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## **1. Images for Thematic Apperception Test**

TAT has multiple images in the copyrighted picture set. Here we only describe the 3 pictures we used in this study.

Picture 1: A woman hugging a man with windows and curtains behind;

Picture 2: A woman standing on bridge with dark sun in sky, a building with three windows behind, and several people carrying stuff from a boat under the bridge

Picture 3: A girl holding books with woman, man, horse, fields, and mountains in the background

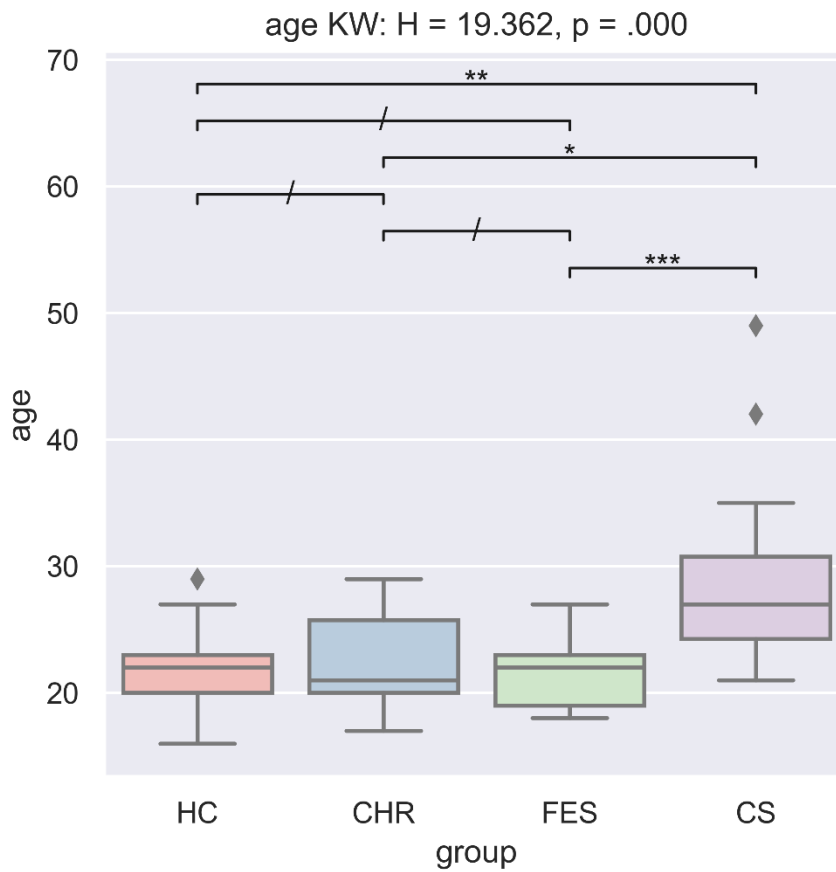
## 2. English stopwords list

English stopwords: ['i', 'me', 'my', 'myself', 'we', 'our', 'ours', 'ourselves', 'you', "you're", "you've", "you'll", "you'd", 'your', 'yours', 'yourself', 'yourselves', 'he', 'him', 'his', 'himself', 'she', "she's", 'her', 'hers', 'herself', 'it', 'it's', 'its', 'itself', 'they', 'them', 'their', 'theirs', 'themselves', 'what', 'which', 'who', 'whom', 'this', 'that', "that'll", 'these', 'those', 'am', 'is', 'are', 'was', 'were', 'be', 'been', 'being', 'have', 'has', 'had', 'having', 'do', 'does', 'did', 'doing', 'a', 'an', 'the', 'and', 'but', 'if', 'or', 'because', 'as', 'until', 'while', 'of', 'at', 'by', 'for', 'with', 'about', 'against', 'between', 'into', 'through', 'during', 'before', 'after', 'above', 'below', 'to', 'from', 'up', 'down', 'in', 'out', 'on', 'off', 'over', 'under', 'again', 'further', 'then', 'once', 'here', 'there', 'when', 'where', 'why', 'how', 'all', 'any', 'both', 'each', 'few', 'more', 'most', 'other', 'some', 'such', 'no', 'nor', 'not', 'only', 'own', 'same', 'so', 'than', 'too', 'very', 's', 't', 'can', 'will', 'just', 'don', "don't", 'should', "should've", 'now', 'd', 'll', 'm', 'o', 're', 've', 'y', 'ain', 'aren', "aren't", 'couldn', "couldn't", 'didn', "didn't", 'doesn', "doesn't", 'hadn', "hadn't", 'hasn', "hasn't", 'haven', "haven't", 'isn', "isn't", 'ma', 'mightn', "mightn't", 'mustn', "mustn't", 'needn', "needn't", 'shan', "shan't", 'shouldn', "shouldn't", 'wasn', "wasn't", 'weren', "weren't", 'won', "won't", 'wouldn', "wouldn't", "'re", "n't", "she's", ' ', "'ll", "can't", "'d", "he'd", "'ve", "'m", "'s", 'um', 'uh', '-', 'yeah']

### 3. Group comparisons of demographic and clinical data

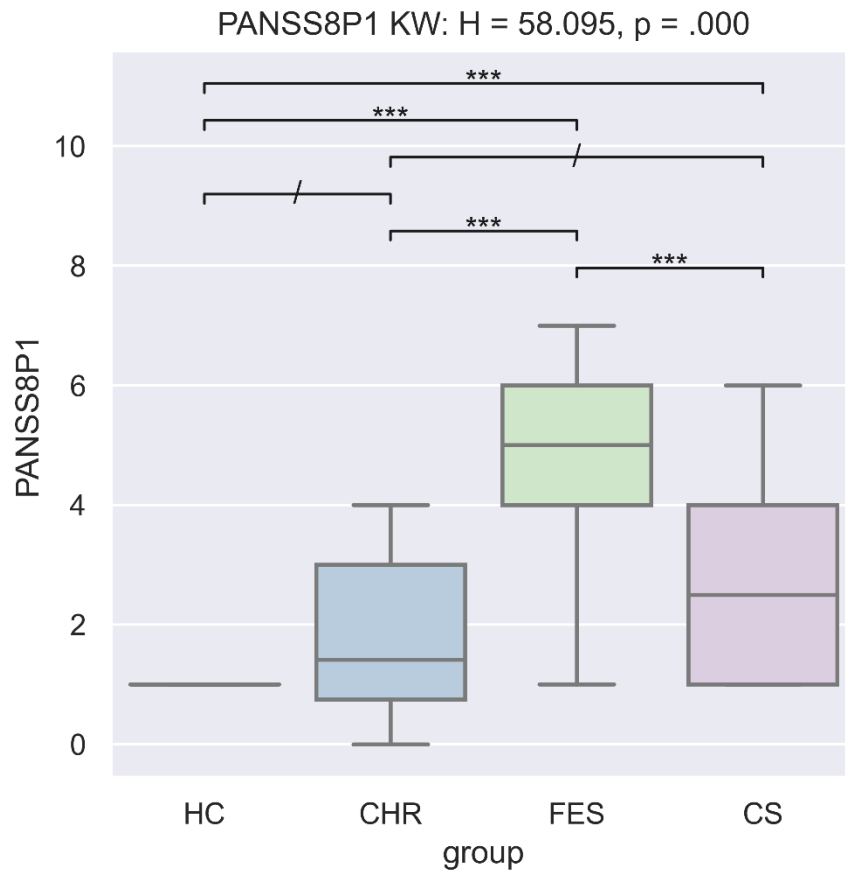
Figures below visualized group differences in age, PANSS scores, and TLI scores, with global comparison using Kruskal Wallis's test, and post-hoc pairwise comparison using Dwass, Steel, Critchlow and Fligner all-pairs comparison test for a one-factorial layout with non-normally distributed residuals.

#### 3.1. Group comparisons on age

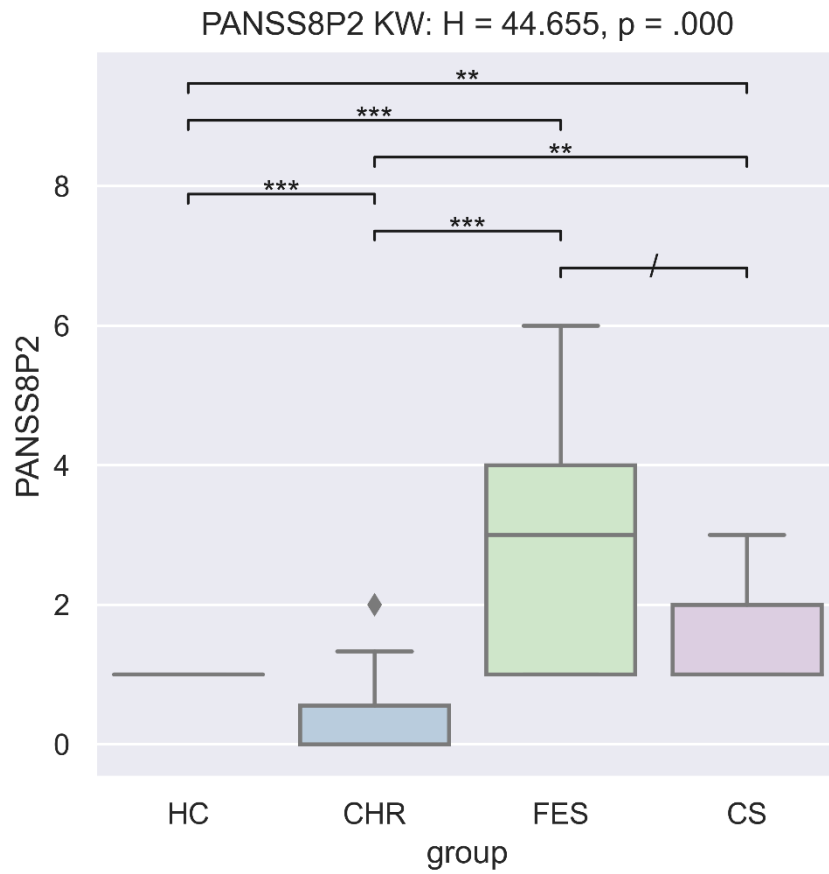


Supplementary Figure 1. Group comparison of age.

