Attentional differences associated with original music composed by Evoked Response

ROUND 1 (Ambient and Groove Music)

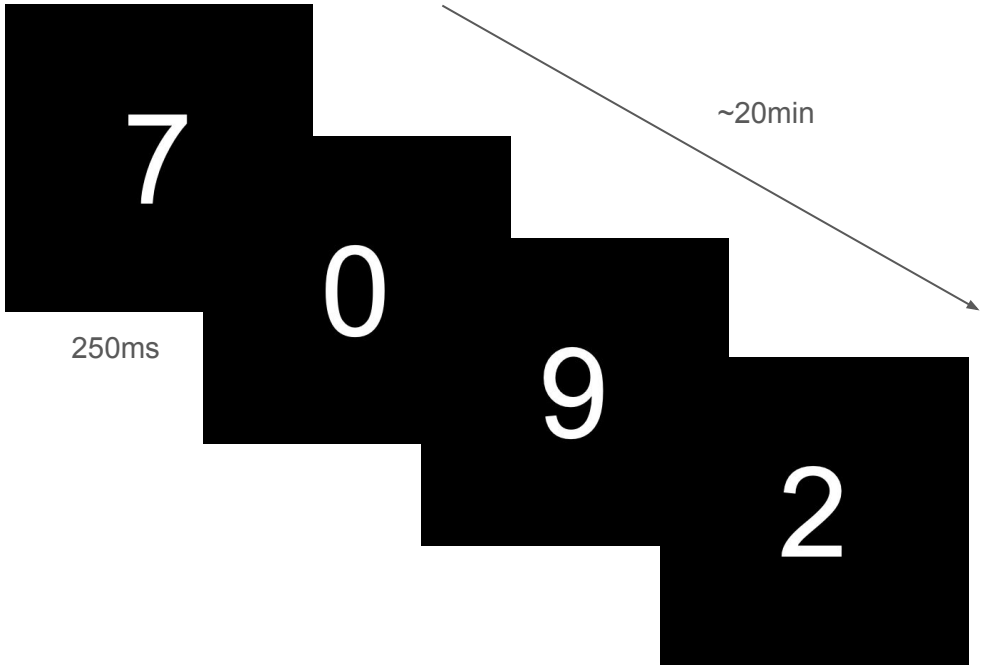
Evoked Response one-of-a-kind musical stimuli

Ambient Piece (saw wave) vs. ambient control (no wave)

Groove Piece (triangle wave) vs. groove control (no wave

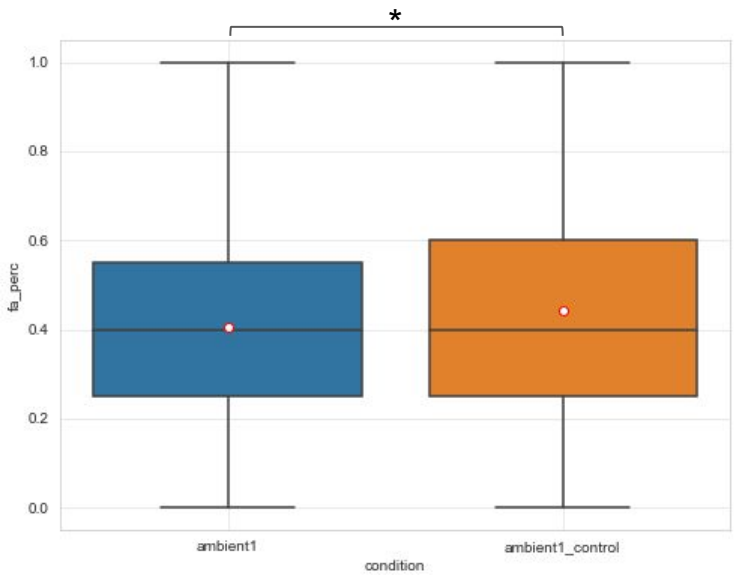
SART TASK (Gorilla.sc)

Press the spacebar as quickly as possible when you a see a number between 1-9.
Do not press any button when you see a “0”.

