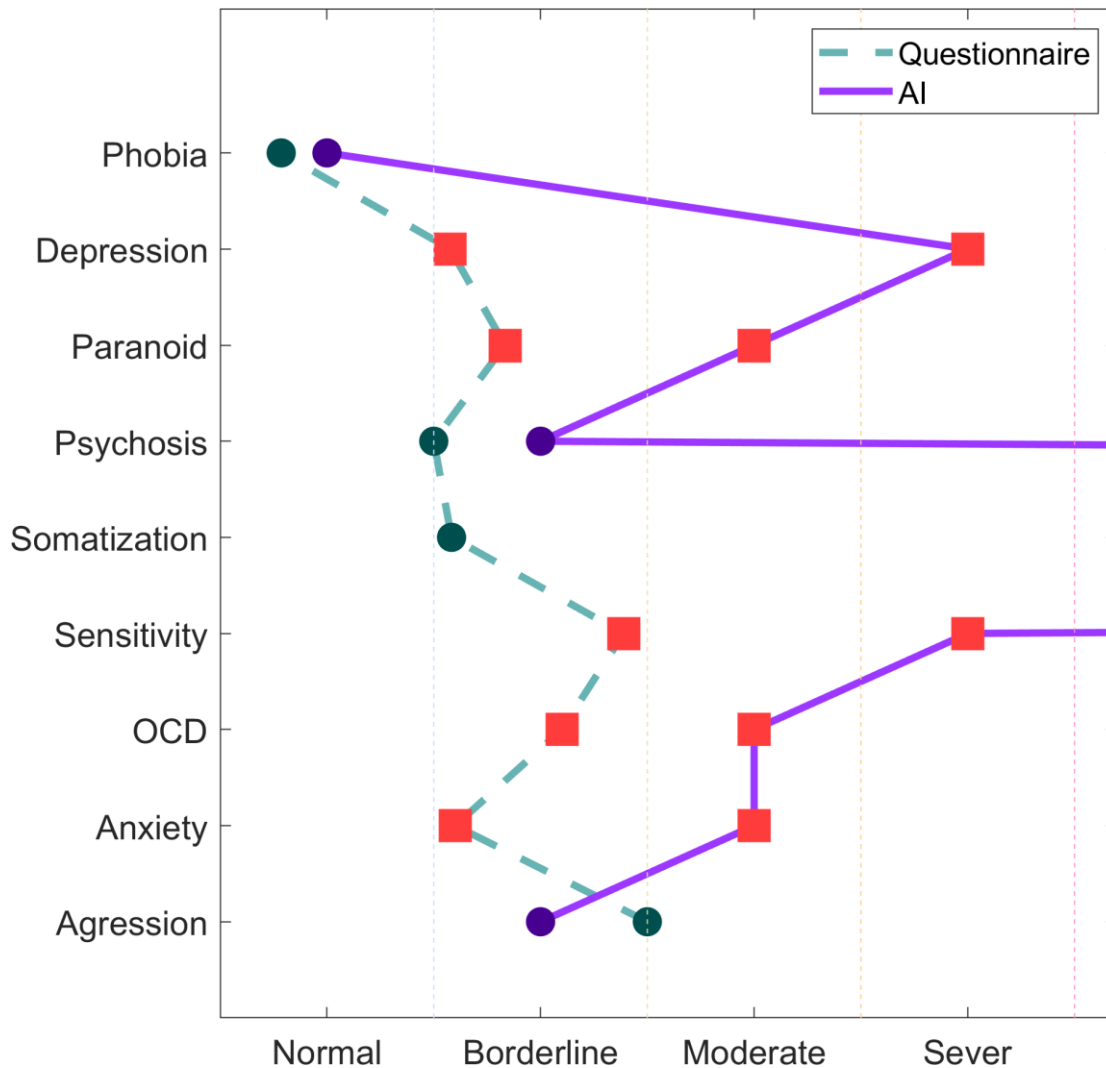
Cognitive Functions



Arousal Level Detection



AI-Driven Psychometric Symptoms Assessing



Explanation

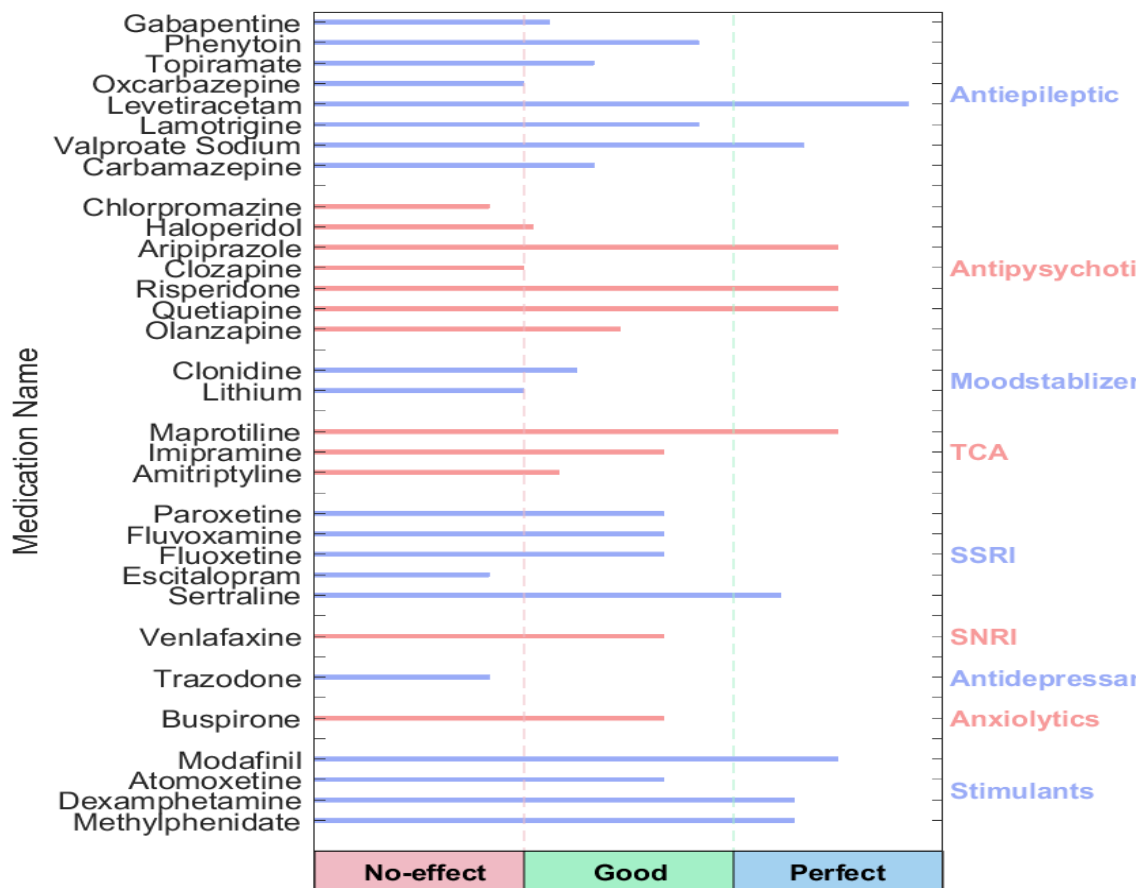
The above diagram illustrates the psychometric symptoms based on the **SCL90** questionnaire of the subject (green line) and AI (purple line). Combination of non-linear EEG markers have been used to estimate these symptoms using AI. All the AI algorithms used in these analysis have an accuracy more than 97.60%, a sensitivity more than 97.54%, and a specificity more than 97.58%.



Note

If a red square marker appears in the symptom, it means there is a remarkable difference between the subject's questionnaire score and AI estimate. In the other words, the subject's questionnaire score is in the normal to borderline area, but the AI estimate is in the moderate to extreme area or vice versa.

QEEG based predicting medication response



Explanation

These two tables can be considered the most important finding that can be extracted from QEEG. To prepare this list, the NPCIndex Article Review Team has studied, categorized, and extracted algorithms from many authoritative published articles on predict medication response and Pharmac EEG studies. These articles are published between 1970 and 2021. The findings extracted from this set include 85 different factors in the raw band domains, spectrum, power, coherence, and loreta that have not been segregated to avoid complexity, and their results are shown in these diagrams. One can review details in NPCIndex.com .

