Physiological Responses to Viewing Scripted Versus Real Media Violence

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Physiology 435 - Lab 603 Group 5 - Spring 2013

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Abstract

While it is generally accepted that violent themes in media entertainment can affect behavior (aggression), few studies have been conducted on viewing real-life violent acts in media form. While many studies have investigated violent behavioral tendencies in relation to violent media and video game exposure, our experiment focuses on the physiological response to violent media. Specifically, we studied the difference in physiological arousal between viewing scripted media violence and non-scripted, real-life media violence to determine if there is a difference in response to each type of media. Although respiration rate and heart rate were both elevated between baseline measurements and viewing violent media, whether real or scripted, only heart rate was statistically significant when compared between the two conditions. Though individuals showed increases in the area of alpha, beta, theta, and overall EEG waves while viewing scripted and non-scripted videos, the difference between the two experimental conditions was not statistically significant.

Introduction

A large body of research has been gathered on the effects of violent media on behavior, in particular, investigations into the association between the amount of violent media exposure and violent/aggressive actions. These studies have made an impact on policy making, as well as on how society thinks of media entertainment. This topic is particularly interesting because individuals in this country are saturated with media exposure starting from a young age, and this amount of exposure is suggested to affect everyday behavior. For example, one study suggests that viewing professional wrestling is associated with violent dating behavior in high school students, and that the likelihood of initiating violence after viewing wrestling is higher for females than males (DuRant *et al.*, 2006). Since many children and young adults use electronic media as tools for education, they may come across various violent media in doing so. However, it is important to recognize that frequent exposure to violent videos leads to psychological desensitization (Engelhardt *et al.*, 2011). While it is generally accepted that themes in media entertainment (violence) can affect behavior (aggression) (Krahe´ *et al.*, 2011, 2012), relatively few studies have been conducted on the viewing violent real-life acts in media form such as professional mixed martial arts, war documentaries, and YouTube clips. Our experiment focuses on the physiological response to viewing violent media instead of studying the relationship between watching violent acts and performing them. In particular, we studied the difference in physiological arousal between viewing scripted media violence and non-scripted real-life media violence. If one perceives a video clip as real, will his or her physiological arousal when viewing be different compared to if the media is perceived as scripted and fictitious?

Entertainment media has become increasingly more violent and graphic with each passing decade. “Thresholds” for acceptable violence and gore have been increased in all cases and formats, such as television shows, movies, movie trailers, and video games (Huesmann *et al.*, 2006). During this time, potential exposure to real-life media violence also has increased. Mixed martial arts have quickly gained large popularity, and boast a no-holds-barred fight between two trained individuals. Similarly, with the boom of mobile phones with camcorders and social media networks, one can find a virtually unlimited amount of media depicting non-scripted violence between real people of a wide variety of demographics. Additionally, recent world events expose news viewers to real-life violence with war and riot scenes, and hostage scenarios. If scripted media violence for entertainment purposes can affect behavior, what about graphic, real-life violence? Does the perception of reality in a violent scene affect physiological arousal? There are

many studies that have investigated violent behavioral tendencies in relation to violent media and video game exposure, but to our knowledge, there has been little work done comparing the response of real-life versus that of scripted violence. We tested the physiological response to viewing violence in order to determine if there is a noticeable difference when real-life violence (such as scenes from wars) are viewed compared to examples from movies or television.

We predicted that viewing video clips of both types of violence, real-life and scripted, would produce an increase in physiological arousal in the viewer, specifically in galvanic skin response (GSR), heart and respiratory rate. Regarding EEG measurements, we predicted alpha waves to diminish given that the participant will have their eyes open and attending to a stimulus. We predicted Beta wave frequency, on the other hand, to increase due to the attention the participant will devote to the stimulus (video clips). Similarly, we predicted delta and theta waves to increase in frequency, given the concentration required and emotional content of the clips, respectively. However, we also predicted that those viewing the clips of real-life violence, versus scripted, fake violence, would produce sharper, more intense increases in the physiological arousal measurements described above. It is reasonable to speculate that the majority of TV and movie violence is either obviously scripted or recognized, thus removing a certain element of reality from the viewing experience. Therefore, the physiological and neurological response to real-life, non-scripted violence should be more intense due to the raw, real violence as well as empathic concern for the 'characters' in the clip. The literature on how violent media affects human physiology and behavior stresses the concept of desensitization after long-term exposure. For this reason, we predicted that participants who reported a high degree of familiarity with violent media such as horror movies, war documentaries, and/or action video games would not have as large of a difference in physiological response versus someone with less familiarity to these types of media.

Methods

Participant Introduction, Consent, and Survey

Research was conducted on 21 human participants of normal mental and health status (no known dysfunction) between 18 and 30 years of age, and relatively equal numbers of males (10 participants) and females (11 participants). The participants were primarily fellow Physiology 435 students at UW-Madison, supplemented by acquaintances of the researchers. Participants read and signed a consent form informing them of the nature of the investigation, any potential risks or benefits to the participant, and where to direct any questions they may have. This consent form also made clear that the participant may choose to discontinue participation in the study at any time with no consequences. After obtaining written permission, each participant was asked to complete a survey prior to setting up the devices to take measurements (Appendix Figures 2 and 3). This survey was used to determine the participant's general profile and background information, experience with various media types (movies, television, video games), and other hobbies/habits or distinguishing features that may impact the response to violent media. To minimize subjective bias in the study, the survey included a variety of neutral questions that did not directly pertain to the study or to graphic media (ex.: "How motivated are you?" on a Likert-type scale from 1, low, to 10, high). The participant completed the survey prior to viewing the video clips to prevent any priming or other behavioral or emotional state changes from watching the videos.