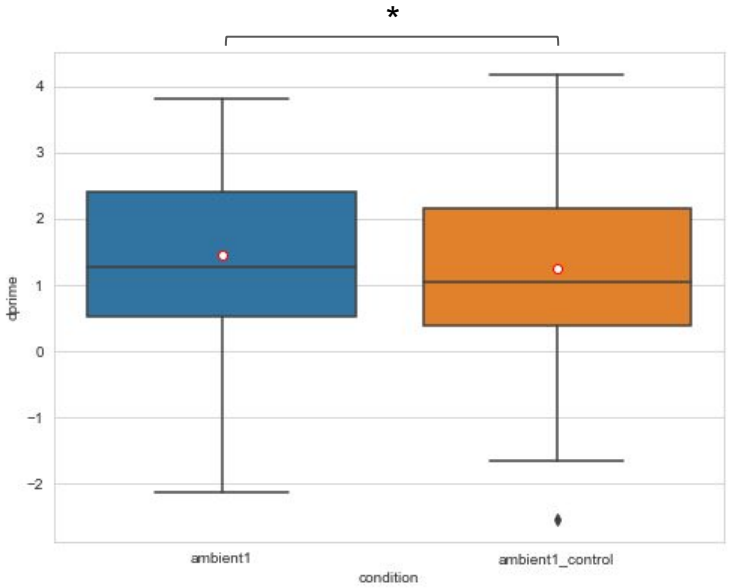


Overall lower errors (false alarm rate) and greater sensitivity (dprime) when listening to the ER ambient piece than control

N = 73

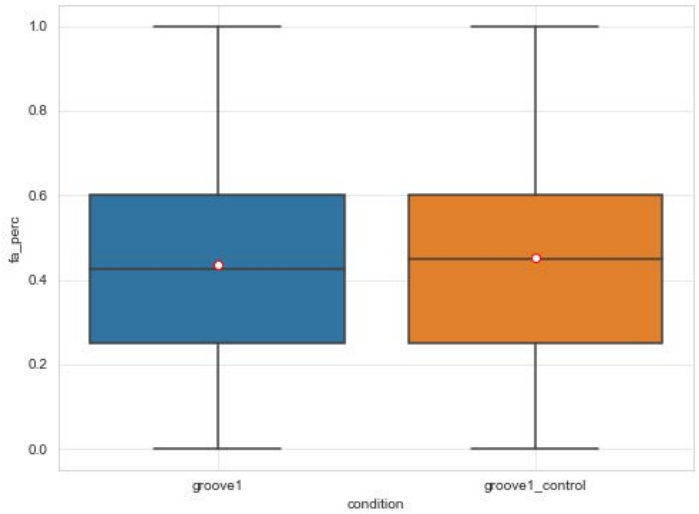


N = 72

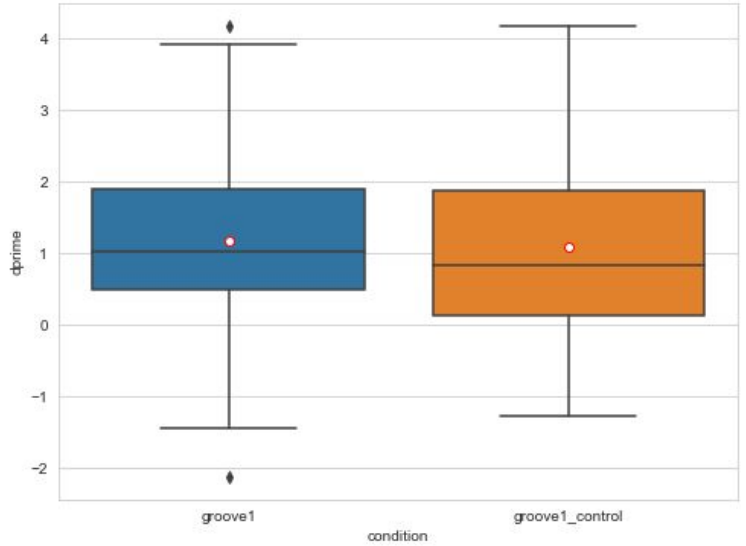


No differences in performance when participants listened to the ER Groove track and the Groove control