⚠ Medication Recommendation

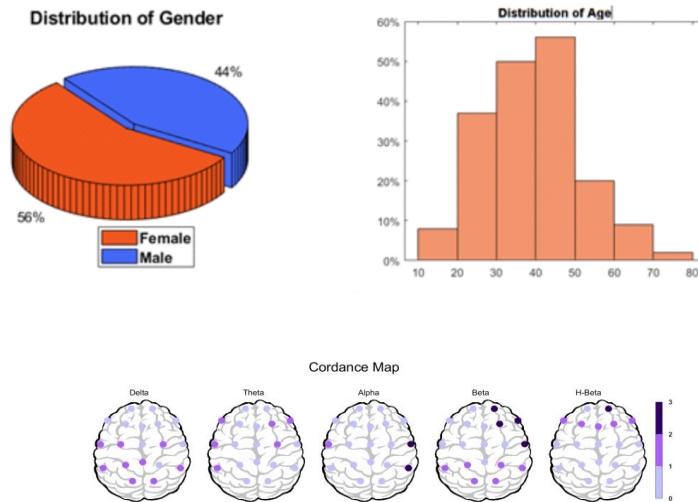
These two charts, calculate response probability to various medications, according only to QEEG indicators. Blue charts favor drug response and red charts favor drug resistance. The longer the bar, the more evidence there is in the articles. Only drugs listed in the articles are listed. These tables present the indicators reviewed in the QEEG studies and are not a substitute for physician selection.

rTMS Response Prediction

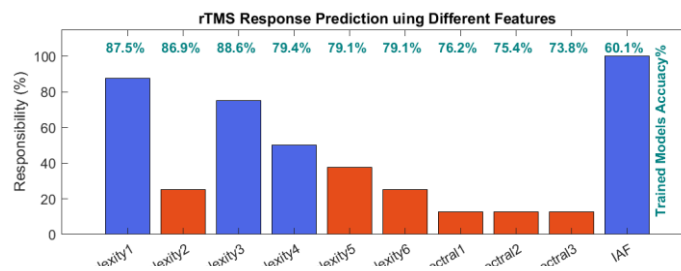
Network Performance

Accuracy: 92.1%
Sensitivity: 89.13%
Specificity: 97.47%

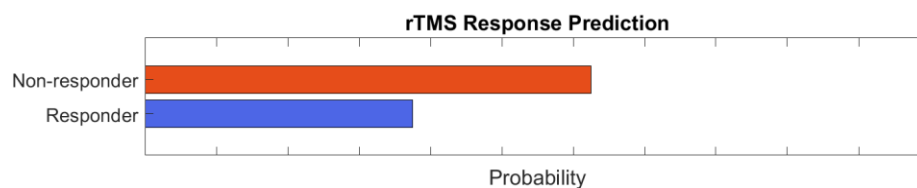
Participants Information



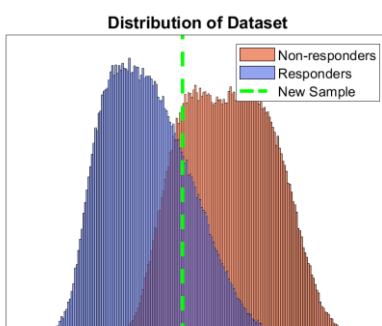
Features Information



Responsibility



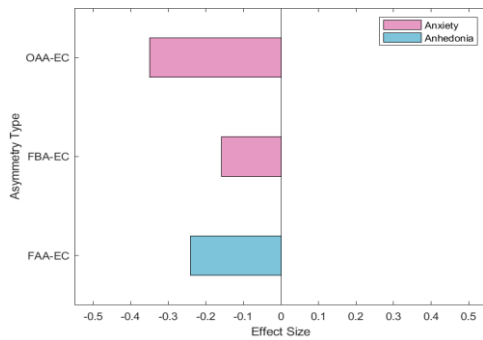
Data Distribution



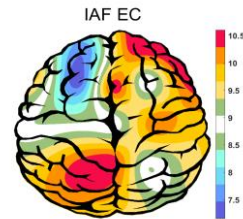
About Predicting rTMS Response

This index was obtained based on machine learning approaches and by examining the QEEG biomarkers of more than 470 cases treated with rTMS. The cases were diagnosed with depression (with and without comorbidity) and all were medication free. By examining more than 40 biomarkers capable of predicting response to rTMS treatment in previous studies and with data analysis, finally 10 biomarkers including bispectral and nonlinear features entered the machine learning process. The final chart can distinguish between rTMS responsive and resistant cases with 92.1% accuracy. This difference rate is much higher than the average response to treatment of 44%, in the selection of patients with clinical criteria, and is an important finding in the direction of personalized treatment for rTMS.