The participants were divided into two groups: those viewing video clips of real violence and those viewing video clips of scripted violence. We alternated between these two groups according to gender for each participant and conducted the experiment on one person at a time, for a period of approximately 30 minutes per participant. All participants were blind as to which type of media

they would be experiencing and to the existence of the alternate group; however, clips were chosen such that it would be obvious to the viewer as to whether the violence was scripted or non-scripted. The experiments were performed in a relatively quiet room in the Medical Sciences Center building during March and April of 2013. The video was muted and noise-cancelling headphones were placed over the participant's ears to limit external distractions. In this design, participants only viewed one type of media violence in order to reduce the effects of priming and desensitization. Participants were attached to four apparatuses to measure four different physiological responses: respiration rate, galvanic skin response, ECG, and EEG. Respiration rate was measured using a respiration belt and galvanic skin response using a finger clip. The ECG used three electrodes: the positive electrode was placed on the inside of the left ankle, the negative electrode on the inside of the right wrist, and the ground electrode on the inside of the right ankle, all in accordance with the guidelines set out in the BIOPAC manual. Electrode placement for the EEG similarly followed BIOPAC guidelines, with three electrodes placed along the left ear. All measurements were recorded using the BIOPAC analysis software.

Participants viewed a video montage that was approximately 6 minutes long, depicting intentional acts of violence. The video clips were taken from YouTube.com, and the montage was arranged so that there was a minute of white screen followed by four minutes of various clips depicting selected acts of intentional violence, either scripted or non-scripted, depending on the group condition. Each montage consisted of seven different clips that we deliberately chose to show a wide variance in violent acts. Between the two montages of scripted versus non-scripted violence, clips showing similar violence were chosen and matched for content and length and then shown in the same order. For the scripted media violence montage, the first clip was a murder from the movie *The Godfather*, the second clip was the beheading from *300*, the third was the riot scene from *The Hunger Games*, the fourth clip consisted of two women fighting in the 1990 version of *Total Recall*, the fifth clip was the mob scene from *Gangs of New York*, the sixth clip was the beating from *Casino*, and the last clip consisted of domestic abuse from the movie *Enough*. For non-scripted real violence montage, the first clip was from surveillance footage of a violent murder, the second clip was of the beheading of a civilian man by Saudi rebels, the third clip was a riot during a soccer game in response to police brutality, the fourth clip consisted of two high school girls fighting, the fifth clip showed a police crackdown on a mob in Egypt, the sixth clip was of Syrian military beating captured civilians, and the last clip was footage from a hidden camera showing a nanny physically abusing a baby. After the participant viewed the video montage containing the violent media, he or she then viewed a one minute video clip of lion cubs playing to return them to a positive affect to prevent any potential lingering negative effects from viewing the violent media.

Data Collection and Analysis

We took four different physiological measurements for each participant: respiration rate, galvanic skin response, ECG, and EEG. All measurements were recorded, saved, and analyzed using the BIOPAC analysis software. They were analyzed for the three epochs in the video montage: the initial one minute of white screen, the four minutes of violent video clips, and the final one minute of a normalizing clip. Each of these epochs were analyzed separately. Both respiration rate and galvanic skin response were analyzed using the area under the curve. The ECG data was analyzed for the mean of the heart rate. The EEG data was broken down into four different waveforms: alpha waves, beta waves, theta waves, and the overall EEG wave. All of these waves were analyzed separately for the area under the curve (See Appendix Figure 1 for more information). Area was chosen because it allowed us to account for both amplitude and frequency changes in the wave data, both of which are associated with changes in brain activity. The results

were entered into an Excel sheet and analyzed accordingly. T-tests were used to compare these measurements.

Data collection was broken up into three time epochs: 1.) Control epoch, consisting of sixty seconds of a blank white screen; 2.) Experimental epoch, consisting of a four-minute montage of violent media clips; and 3.) Normalizing epoch, consisting of a blank black screen transitioning to a sixty-second clip of lion cubs playing. Breaking up data collection into these three time epochs allows each participant to serve as his or her own control, since the first epoch records the participant's baseline activity for each measurement (GSR, ECG, EEG, and respiration rate). Recording during the second epoch investigates the experimental manipulation of the study, with participants viewing either a scripted or non-scripted violent video montage. Because the experimental epoch was four times longer than the control epoch, the data had to be normalized. Values in the experimental epoch were divided by the values for the control epoch for each participant. Data from the normalizing epoch was not evaluated in the results of this study, as it only served to normalize the affect of the participants after watching violent and potentially disturbing videos.

The survey served as a means to both acquire relevant data on the participants' backgrounds, such as gender and age, and relative exposure to media violence. Additionally, it contained extraneous items meant to distract the participant from the true purpose of the experiment in order to eliminate expectancy effects of the participant. This prevented participants, especially those familiar with experimental design, from predicting our hypothesis and potentially altering data. Such distracters included questions about movie titles, hobbies and sports, time spent doing homework, and "How happy are you?" Items gathering information useful to this study include self-reported measures of comfort with gore/violence, aggressiveness, and compassion, which were all measured using a Likert-type scale, while time spent playing video games, and watching TV were measured based on number of hours per week.

The survey information was analyzed by separating it into two populations for measures of comfort with gore/violence, aggressiveness, compassion, and hours spent playing video games and watching TV. Based on these measures, participants were separated into two groups, high and low for each. For hours spent playing/watching video games/TV, "low" was considered as 0-3 hours per week, whereas "high" was considered 4-6 hours per week or more. Participants were considered "highly" comfortable with gore/violence and "highly" aggressive for ratings of 5 or greater, whereas they were considered in the "low" group for ratings of under 5. Because self-reports for compassion were skewed towards the upper end (more compassionate), the cutoff was set at 7 or greater for "high" compassion, and under 7 for "low" compassion. These populations were then compared to each other for the physiological measurement of galvanized skin response. This analysis investigated if the group difference in aggressiveness, compassion, comfort with gore/violence, and time spent playing video games had a significant impact on the physiological response from viewing violent media.