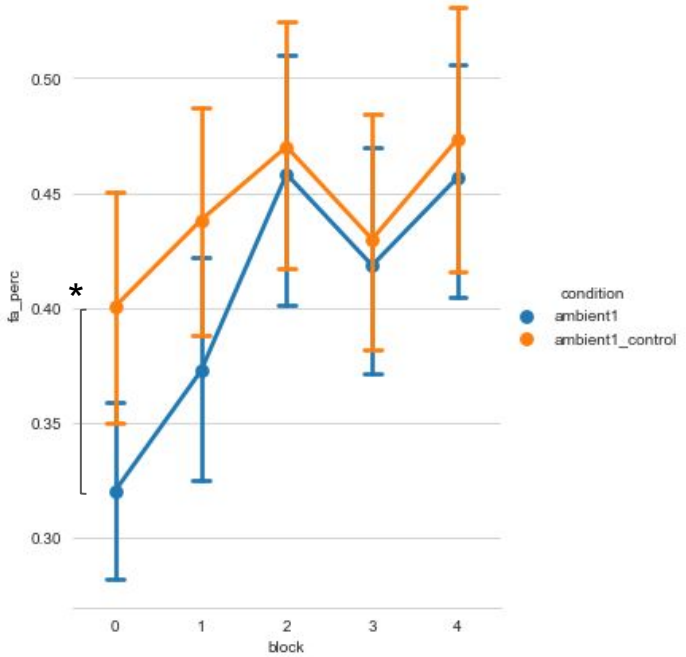
N = 70



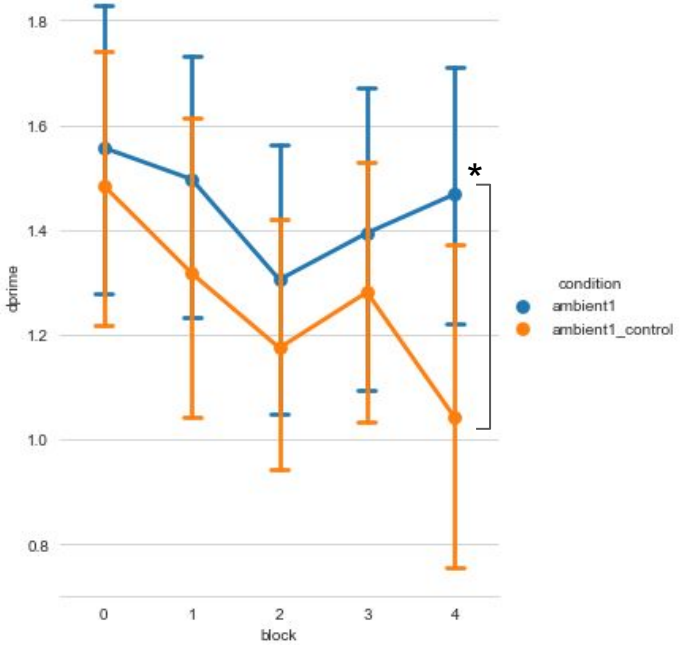
N = 76



People who heard ER ambient tract performed better in the first block (first 4 minutes) and last block (last 4 minutes) than with the control