Alpha Asymmetry(AA)

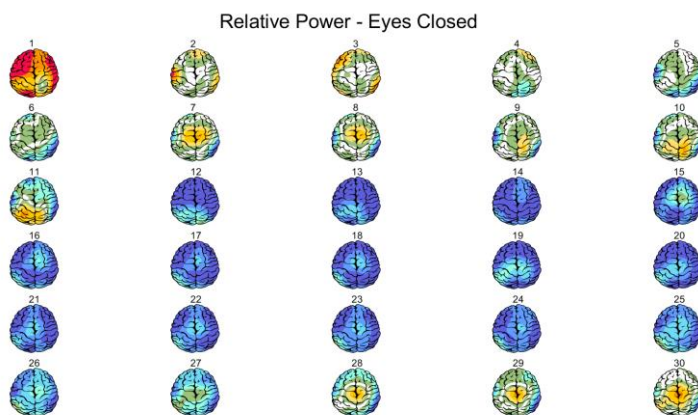


IAF(EC)



Eye Close IAF= 09.62

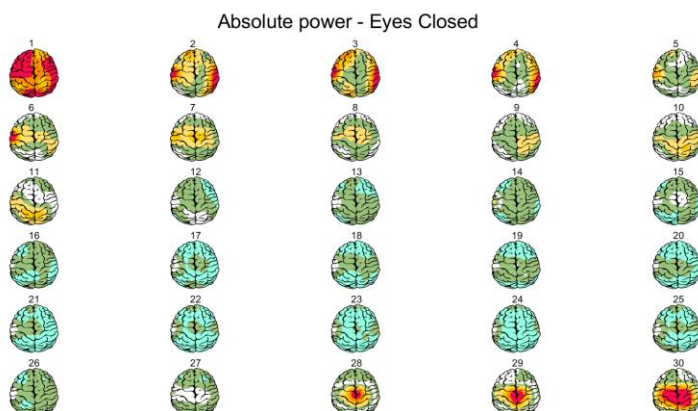
Absolute Power-Eye Closed (EC)



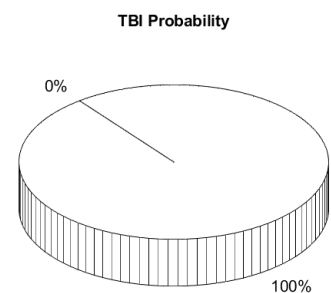
TBI Severity



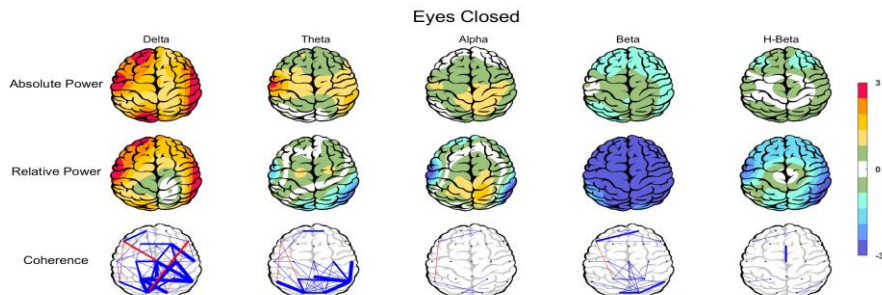
Relative Power-Eye Closed (EC)



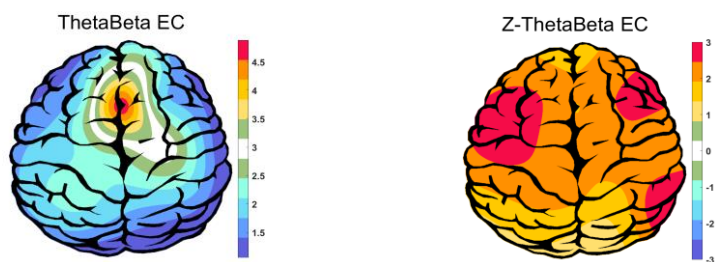
TBI Probability



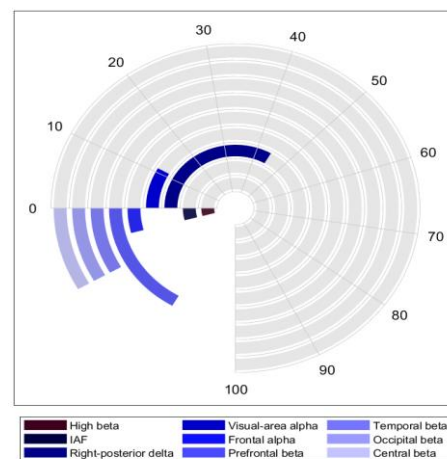
Z Score Summary Information (EC)



E.C.T/B Ratio (Raw- Z Score)



Arousal Level



EEG Spectra