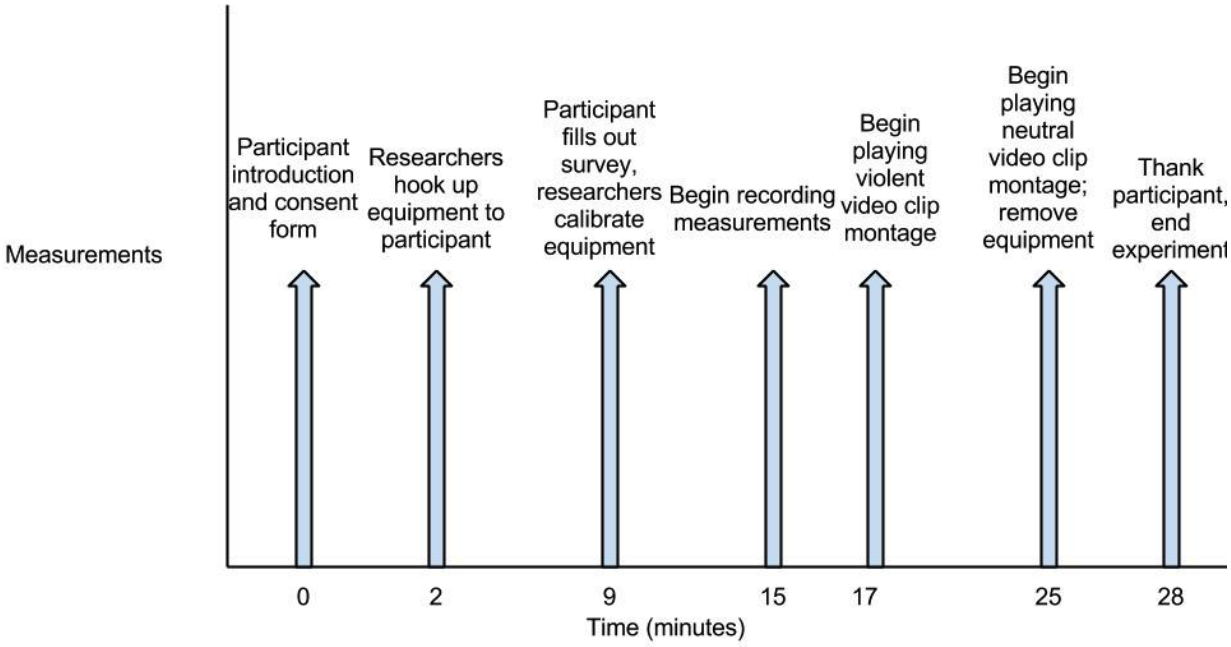

Fig. 1 Timeline of data collection for each participant.

Results

Normalized data was compared in three ways: total population averages of reactions to scripted violence versus non-scripted violence, male averages of reactions to scripted violence versus non-scripted violence, and female averages of reactions to scripted violence versus non-scripted violence. For the various tests, the t-test was used to compare each population and the p-value was calculated. For all results besides heart rate, the t-test determined that the differences in means were not statistically significant. For heart rate, the t-test found that each different grouping produced significantly different means, showing greater reactions in participants who viewed scripted violence. The threshold for the p-value to be considered significant was 0.05. In addition to population analysis, using the survey data we separated the participants based on their responses to their comfort level with gore (p value = .5502), aggressiveness (p value =.3943), and hours spent playing video games (p value = .7945). These groupings failed to show significant variations.

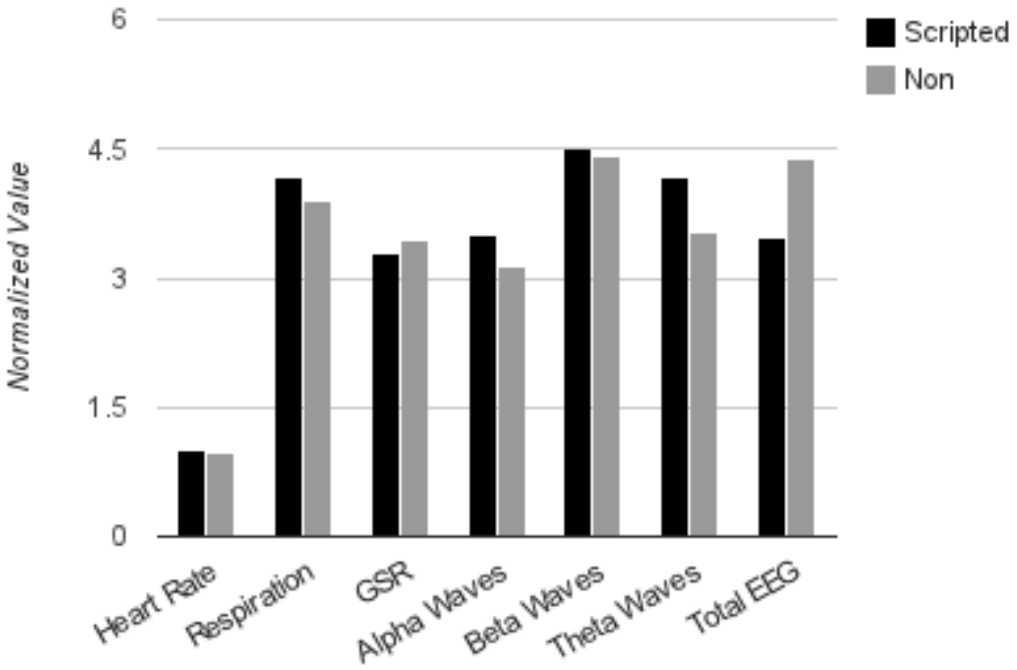

Fig. 2 Comparison of ratios of scripted versus non-scripted physiological responses.

