

INTRODUCTION

Researchers using electroencephalogram (EEG) have found a relationship between frontal alpha asymmetry and depression though results have been conflicting.¹⁻⁵

There is limited research on how casual videogames (CVG) affect alpha activity in individuals with symptoms of depression.

Purpose: To test the influence of a regimen of prescribed CVG play on an individual's alpha activity and depressive symptoms.

MATERIALS & METHODS

Inclusion:

- ≥ 18 years old
- English speaker
- ≥ 5 on PHQ-9

Randomized Control Design

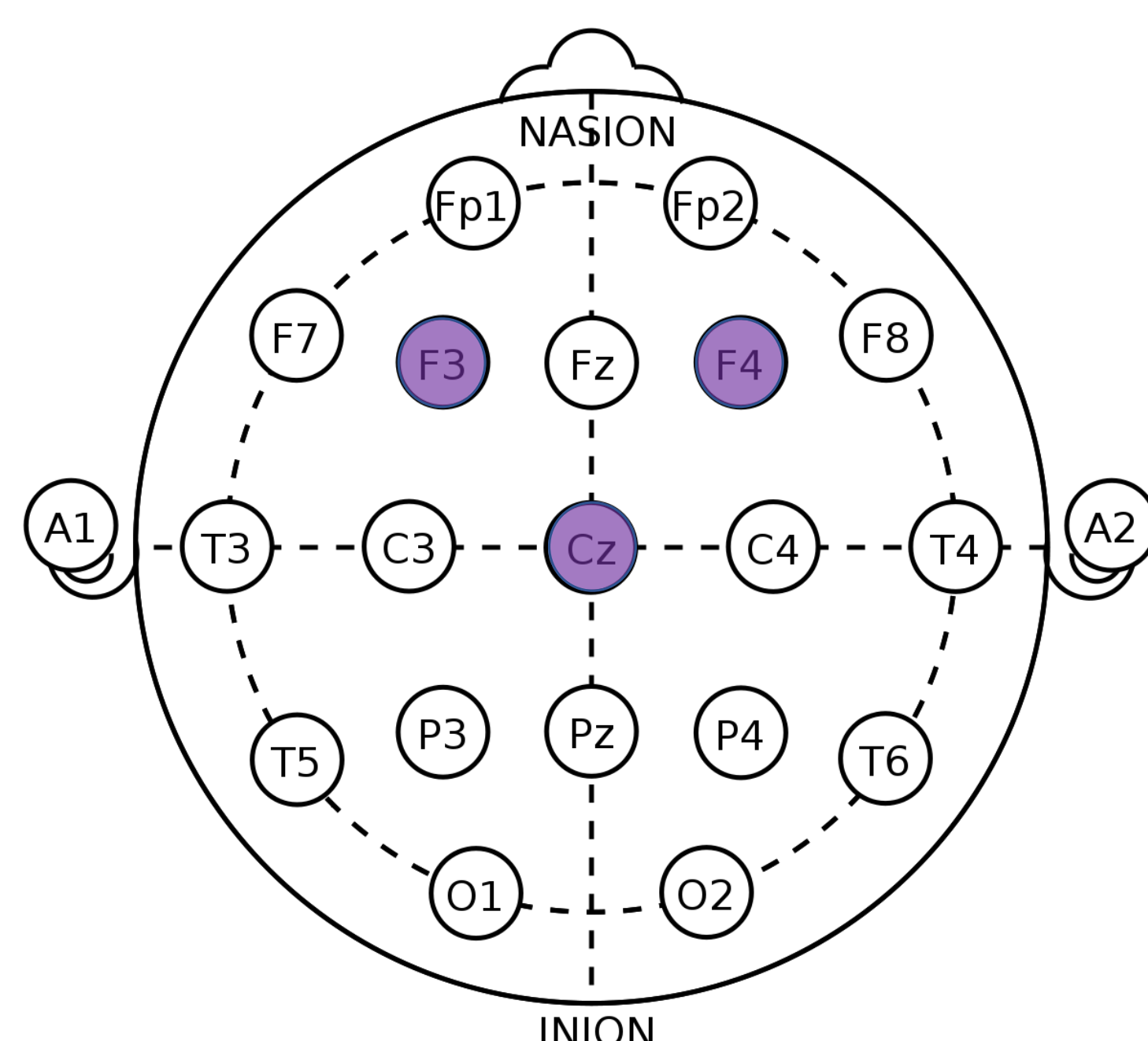
Experimental: Choice between 3 videogames (Bejeweled, Peggle, or Bookworm Adventures)

- 3 times/wk for 30 min (each session) for 1-month

Control: Business as Usual (No CVG play)