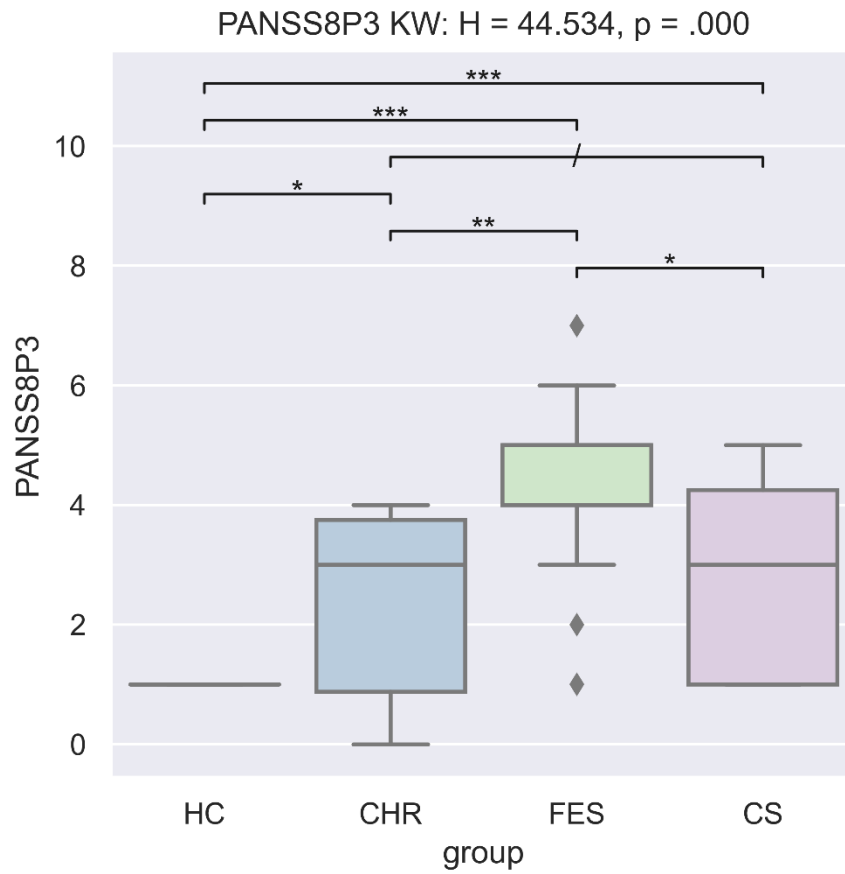
#### 3.2. Group comparisons on PANSS item score



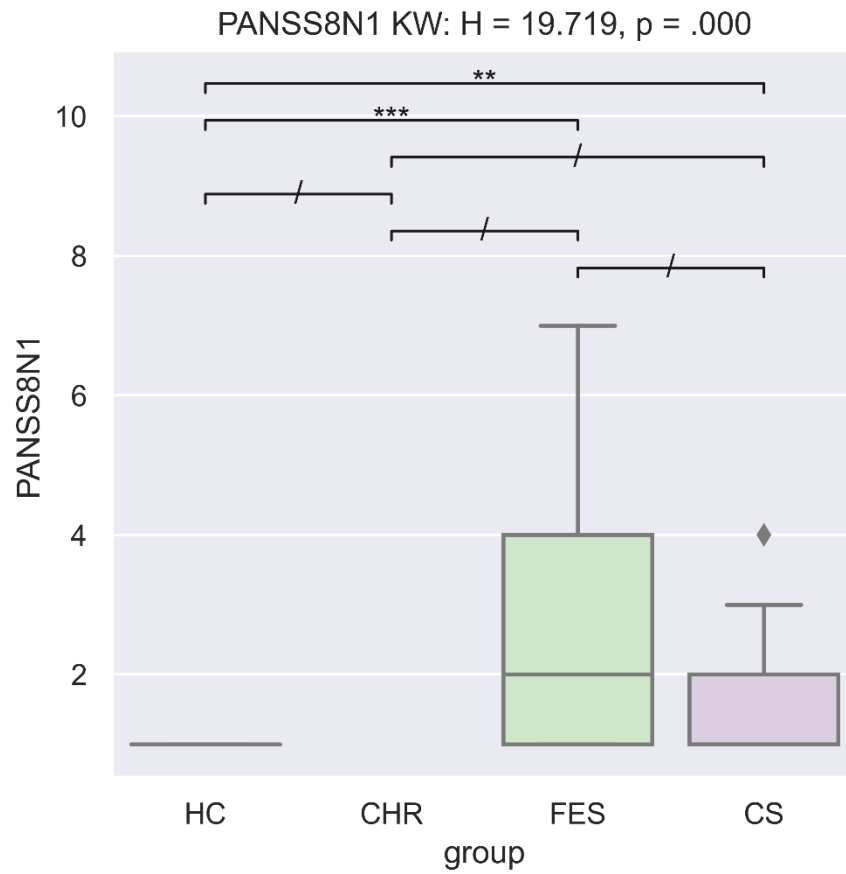
Supplementary Figure 2. Group comparison of P1, delusion.



Supplementary Figure 3. Group comparison of P2, conceptual disorganization.

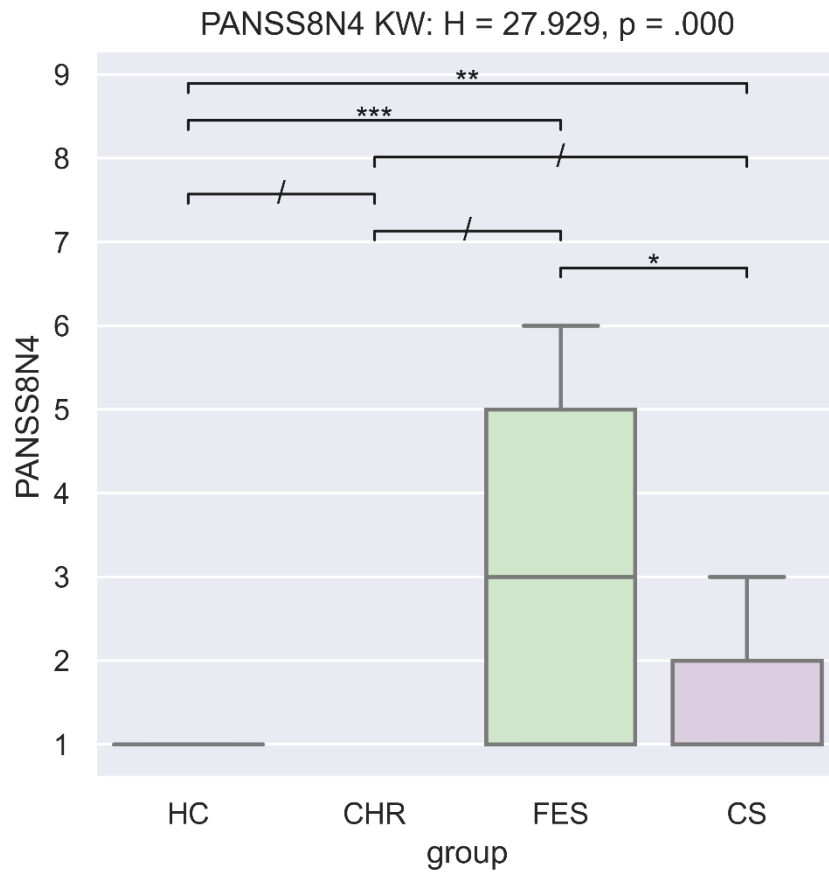


Supplementary Figure 4. Group comparison of P3, hallucinatory behaviour.