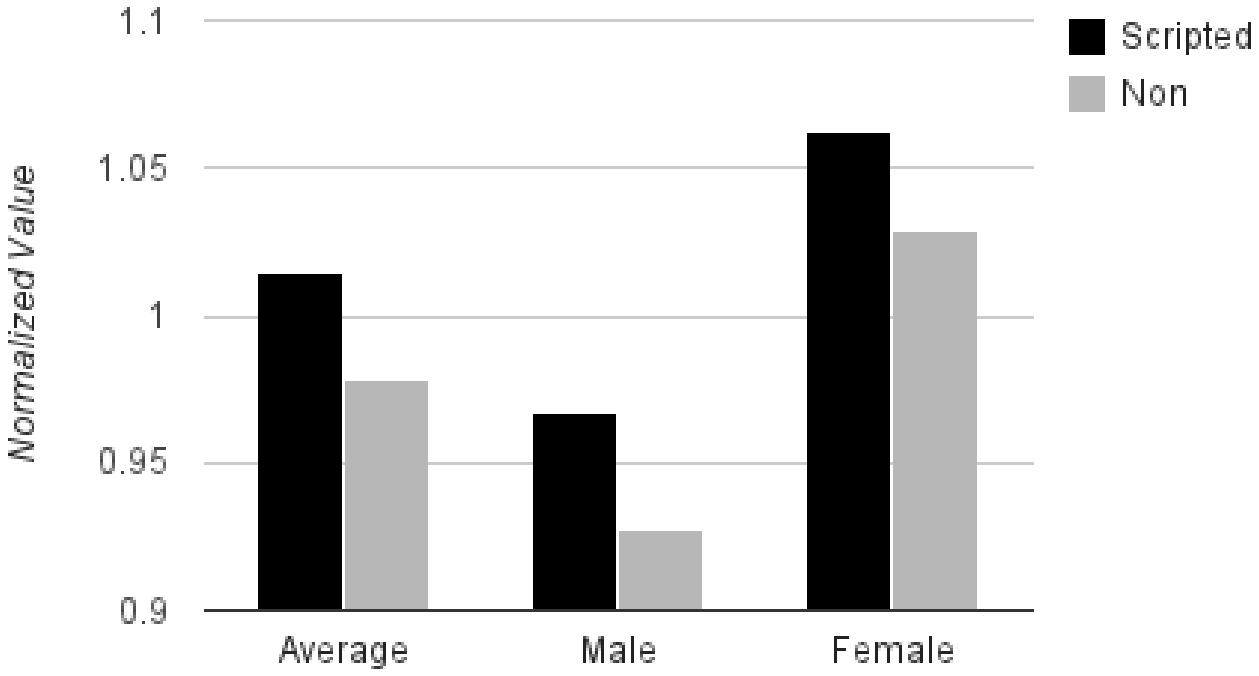

Fig. 3 Comparison of ratios of scripted versus non-scripted heart rate.

	Heart Rate	Respiration	GSR	Alpha Waves	Beta Waves	Theta Waves	Total EEG
Scripted vs Non	>.0001	0.5603	0.8559	0.6852	0.9008	0.2915	0.7246
Male: Scripted vs Non	>.0001	0.8449	0.7211	0.9223	0.9952	0.2597	0.6546
Females: Scripted vs Non	>.0001	0.8451	0.7776	0.6281	0.7885	0.5393	0.6496
Male vs Females Scripted	>.0001	0.8897	0.8623	0.7048	0.522	0.8529	0.6907
Males vs Females Non	>.0001	0.2574	0.485	0.7199	0.7185	0.9705	0.607

Fig. 4 Table of p-values for the various comparisons between genders and conditions.

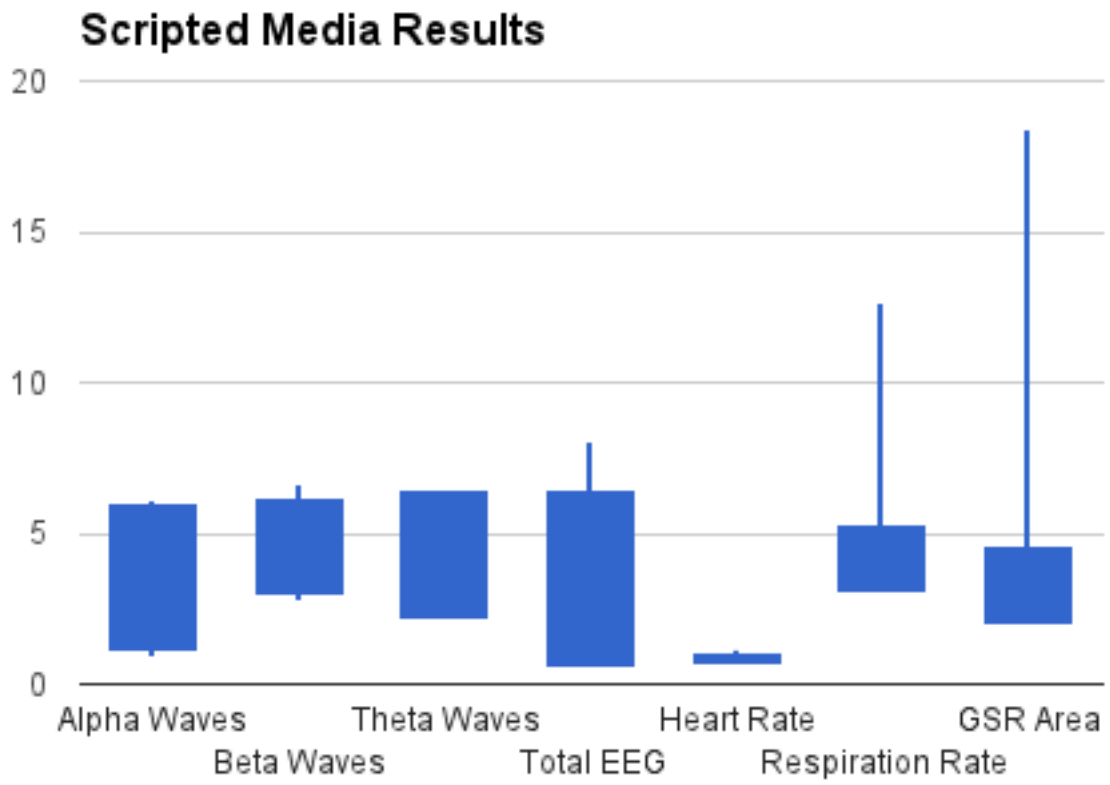

Fig. 5 Histogram of scripted media violence raw data.