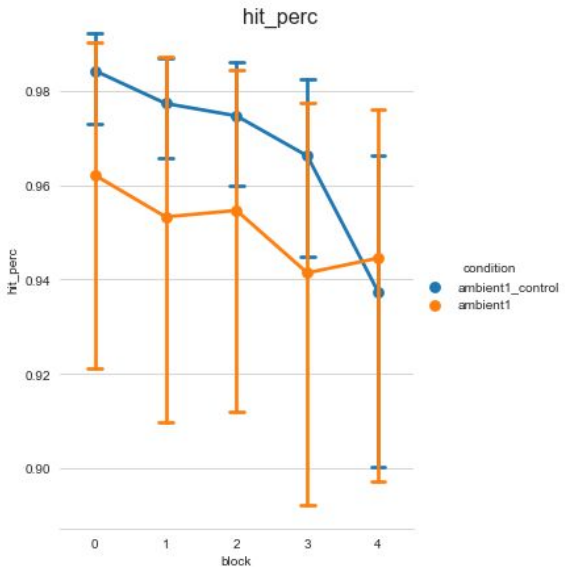


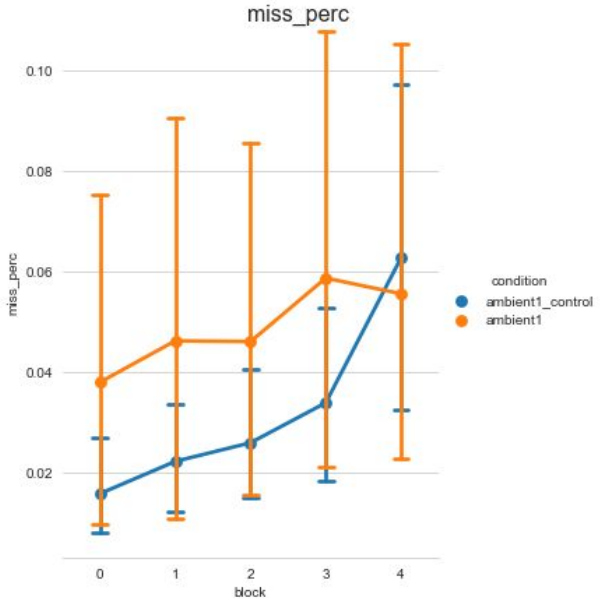
Interaction: F(4,572) = 2.18, p-value = 0.07 †



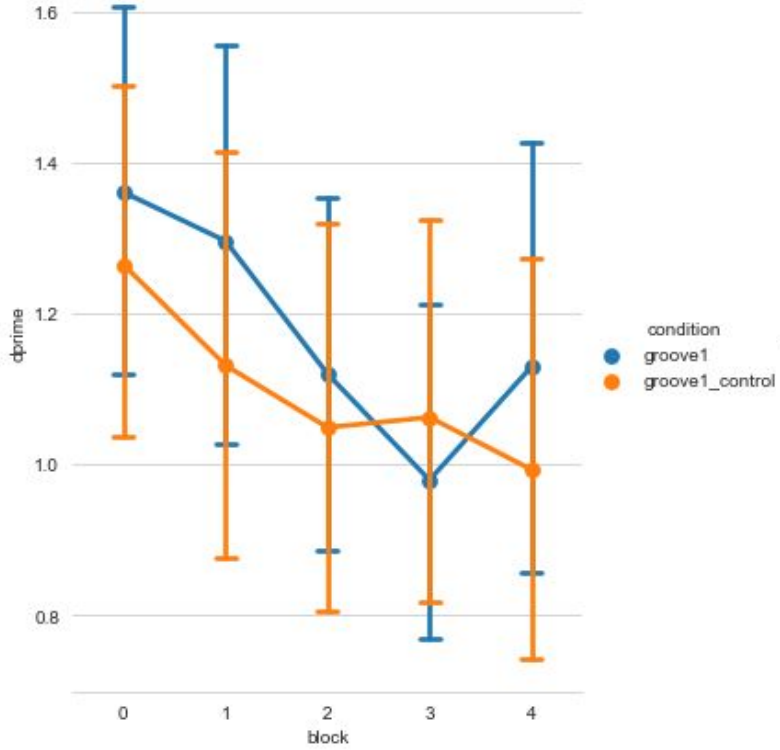
Interaction: F(4,572) = 0.76, p-value > 0.05