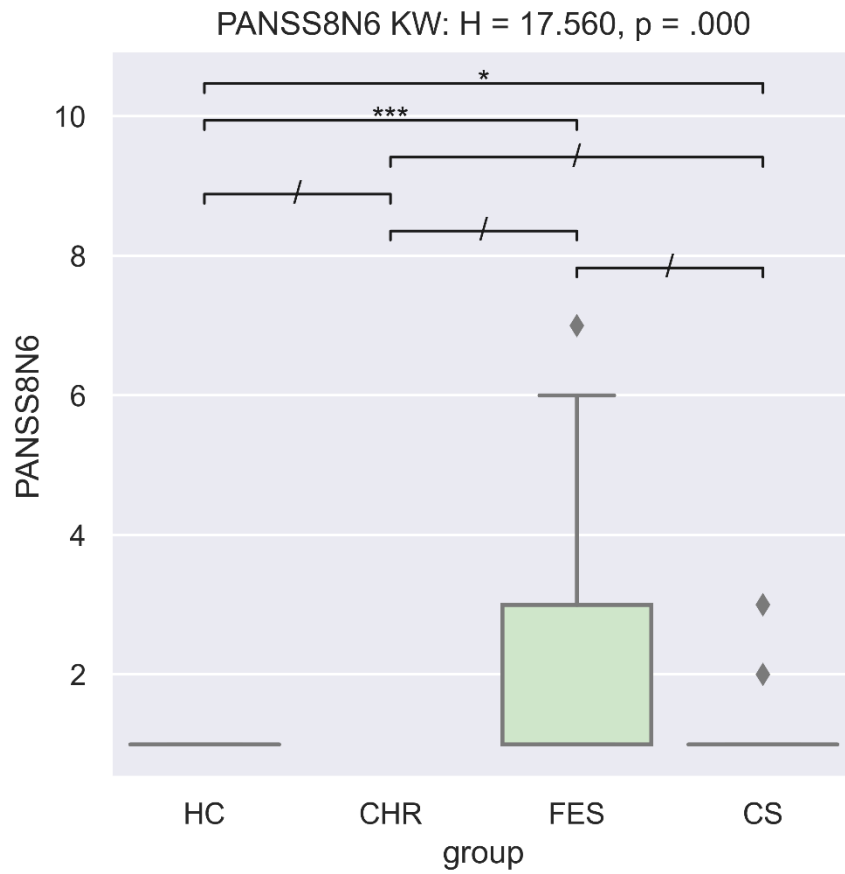


Supplementary Figure 5. Group comparison of N1, blunted affect.