Assessments: PHQ-9 & Alpha Coherence

10-20 EEG PLACEMENT



RESULTS

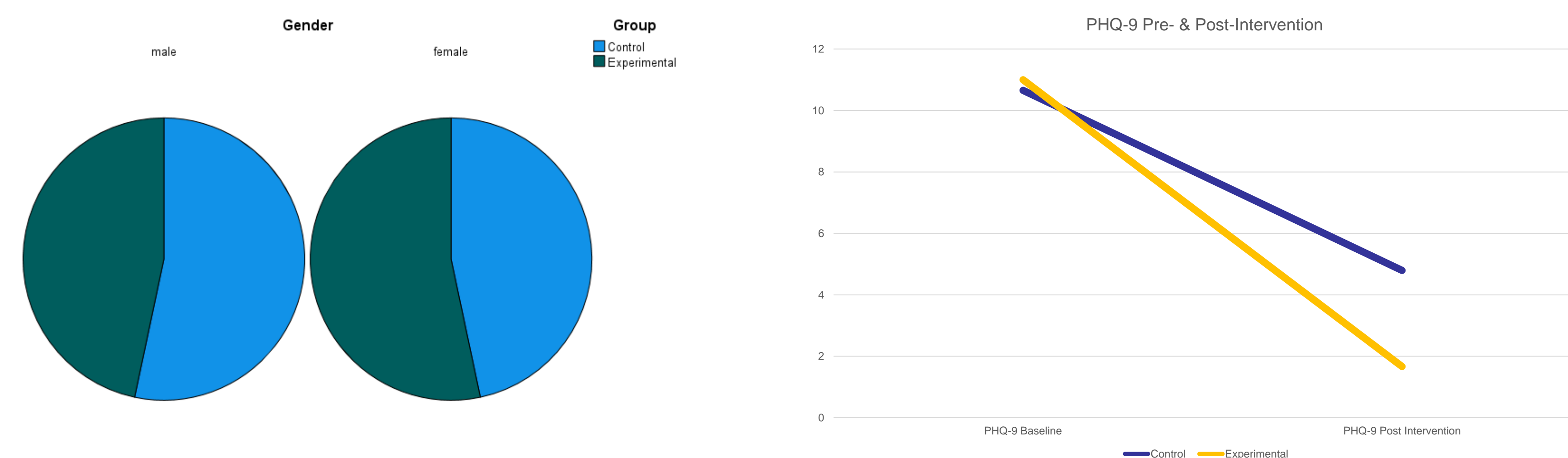
The study included 59 participants.

Experimental Group: Thirty participants aged 29.27 ± 11.22

53.33% ($n = 16$) female, 70% ($n = 21$) European American

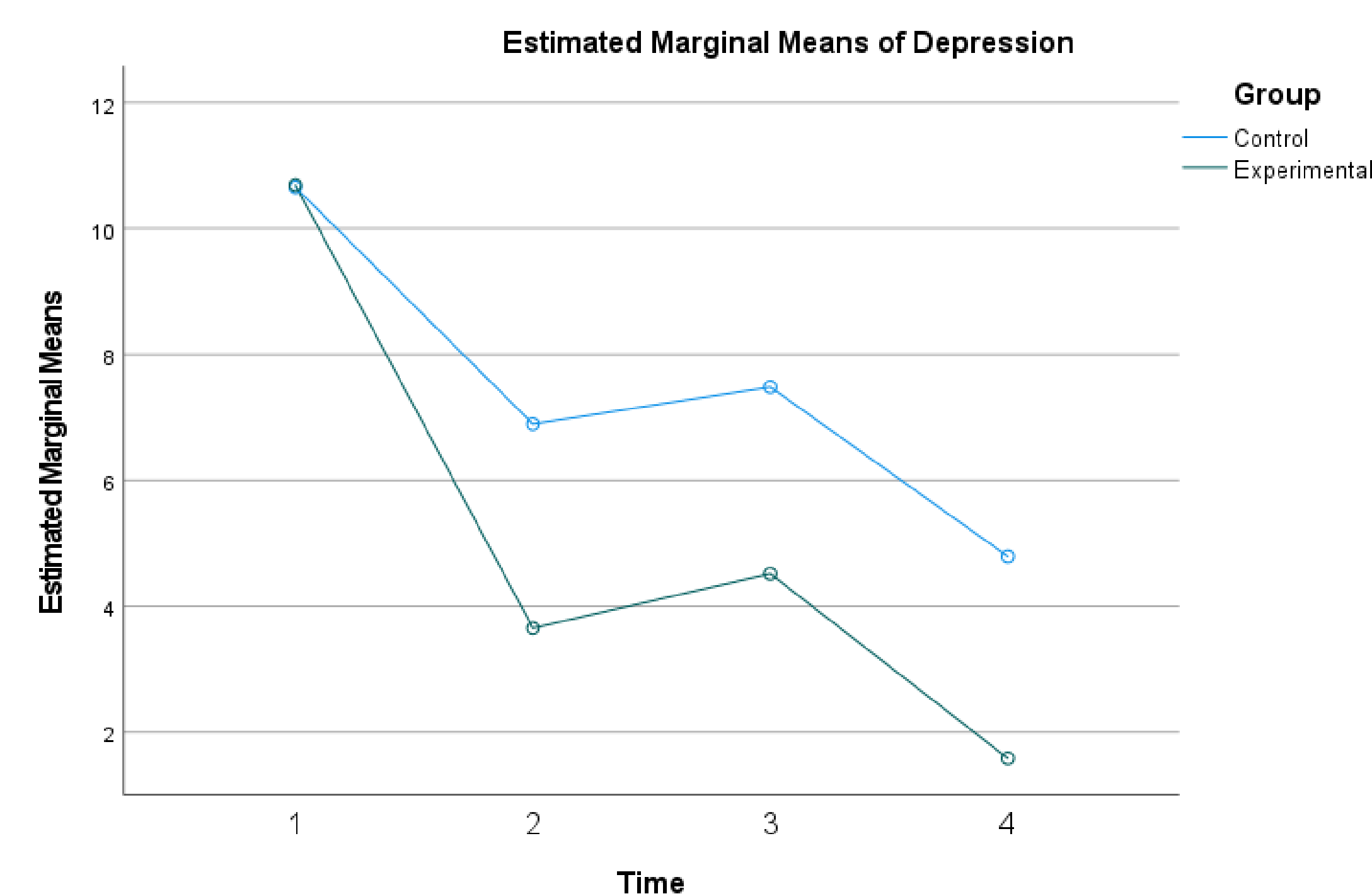
Control Group: Twenty-nine participants aged 30.75 ± 14.63

51.72% ($n = 15$) female, 65.52% ($n = 19$) European American

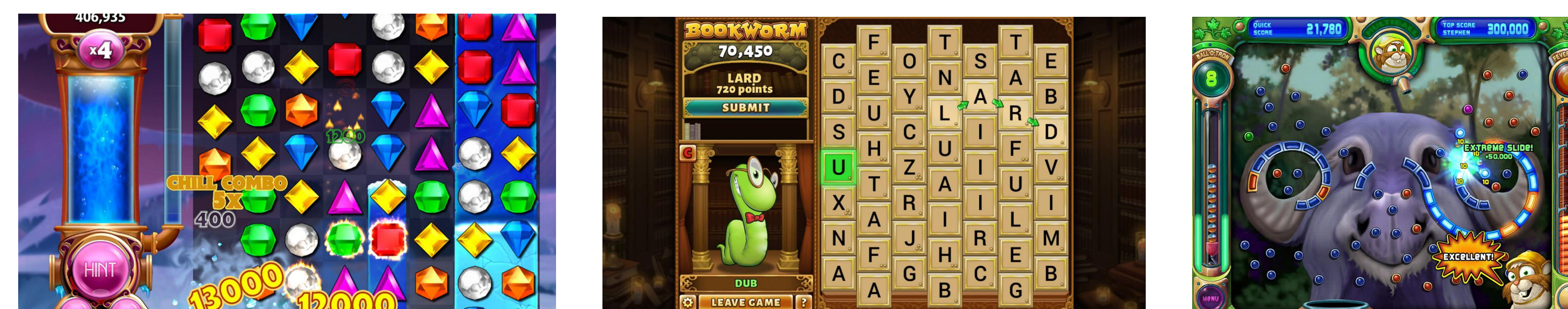


A repeated-measures ANOVA demonstrated a significant interaction of group by time for depression scores, $F(2.21, 125.87) = 3.98, p = 0.018$.

A repeated-measures ANOVA demonstrated no significant interaction of group by time for alpha coherence, $F(1.03, 56.44) = 1.01, p = 0.320$.



CASUAL VIDEOGAMES



DISCUSSION

Results indicated that the experimental group's depression severity significantly decreased compared to the control group over time.

Although there was a significant interaction for group by time for depression symptom severity, there was no significant interaction for alpha coherence.

Conclusion: Taking the time to do fun, stress management activities, such as playing CVGs, may help to reduce symptoms of depression.

LIMITATIONS

The data analyzed was archival data collected as part of a larger study.

Possible "question fatigue" due to participants completing a variety of assessments and potentially feeling overwhelmed by the number of questions.

Selection-mortality threat due to the potential for participants to quit the study during the 1-month period.

Participants volunteered as subjects and were randomly assigned to groups.

Possibility of participants incorrectly self-reporting their symptom severity when completing the psychological assessments.

Depression symptoms were subjectively measured and therefore may not be as accurate as objective measures.

REFERENCES

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3. Gotlib, I. H. (1998). EEG alpha asymmetry, depression, and cognitive functioning. *Cognition & Emotion*, 12(3), 449-478.
4. Nelson, B. D., Kessel, E. M., Klein, D. N., & Shankman, S. A. (2018). Depression symptom dimensions and asymmetrical frontocortical activity while anticipating reward. *Psychophysiology*, 55(1), 65-78. <https://doi.org/10.1111/psyp.12892>
5. Van Der Vinne, N., Vollebregt, M. A., Van Putten, M. J., & Arns, M. (2017). Frontal alpha asymmetry as a diagnostic marker in depression: Fact or fiction? A meta-analysis. *Neuroimage: clinical*, 16, 79-87.