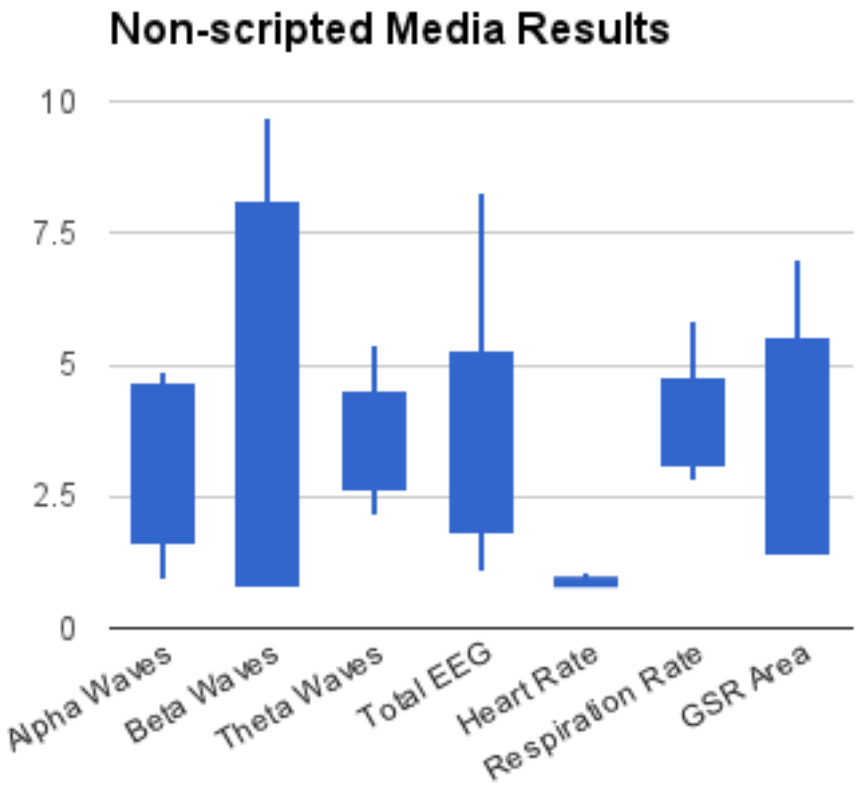

Fig. 6 Histogram of non-scripted media violence raw data.

Discussion

We chose to use the following measures of physiological activity because of their effectiveness in quantifying visceral responses to intense visual stimulation. We measured respiration rate and heart activity because they are among the most basic physiological responses that are affected when experiencing a stress-inducing event (e.g. exposure to violence). GSR is a well-established method to reliably measure physiological stress; viewing violence may create internal anxiety or stress, which can cause a change in skin conductance response. Viewing violent media clips induces an emotional response in most participants, and EEG is one way to measure such responses. In addition to these physiological measures, a survey was given to participants at the beginning of the study to provide information on their self-reported levels of aggressiveness, compassion, and tolerance of gore and violence. While we had planned to use the information from the surveys to elucidate factors affecting physiological response to violence of different types (scripted versus non-scripted), most of the factors proved unrelated to the reaction to viewing violent media. Similarly, some self-reports, such as that of compassion, showed little variability between participants and thus was not used in comparative analyses.

In this experimental design, each participant served as his or her own control. We chose not to show both a scripted and a non-scripted violent media clip to each participant because we were concerned that if the participant's physiological state was altered as a result of the first video, the response (or lack thereof) to the second video may be due not to the second video's content,

but rather to the content of the first. This effect could be minimized by giving the participant adequate time between violent media videos to watch a blank screen until his or her physiological measurements returned to baseline, although this may prove time-consuming. Another possibility for reducing the effect of the first video on the second is to randomize which type of media violence is viewed first by each subject. Using these techniques and the subject as his or her own control, an additional study could be performed that may elicit similar or different results from our experiment, providing insight into the potential effects of the first video on the second.

When we analyzed the aforementioned measures, the results of the GSR, although not statistically significant, were still higher for non-scripted media violence than scripted violence. It is possible that our data from the GSR, ECG, and EEG measurements lacked significance due to the inherent large degree of variability between individual participants. Additionally, we may have lacked sufficient participant numbers to establish statistical significance. The area of the alpha waves, beta waves, theta waves, and respiration rate all showed greater mean reactions to scripted violence, while GSR and total EEG showed greater mean reactions to non-scripted violence. Though individuals showed increases in the areas of alpha, beta, theta, and overall EEG waves while viewing both scripted and non-scripted videos, the difference between the two experimental conditions was not statistically significant. Since the participants had varying length, coarseness, and cleanliness of their hair, the electrodes may not have been attached directly to the skin of the scalp. This would cause the waves of participants with tightly attached electrodes to be more dramatic because the skin of the scalp conducts better than electrodes on top of a layer of hair. Additionally, some participants felt uncomfortable in the experimental environment and had expectations that they would be surprised or harmed. The participants may have had increased brain activity because they were attempting to predict what would happen next in our experiment. In order to minimize this potentially increased brain activity due to anticipation, in a future experiment we would warn the participant that he or she will not be surprised or harmed during the experiment and that the participant should attempt to relax as much as possible. Additionally, we could increase the amount of time that the participant watches the blank screen prior to viewing the violent media, so that he or she is as calm as possible when data is being collected.

Respiration rate and heart rate were both elevated, but only heart rate was statistically significant when compared between the two conditions. The heart rate of individuals viewing scripted violence had a higher increase compared to the non-scripted group. Of all the measurements, only heart rate was found to be a significantly different test. This could be based on individual variability. With all the tests performed, individual results have a wide range of potential values based on unique characteristics, while heart rate is a very consistent trait within the population. It's also possible that due to the inherent lower quality of the non-scripted violent videos (taken by bystanders on personal cameras versus cinema-grade cameras with post-production editing) may have failed to fully elicit the maximal reaction. If non-scripted violence were presented with the same resolution, smoothness of frame rate, and quality, perhaps the results would show a sharper difference between violent media types.

The data we collected indicate that the physiological reaction to scripted media violence is very similar to that of non-scripted real violence. This conclusion disagrees with our hypothesis but as long as an individual perceives the action to be violent, it is logical that he or she would react similarly, regardless of the type of media. Viewing violence of any kind may elicit an automatic, natural, negative affect in the viewer; this indicates that normal, healthy humans may have an inherent disdain toward violence of any kind. It is also possible that judging by the statistically significant difference in heart rate averages, the quality of the video may elicit strong reactions. Therefore, due to lack of high quality non-scripted violent videos available, the results were skewed towards the scripted media violence.