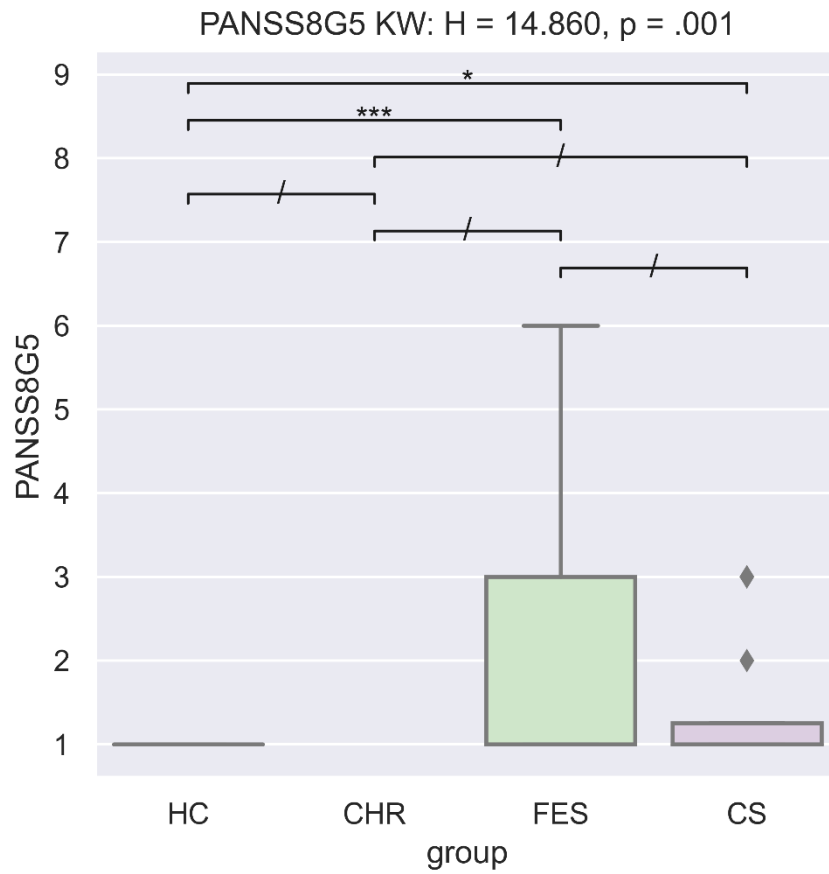




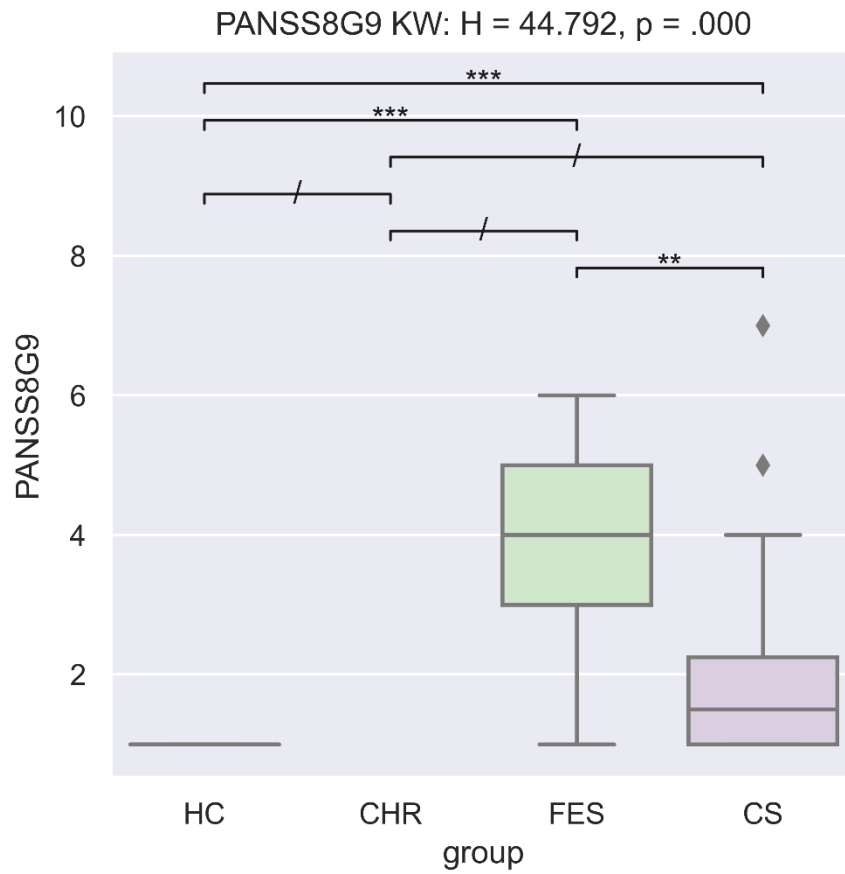
Supplementary Figure 6. Group comparison of N4, passive/apathetic social withdrawal.



Supplementary Figure 7. Group comparison of N6, lack of spontaneity and flow of conversation.

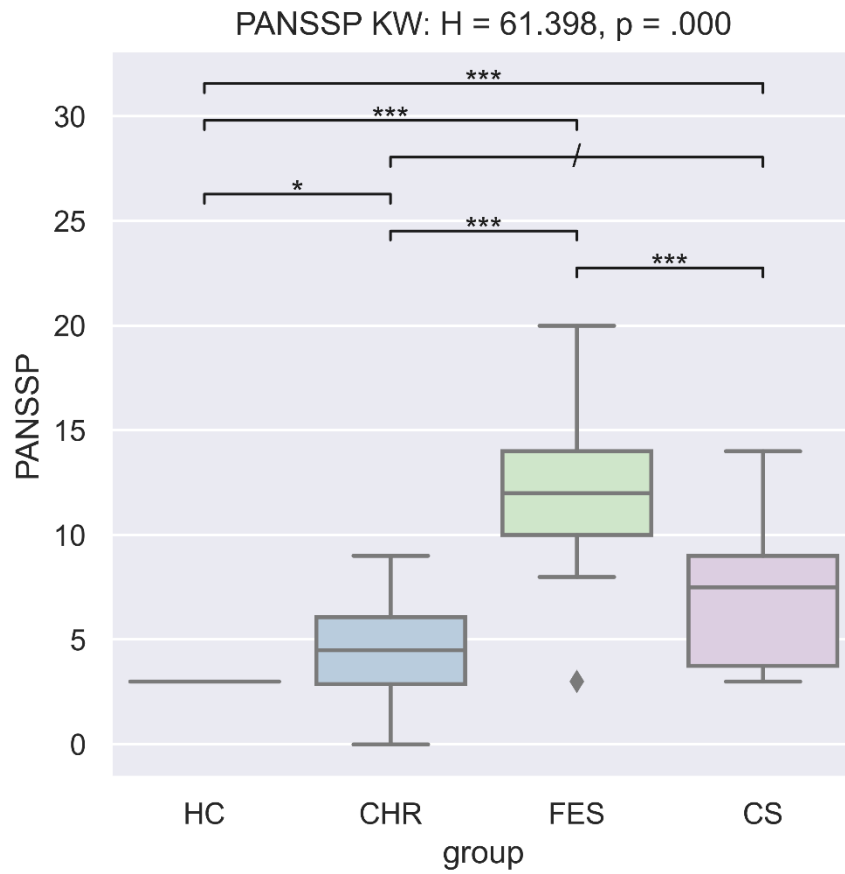


Supplementary Figure 8. Group comparison of G5, mannerisms & posturing.

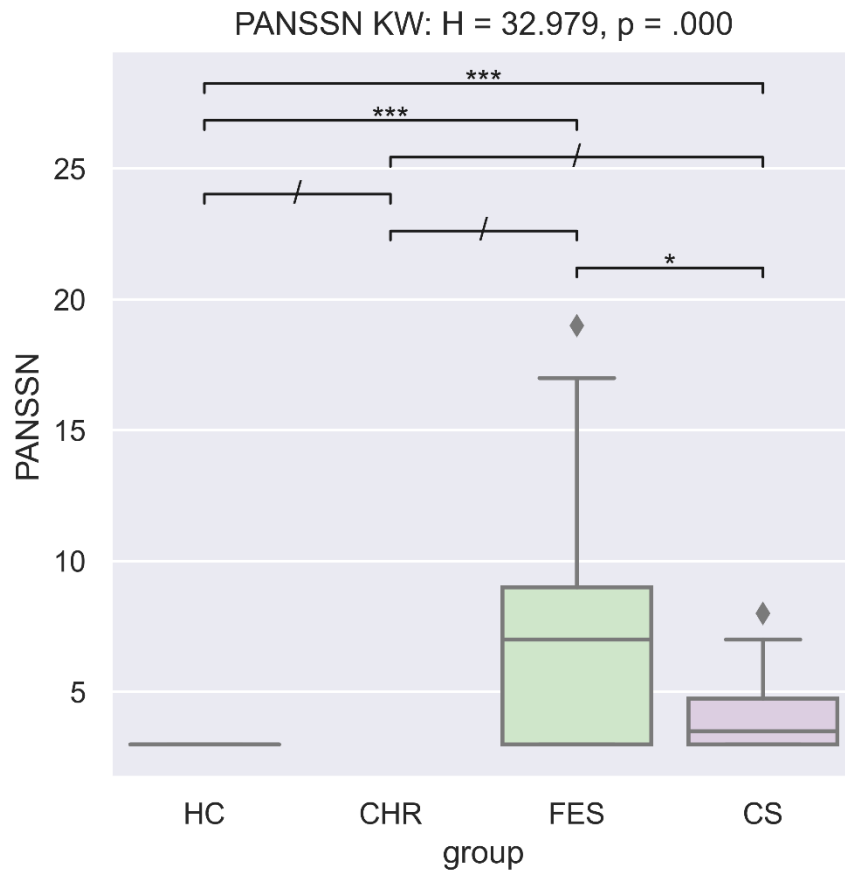


Supplementary Figure 9. Group comparison of G9, unusual thought content.

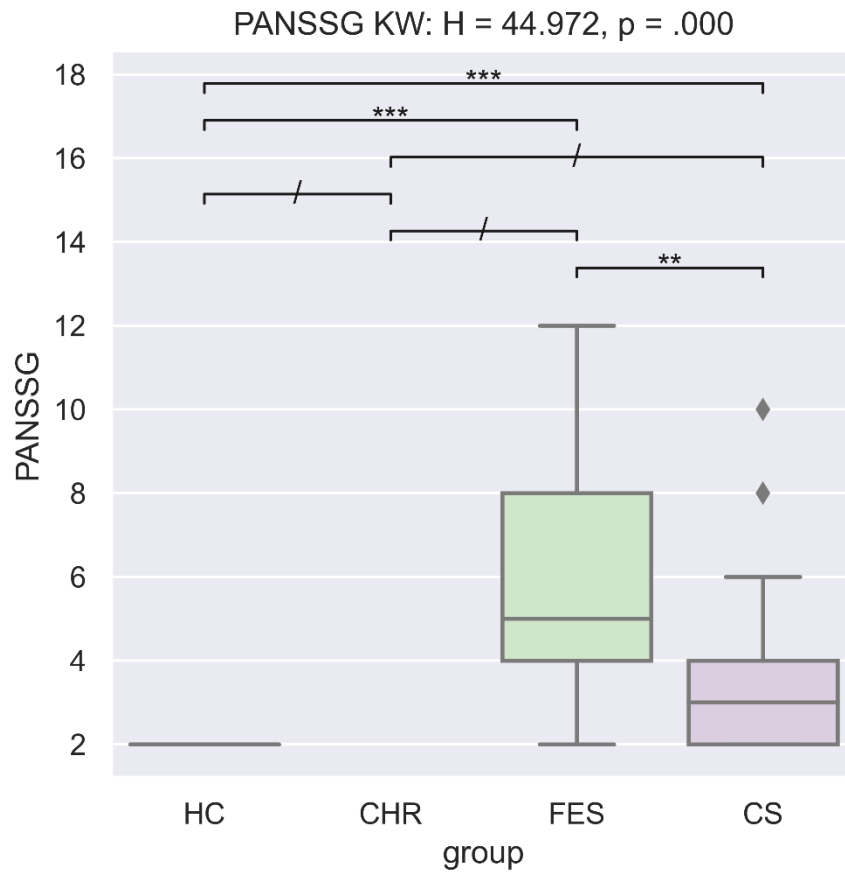
### 3.3. Group comparisons on PANSS general scores



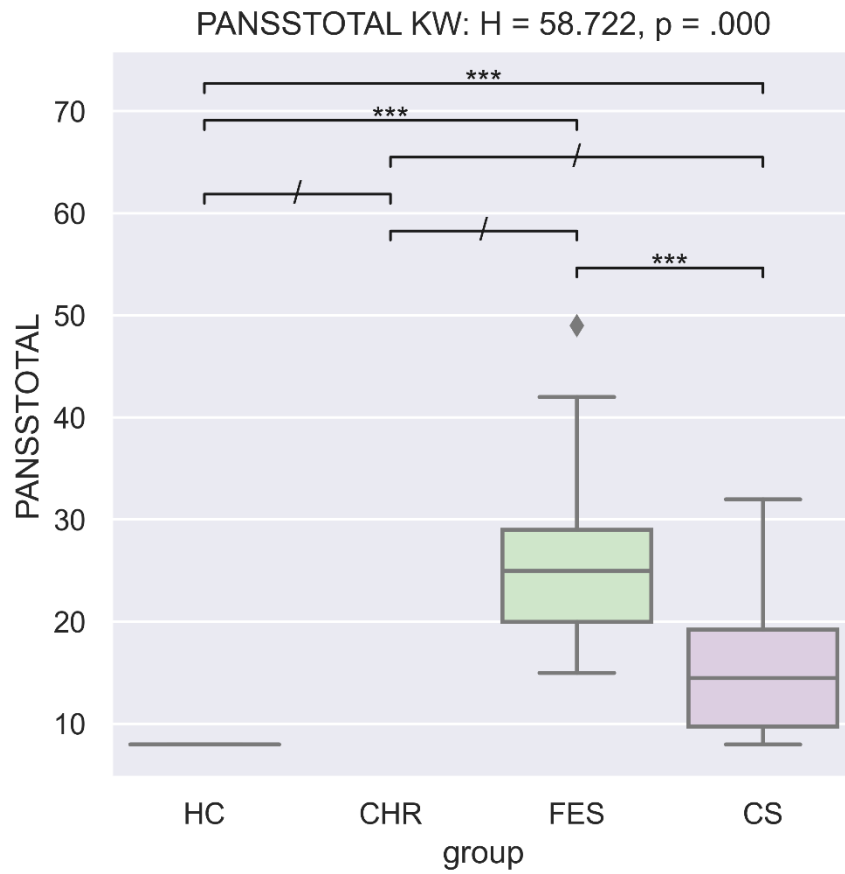
Supplementary Figure 10. Group comparison of PANSS positive scores.