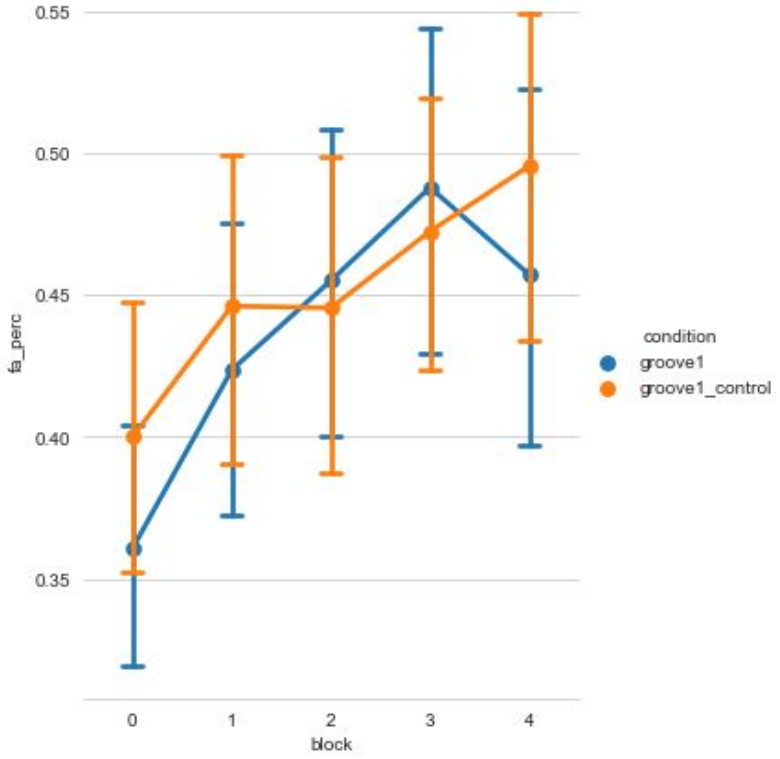
Although not significant, it seems that the difference in performance in block 4 is driven by more hits and fewer misses





Again, no differences in the groove condition



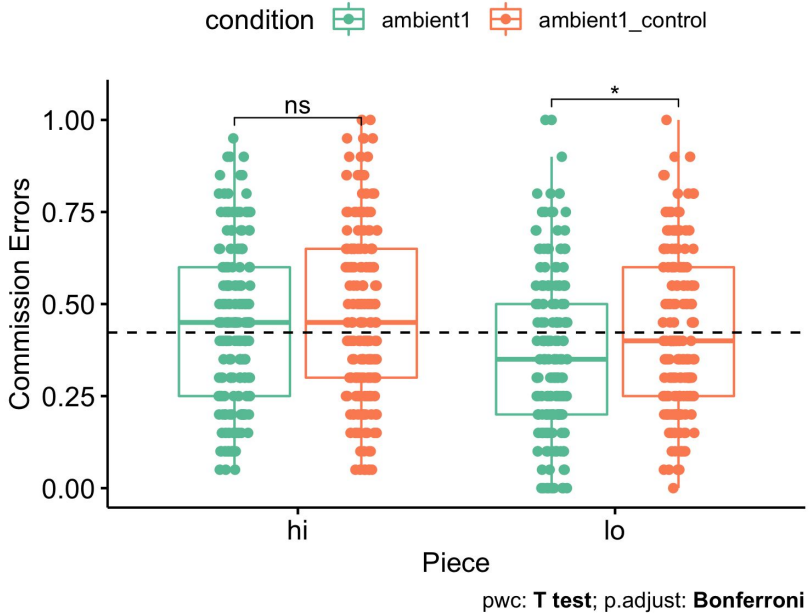


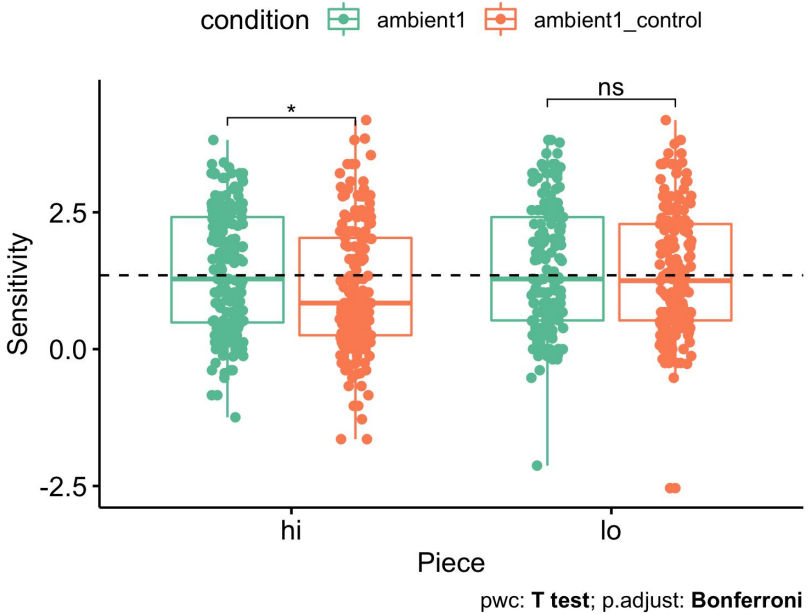
Modulation in performance based on symptoms of ADHD and personality