The lack of statistically significant results, although different from what we predicted, simply encourages further research on the comparison between viewing different forms of violence in the media. Further studies should seek to use higher quality non-scripted violent media, as well as a larger number of participants from more diverse backgrounds, since all of the participants in this study were college undergraduates. An interesting change that could be made to the study is adding two experimental groups: one group that would be shown the scripted violence and told that the violence was real, and another group that was shown non-scripted violence but was told that the violence was scripted. By manipulating the experiment in this manner, we would be able to see if people react more to seeing particular types of media violence or if their reaction is due to their expectation of the type of media violence that they are going to see. Our initial hypothesis was that people would react physiologically differently towards different types of media violence, in this case scripted versus non-scripted. We do not, however, address the question of how human expectation while viewing different forms of violence affects physiological response, which was a potential issue that we were not able to address in our current experimental design. It is possible that by using this particular manipulation we may be able to unravel the influence of expectations in our study.

The results of our experiment show that media representations of violence will elicit physiological responses regardless of the perceived element of reality (scripted or non-scripted), which is in agreement with previous research on this topic. Though the present study showed few statistically significant differences in physiological response to viewing scripted versus non-scripted violent media, this study was the first to investigate this topic. Upon further investigation, a more in-depth examination and further studies could help elucidate the potential difference in reactions two the two types of media violence. If such a difference exists, it could potentially have different impacts on social behavior.

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Appendix

Fig. 1 Screenshot of BIOPAC analysis software of EEG data from a randomly chosen participant. Five channels were available for analyzing different waveforms. These channels are found above the raw data: channel 40 (green) is alpha waves, channel 41 (blue) is beta waves, channel 42 (pink) is delta waves, channel 43 (red) is theta waves, and channel 1 (brown) is EEG waves. Data was analyzed by highlighting the time epoch of interest and then recording the area calculated by the BIOPAC.

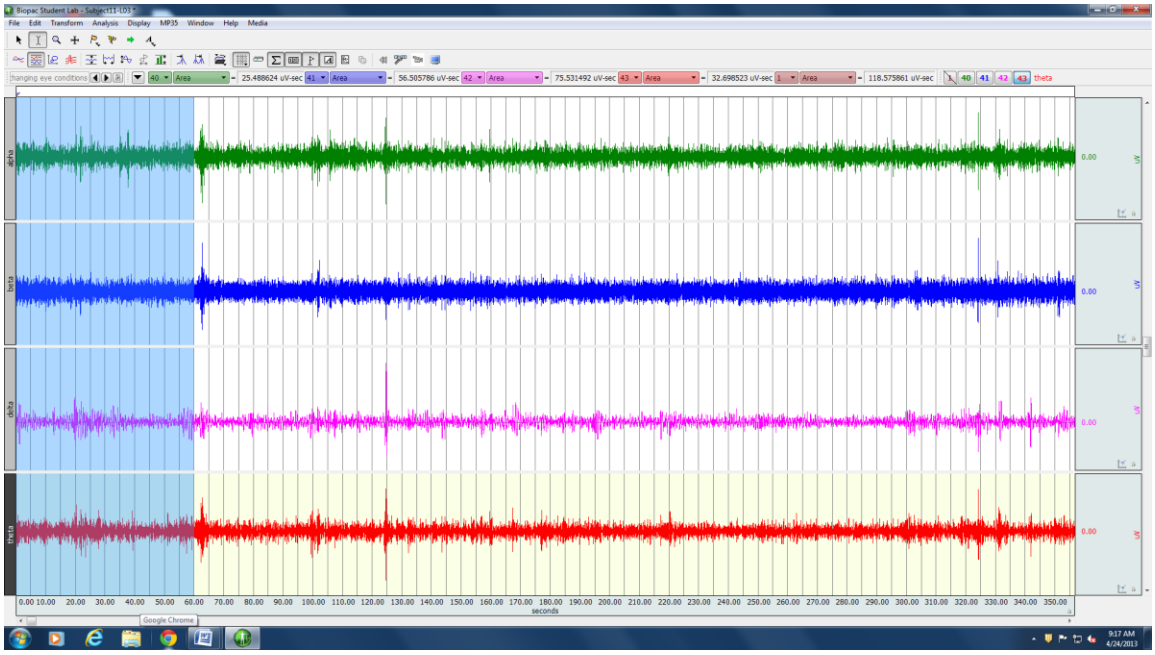

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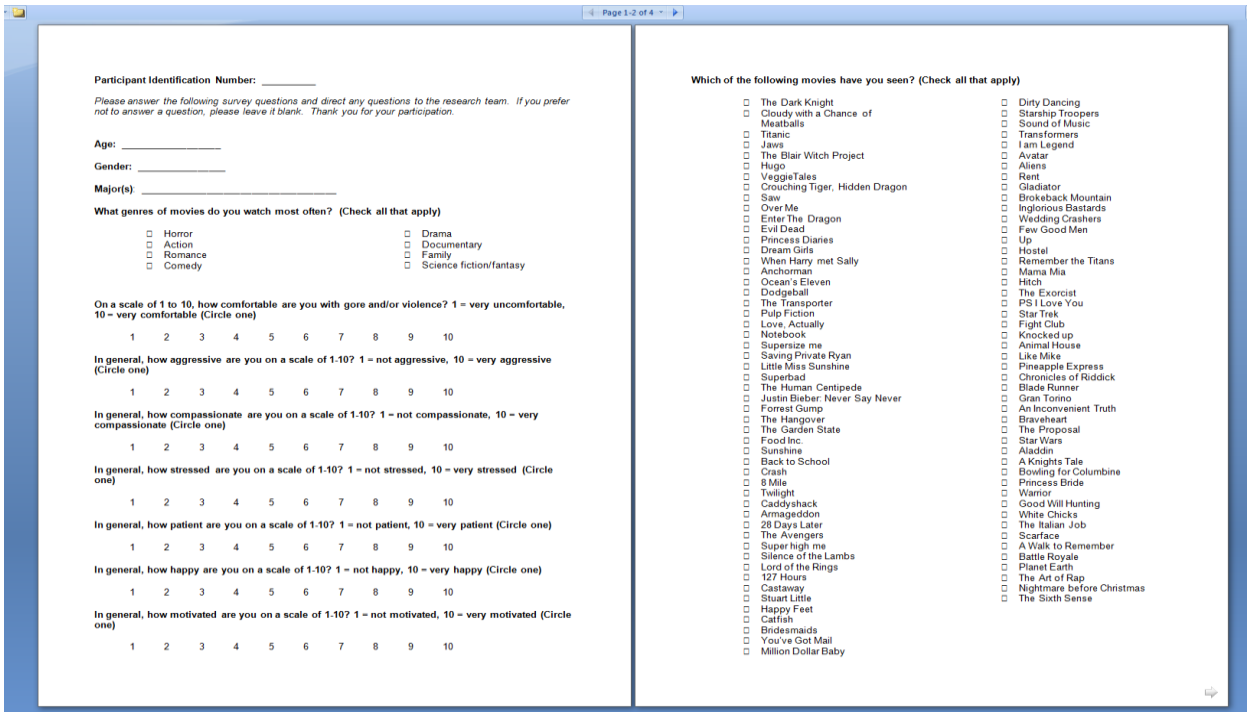
Fig. 2 Screenshot of the survey given to participants prior to data collection, pages 1-2.