Supplementary Figure 11. Group comparison of PANSS negative scores.



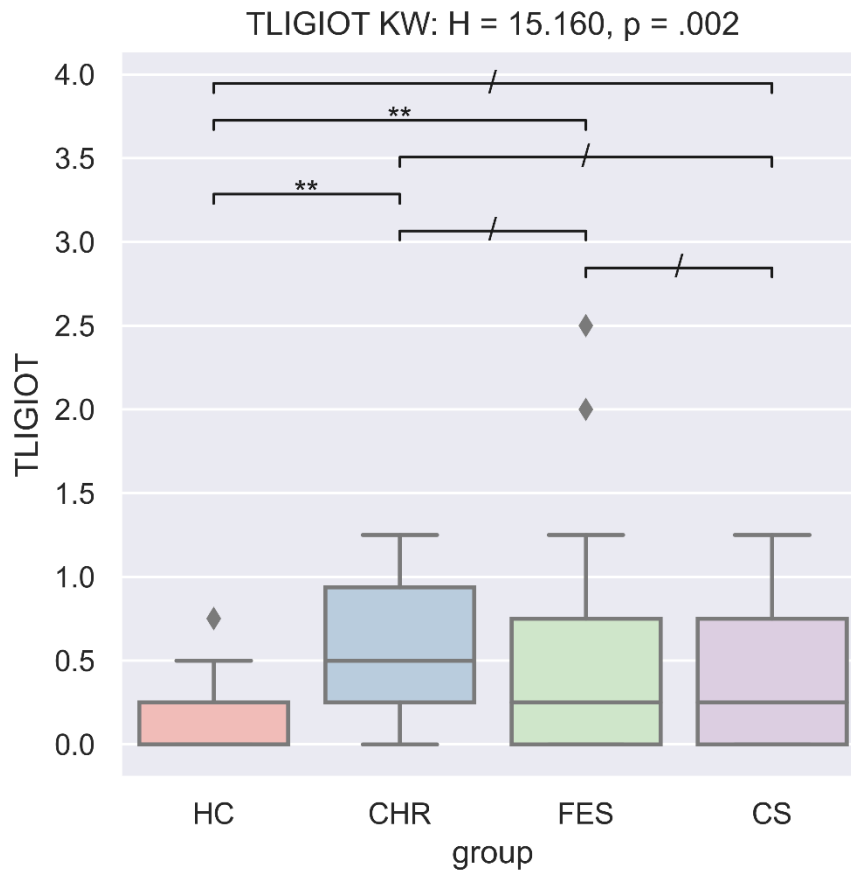
Supplementary Figure 12. Group comparison of PANSS general scores.



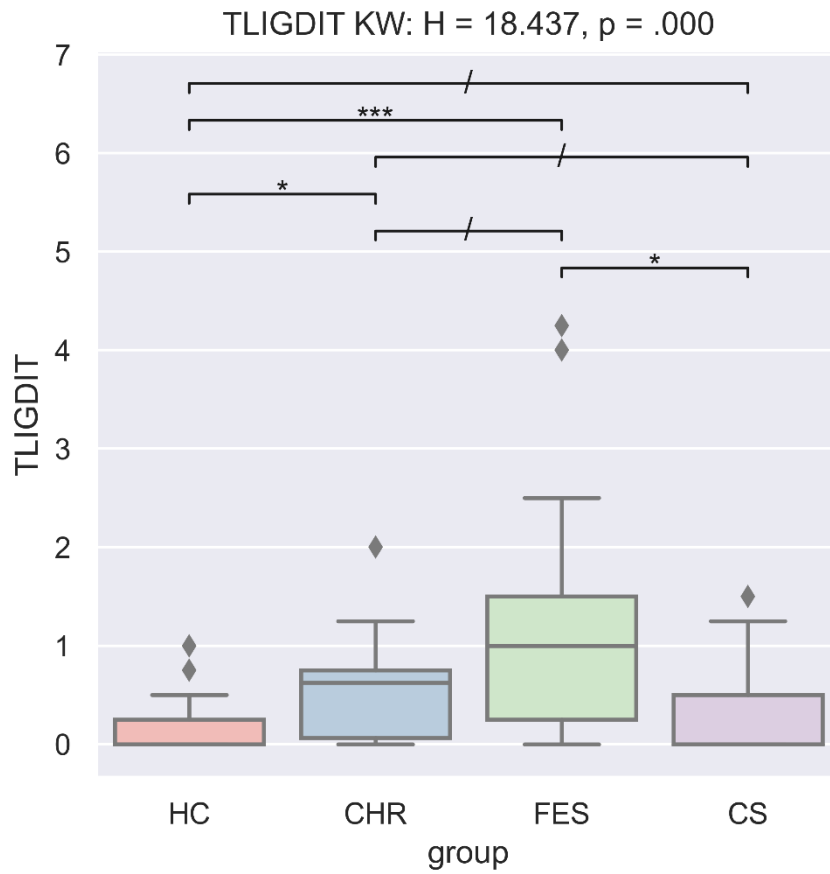
Supplementary Figure 13. Group comparison of PANSS total scores.