ADHD Self-report scale: High vs. Low of median

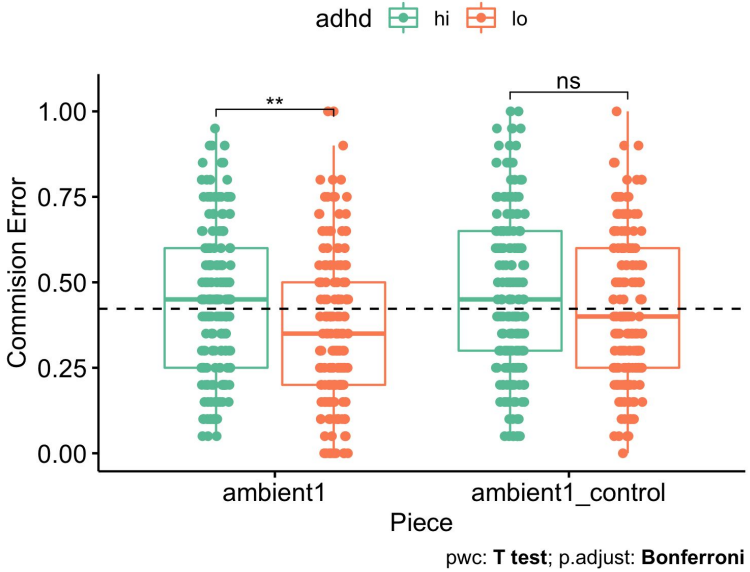
Ten Item Personality Index: Extroverts vs. Introverts

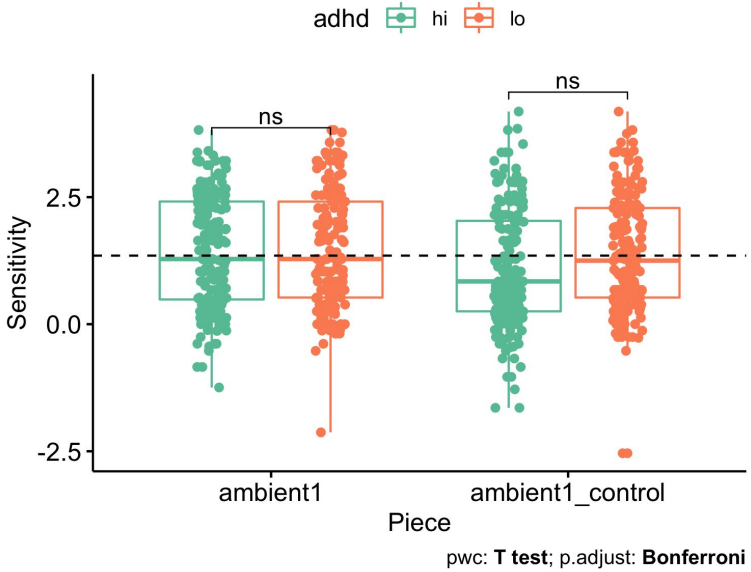
People without ADHD made fewer errors when listening to ER track. People with ADHD showed higher sensitivity when listening to ER track



