Desensitisation of Violence: Real-life vs Fictional media.

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Abstract

Aims: The current study aims to understand the effect of prior exposure to violent media on an individual's emotional reactivity as a response to both real-life and fictional violent content. This study also aims to investigate the individual's ability to emotionally differentiate between real-life and fictional media violence and if prior exposure to violent media content predicts this difference. **Method:** Sixty-four participants completed an online survey containing questionnaires on demographics and The Adjusted Content-Based Media Exposure Scale. Following the presentation of two violent extracts (real-life and fictional) then completed The Emotional Reactions Scale and The Immediate Fear Scale. **Results:** Results found that prior exposure to media violence was not correlated to the emotional reaction scores following reading both extracts. Differences in emotional reaction scores were found between both conditions, with the real-life extract inducing higher emotional reaction scores. However, prior exposure did not predict this difference after controlling for the variables of age and sex. **Conclusion:** Findings provide additional evidence in understanding the impact of violence presented in media. The results suggest that continual violent media exposure may not have adverse impacts for an older population. Implications and future research directions are discussed.

Contents

Introduction

With the progression of technology and the ease of access to a wide range of content, violent content presented in media with both its short-term and long-term effects on the viewer has received increasing interest. Media violence can be defined as visual displays of acts of aggression or violence by an individual or character towards another being (Huesmann, 2007). This definition has evolved over time as theories and evidence have attempted to describe the type of content influencing such violence and aggressive behaviours. Aggressive behaviours are defined as deliberate acts to cause another individual physical harm, emotional harm, and/or injury with violence being the more extreme version as it poses a greater risk of harm (Huesmann, 2007). Early concern surrounding violent media content was presented by Wertham (1964) in his book "Seduction of Innocence". Wertham goes on to explain the negative effects of graphic and violent comic books on children, making claims that the content presented in these comic books led to juvenile delinquency and an increased risk of committing crimes and violence. Despite receiving many criticisms, Wertham's ideas have progressed through research with similar claims being investigated. However, with the emergence of television and film with a later interest in the engaging nature of video games (Anderson, et al., 2001), the focus has been on on-screen violence with disregard for violence presented in literature such as comic books and novels (Kirsch & Olczak, 2002; Coyne, et al., 2012; Stockdale, et al., 2013)

Aggressive and Violent Behaviours

A variety of theories and a wide range of research aims to explain the influences and effects of media consumption on an individual's emotional, cognitive, and behavioural functioning. Originating in the Social Learning Theory of Bandura (1977) and the series of Bobo Doll experiments examining the mimicking behaviour of children viewing an adult

model (1961), these experiments demonstrated observational learning through the viewing of others. A later study by Bandura and colleagues (1963), replicated the original study using film based aggression, finding similar results. These studies infer that, children may also mimic the violent and aggressive behaviours presented in the media. Other short-term processes involved in aggressive outcomes of media violence are priming of aggressive scripts, mimicry of such scripts and changes in arousal (Bushman & Huesman, 2006). Earlier claims by Huesmann, (1986) suggested that the individual consequence of aggression associated with media violence is a result of the cumulative learning process in childhood in which aggressive scripts for behaviours are acquired and can later be triggered by cues stimulating violent behaviours. For example, viewing violent content may activate previously developed scripts allowing more aggressive thoughts, feelings, and behaviours to be easily accessed.

Research has built on these theories suggesting that media violence contributes to the likelihood that an individual will develop aggressive related feelings, thoughts, and behaviours following exposure (Murray, 1973; Gentile et al., 2004; Hopf, et al., 2008; Boxer, et al., 2009). An early longitudinal study conducted by Huesmann and colleagues (2003) between the years of 1977-1992 found exposure to media violence throughout childhood predicted young and adult aggressive and violent behaviours with factors of identification and perceived realism predicting such aggression. Numerous meta-analyses have focused on this association of aggression and violence presented in media, all of which present consistent results for both short-term and long-term impacts. These meta-analyses focus on the exposure to general media violence (Paik & Comstock, 1994; Anderson, et al., 2003; Bushman & Anderson, 2015) and video game violence (Anderson, et al., 2010), with findings suggesting that violence presented in media of any form even for a short period produces a negative

effect on the viewer with long-term exposure leading to the eventual desensitisation of violence.

However, it is important to note when interpreting such results that this association is highly controversial as other studies have claimed little support for media violence and its link to aggression due to issues such as publication bias and the methodological problems of poor aggression measures and design (Savage & Yancey, 2008; Ferguson & Kilburn, 2009). For example, