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Background

- Much research suggests that exposure to videogame violence increases physiological and self-report measures of aggression (e.g., Dill & Dill, 1998)
- It is not clear whether this increase is due to the exposure to violence per se or to other variables
 - Difficulty or pace of action (Adachi & Willoughby, 2010)
- In addition, previous research explored computer-based or X-box / Playstation games
 - Flash-based online games are more readily available and are often less elaborate

OUR GOALS

- Select a nonviolent, mildly violent, and highly violent Flash-based online game that are equated in difficulty and pace of action
- Study the effect of playing each game on three measures of aggression before and after the game
 - Number of aggressive completions in Word Completion Task (Anderson, Carnagey, & Eubanks, 2003)
 - Score on State Hostility Scale (Anderson, Deuser, & DeNeve, 1995)
 - Concentration of cortisol in saliva

Experiment 1: Game selection

Selected games.



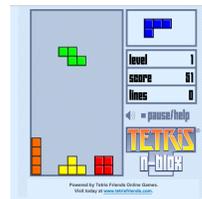
Violent game: Highway Pursuit 2

- first-person shooter game with animate targets and some gore
- moderately paced



Mildly violent game: Tank Blitz

- third-person shooter game with inanimate targets and no gore
- self-paced



Non-violent game: Tetris

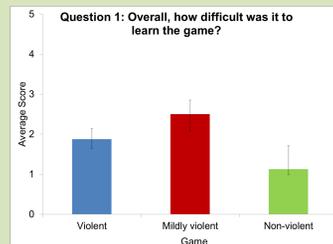
- puzzle
- started at an advanced level to control for pace and difficulty

Participants and procedure.

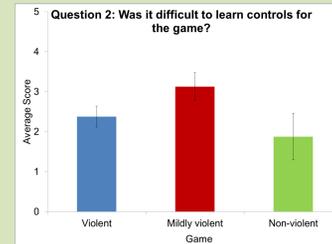
- 8 college students
- Played each game for 10 min (order of game presentation randomized across participants)
- Completed Game Complexity Questionnaire for each game
- Six questions (rating scale from 1 to 5):
 - Overall, how difficult was it to learn the game?
 - Was it difficult to learn how to use controls for the game?
 - How quickly did you learn controls for the game?
 - Did you find the game so difficult that you became frustrated?
 - How would you rate the pace of the game?
 - How hard were you trying to win the game?
- The goal: Make sure that the most violent game is not the most fast-paced/difficult/frustrating game
- In addition, recorded frequency of videogame playing for each participant

Experiment 1: Results

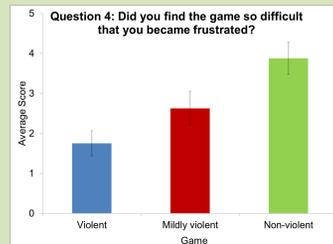
(two-tailed paired t-tests)



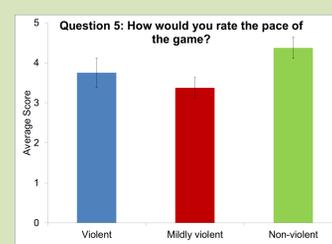
- Non-violent game is rated significantly less difficult than violent games
- No difference between violent and mildly violent game



- Mildly violent game is rated significantly more difficult than other games
- No difference between violent and nonviolent game



- Opposite order: non-violent game is most frustrating, followed by mildly violent game and violent game



- Non-violent game is rated as more fast-paced than mildly violent game
- No difference between non-violent and violent game

Summary

- The ratings of frustration produce an opposite order: nonviolent game is the most frustrating
- Non-violent game also has the fastest pace
- Mildly violent game has the most difficult controls

Experiment 2: Effect of game-playing on aggression

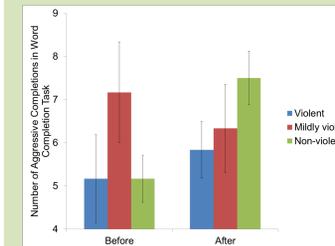
Participants and procedure.

- 18 college students
 - Random matched assignment by gender
- Told that the goal of the study is to investigate how frustrating is to learn a new videogame
- Three baseline measures prior to game
 - Saliva sample to measure cortisol, Word Completion Task, State Hostility Scale
- Played assigned game for 30 min
- Two measures
 - Word Completion Task and State Hostility Scale
- Completed Game Complexity Questionnaire and Gaming Frequency Questionnaire from Experiment 1
- Fifteen minutes later, collected second saliva sample
- Full debriefing

Measures

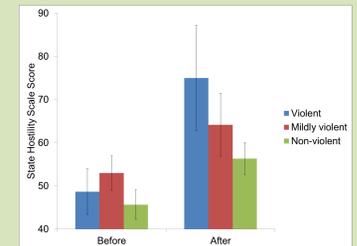
- Word Completion Task: Number of aggressive completions before and after the game
- State Hostility Scale: Overall score before and after the task (higher score = more hostility)
- Cortisol concentration: Percent change (score above 100 indicates increase in cortisol)
 - Only 5 participants processed so far

Experiment 2: Results



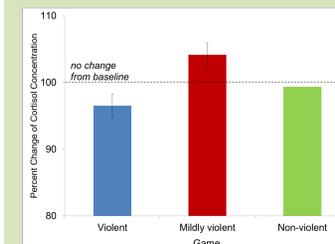
Word Completion Task

- Significant Time x Group interaction
 - Significant increase in aggressive completions after playing non-violent game
 - No significant change after other two games



State Hostility Scale

- Significant main effect of time
 - Significant increase in aggression after playing any game
 - No significant differences among groups



Cortisol concentration in saliva

- Preliminary data (n = 5)
 - Increase in cortisol for mildly violent game, but decrease for violent game
 - No change for non-violent game

Conclusions

- None of the three measures followed the increase in violence of the game
- Word Completion Task produced increase in aggressive completions after playing non-violent game
- State Hostility Scale produced increased scores after playing any game
- Concentration of cortisol increased after playing mildly violent game, but decreased after playing violent game
- This suggests that other dimensions of the game (e.g., level of frustration or difficulty of learning controls) may affect these measures more than the level of violence
- This is an important finding as the increase in these measures is commonly interpreted as an increase in aggression associated with exposure to violence
- Next step: collecting more data to confirm our findings

Acknowledgments

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