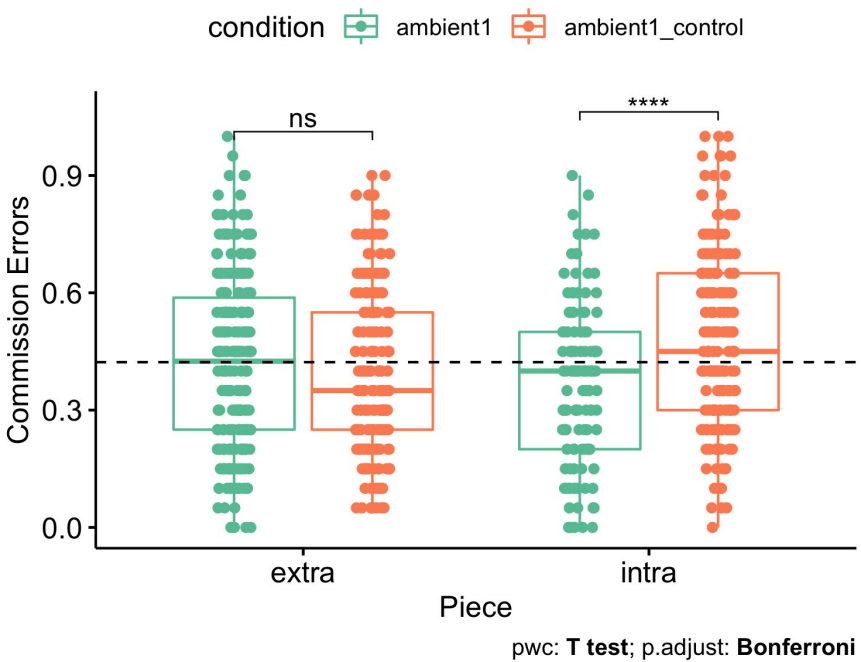


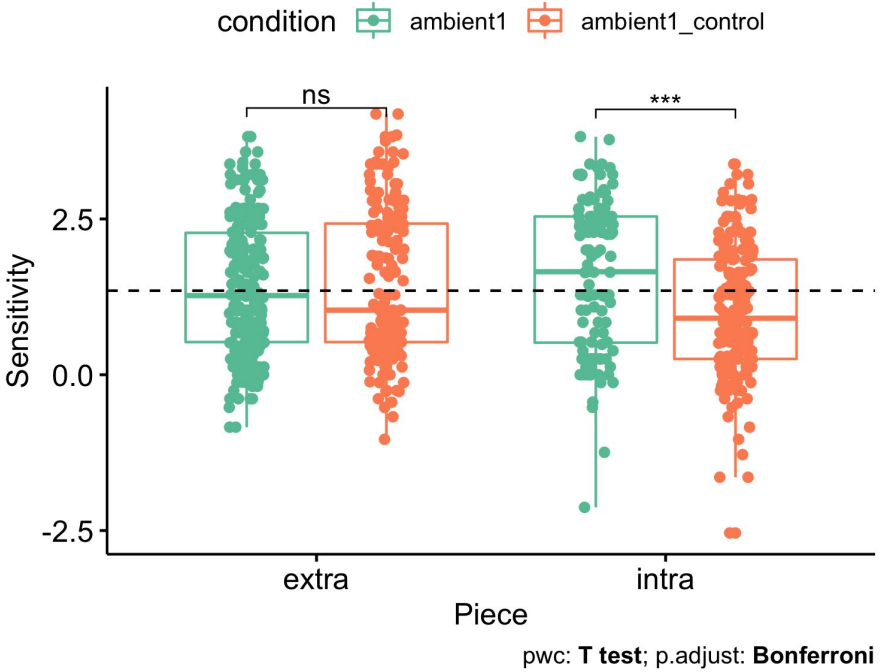
People without ADHD made fewer errors than people with ADHD (had fewer errors) with the ER music, but not the control.