### 3.4. Group comparisons on TLI scores



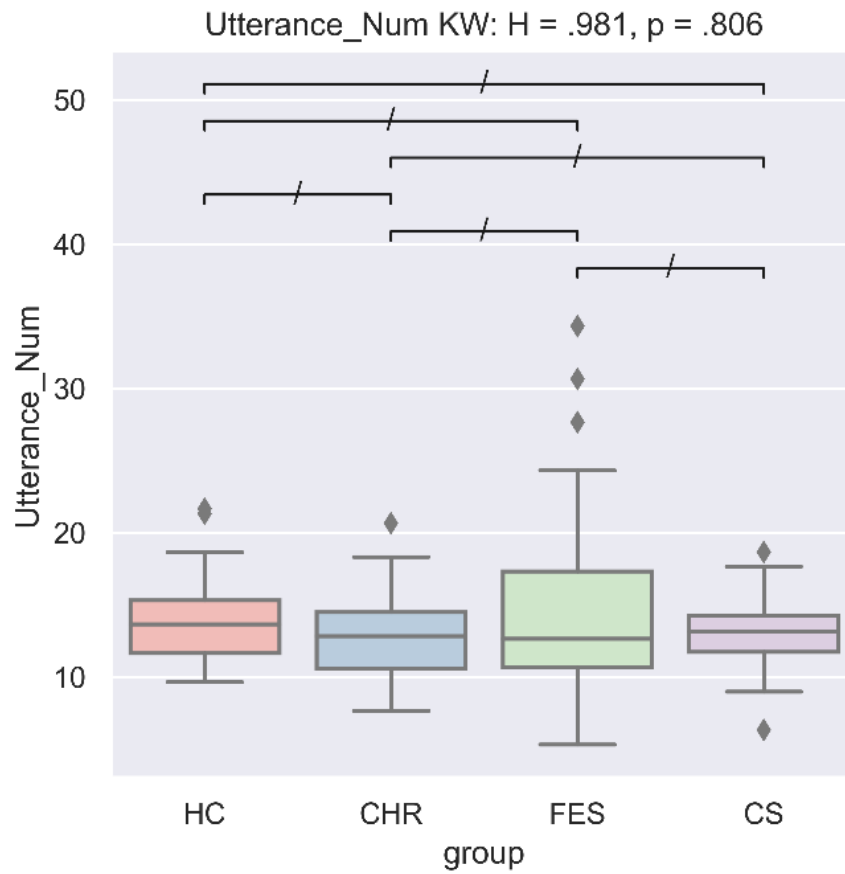


Supplementary Figure 14. Group comparison of TLI impoverishment of thought.

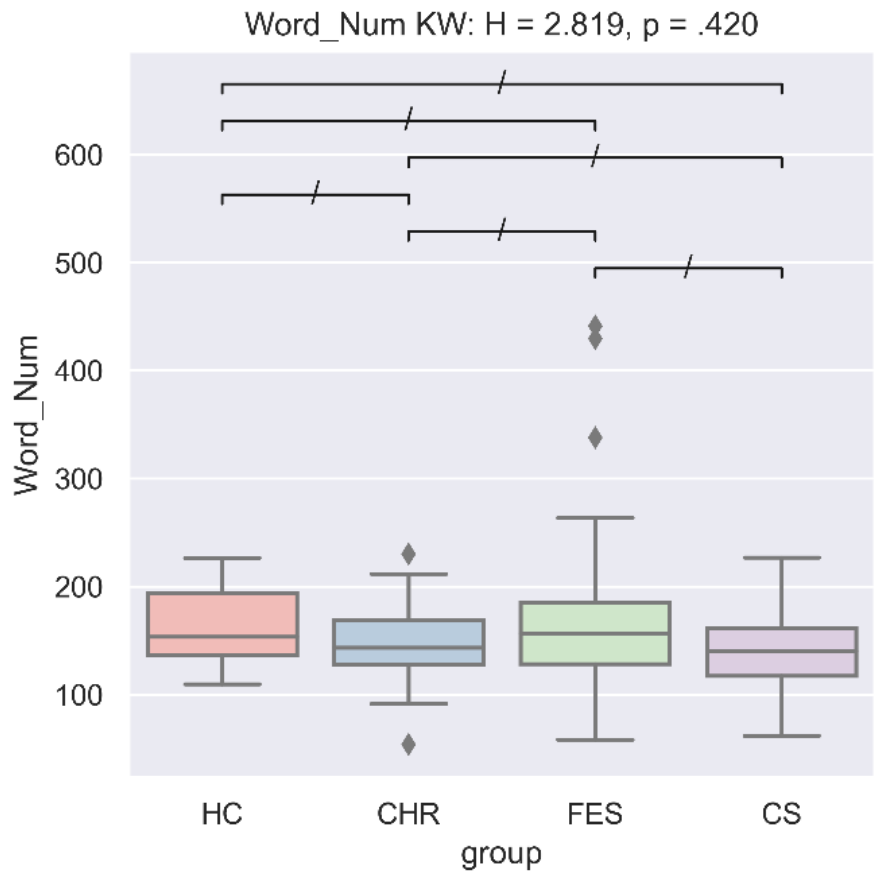


Supplementary Figure 15. Group comparison of TLI disorganization in thought.

3.5. Group comparisons on the number of words and utterances



Supplementary Figure 16. Group comparison of the number of utterances.



Supplementary Figure 17. Group comparison of the number of words.