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Participant Identification Number: _____

Please answer the following survey questions and direct any questions to the research team. If you prefer not to answer a question, please leave it blank. Thank you for your participation.

Age: _____

Gender: _____

Major(s): _____

What genres of movies do you watch most often? (Check all that apply)

- ☐ Horror
- ☐ Action
- ☐ Romance
- ☐ Comedy
- ☐ Drama
- ☐ Documentary
- ☐ Family
- ☐ Science fiction/fantasy

On a scale of 1 to 10, how comfortable are you with gore and/or violence? 1 = very uncomfortable, 10 = very comfortable (Circle one)

1 2 3 4 5 6 7 8 9 10

In general, how aggressive are you on a scale of 1-10? 1 = not aggressive, 10 = very aggressive (Circle one)

1 2 3 4 5 6 7 8 9 10

In general, how compassionate are you on a scale of 1-10? 1 = not compassionate, 10 = very compassionate (Circle one)

1 2 3 4 5 6 7 8 9 10

In general, how stressed are you on a scale of 1-10? 1 = not stressed, 10 = very stressed (Circle one)

1 2 3 4 5 6 7 8 9 10

In general, how patient are you on a scale of 1-10? 1 = not patient, 10 = very patient (Circle one)

1 2 3 4 5 6 7 8 9 10

In general, how happy are you on a scale of 1-10? 1 = not happy, 10 = very happy (Circle one)

1 2 3 4 5 6 7 8 9 10

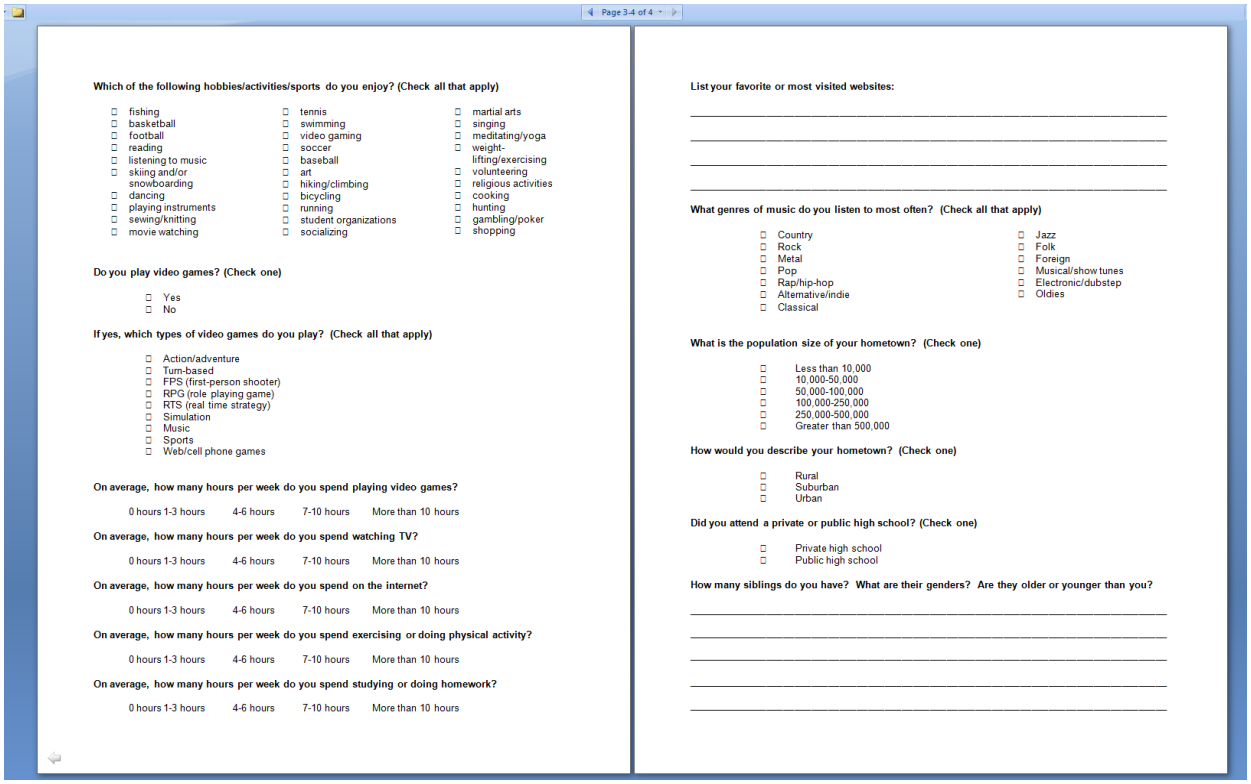
In general, how motivated are you on a scale of 1-10? 1 = not motivated, 10 = very motivated (Circle one)

1 2 3 4 5 6 7 8 9 10

Which of the following movies have you seen? (Check all that apply)