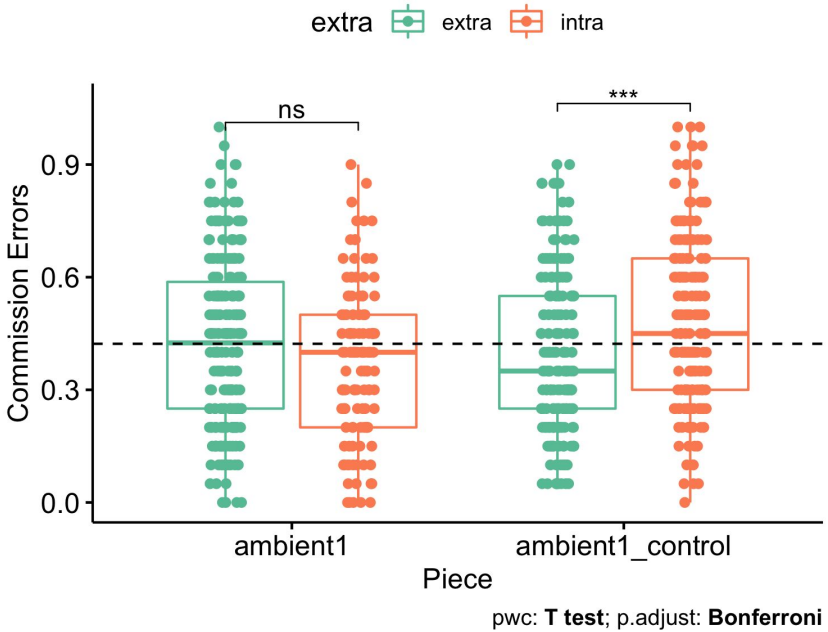


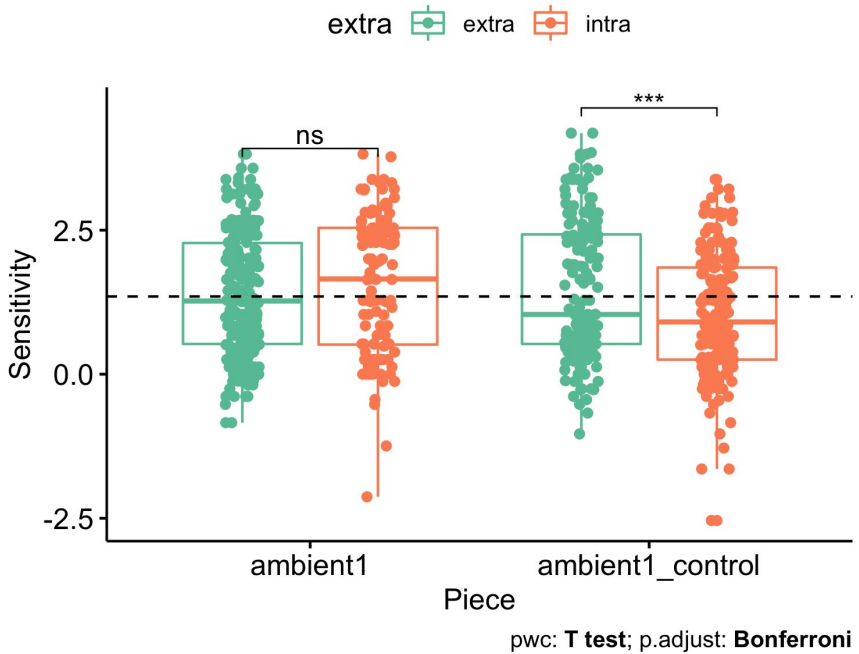
Introverts were more affected by the ER music: they performed better as compared to the control condition





Introverts performed worse compared to extroverts in the control condition, but not when listening to the ER music





Conclusion

Better performance on an attention task (fewer errors, greater sensitivity) was found for people who heard ER music (as compared to a control track), particularly the ambient piece

People who heard the ER ambient track made significantly fewer mistakes during the first 5 minutes of the task and showed better performance by the end of the task as well

The ER track also had an effect on the performance of people with high ADHD symptoms. People with ADHD symptoms performed better when listening to the ER track, than the comparative control

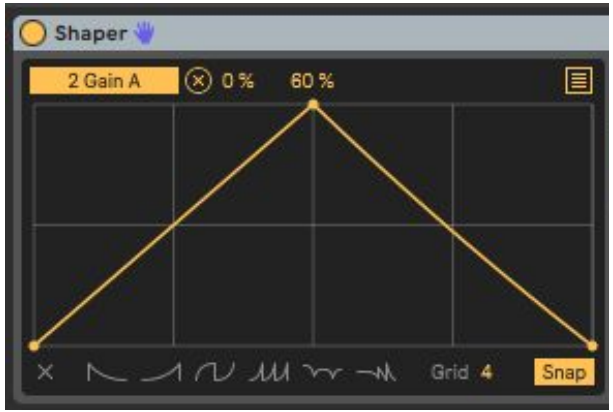
Introverts performed better when listening the ER ambient track, which which was not found for extroverts. It seems that the ER track raises them up to the level of extroverts.

Introverts also showed a block by condition effect: they did better in general on the ambient control piece, particular in the first 1-15 minutes

Next steps

Follow-up with additional waveforms to disentangle the effect of waveform from the effect of song (ambient)

Ambient piece + triangle wave



Ambient piece + cosine wave