- ☐ The Dark Knight
- ☐ Cloudy with a Chance of Meatballs
- ☐ Titanic
- ☐ Jaws
- ☐ The Blair Witch Project
- ☐ Hugo
- ☐ VeggieTales
- ☐ Crouching Tiger, Hidden Dragon
- ☐ Saw
- ☐ Over Me
- ☐ Enter The Dragon
- ☐ Evil Dead
- ☐ Princess Diaries
- ☐ Dream Girls
- ☐ When Harry met Sally
- ☐ Anchorman
- ☐ Ocean's Eleven
- ☐ Dodgeball
- ☐ The Transporter
- ☐ Pulp Fiction
- ☐ Love, Actually
- ☐ Notebook
- ☐ Supersize me
- ☐ Saving Private Ryan
- ☐ Little Miss Sunshine
- ☐ Superbad
- ☐ The Human Centipede
- ☐ Justin Bieber: Never Say Never
- ☐ Forrest Gump
- ☐ The Hangover
- ☐ The Garden State
- ☐ Food Inc.
- ☐ Sunshine
- ☐ Back to School
- ☐ Crash
- ☐ 8 Mile
- ☐ Twilight
- ☐ Caddyshack
- ☐ Armageddon
- ☐ 28 Days Later
- ☐ The Avengers
- ☐ Super high me
- ☐ Silence of the Lambs
- ☐ Lord of the Rings
- ☐ 127 Hours
- ☐ Castaway
- ☐ Stuart Little
- ☐ Happy Feet
- ☐ Catfish
- ☐ Bridesmaids
- ☐ You've Got Mail
- ☐ Million Dollar Baby
- ☐ Dirty Dancing
- ☐ Starship Troopers
- ☐ Sound of Music
- ☐ Transformers
- ☐ I am Legend
- ☐ Avatar
- ☐ Aliens
- ☐ Rent
- ☐ Gladiator
- ☐ Brokeback Mountain
- ☐ Inglorious Bastards
- ☐ Wedding Crashers
- ☐ Few Good Men
- ☐ Up
- ☐ Hostel
- ☐ Remember the Titans
- ☐ Mama Mia
- ☐ Hitch
- ☐ The Exorcist
- ☐ PS I Love You
- ☐ Star Trek
- ☐ Fight Club
- ☐ Knocked up
- ☐ Animal House
- ☐ Like Mike
- ☐ Pineapple Express
- ☐ Chronicles of Riddick
- ☐ Blade Runner
- ☐ Gran Torino
- ☐ An Inconvenient Truth
- ☐ Braveheart
- ☐ The Proposal
- ☐ Star Wars
- ☐ Aladdin
- ☐ A Knights Tale
- ☐ Bowling for Columbine
- ☐ Princess Bride
- ☐ Warrior
- ☐ Good Will Hunting
- ☐ White Chicks
- ☐ The Italian Job
- ☐ Scarface
- ☐ A Walk to Remember
- ☐ Battle Royale
- ☐ Planet Earth
- ☐ The Art of Rap
- ☐ Nightmare before Christmas
- ☐ The Sixth Sense

Fig. 3 Screenshot of the survey given to participants prior to data collection, pages 3-4.



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Which of the following hobbies/activities/sports do you enjoy? (Check all that apply)

- ☐ fishing
- ☐ basketball
- ☐ football
- ☐ reading
- ☐ listening to music
- ☐ skiing and/or snowboarding
- ☐ dancing
- ☐ playing instruments
- ☐ sewing/knitting
- ☐ movie watching
- ☐ tennis
- ☐ swimming
- ☐ video gaming
- ☐ soccer
- ☐ baseball
- ☐ art
- ☐ hiking/climbing
- ☐ bicycling
- ☐ running
- ☐ student organizations
- ☐ socializing
- ☐ martial arts
- ☐ singing
- ☐ meditating/yoga
- ☐ weight-lifting/exercising
- ☐ volunteering
- ☐ religious activities
- ☐ cooking
- ☐ hunting
- ☐ gambling/poker
- ☐ shopping

Do you play video games? (Check one)

- ☐ Yes
- ☐ No

If yes, which types of video games do you play? (Check all that apply)

- ☐ Action/adventure
- ☐ Turn-based
- ☐ FPS (first-person shooter)
- ☐ RPG (role playing game)
- ☐ RTS (real time strategy)
- ☐ Simulation
- ☐ Music
- ☐ Sports
- ☐ Web/cell phone games

On average, how many hours per week do you spend playing video games?

0 hours 1-3 hours 4-6 hours 7-10 hours More than 10 hours

On average, how many hours per week do you spend watching TV?

0 hours 1-3 hours 4-6 hours 7-10 hours More than 10 hours

On average, how many hours per week do you spend on the internet?

0 hours 1-3 hours 4-6 hours 7-10 hours More than 10 hours

On average, how many hours per week do you spend exercising or doing physical activity?

0 hours 1-3 hours 4-6 hours 7-10 hours More than 10 hours

On average, how many hours per week do you spend studying or doing homework?

0 hours 1-3 hours 4-6 hours 7-10 hours More than 10 hours

List your favorite or most visited websites:

_____
_____
_____
_____

What genres of music do you listen to most often? (Check all that apply)

- ☐ Country
- ☐ Rock
- ☐ Metal
- ☐ Pop
- ☐ Rap/hip-hop
- ☐ Alternative/indie
- ☐ Classical
- ☐ Jazz
- ☐ Folk
- ☐ Foreign
- ☐ Musical/show tunes
- ☐ Electronic/dubstep
- ☐ Oldies

What is the population size of your hometown? (Check one)

- ☐ Less than 10,000
- ☐ 10,000-50,000
- ☐ 50,000-100,000
- ☐ 100,000-250,000
- ☐ 250,000-500,000
- ☐ Greater than 500,000

How would you describe your hometown? (Check one)

- ☐ Rural
- ☐ Suburban
- ☐ Urban

Did you attend a private or public high school? (Check one)

- ☐ Private high school
- ☐ Public high school

How many siblings do you have? What are their genders? Are they older or younger than you?

_____
_____
_____
_____
_____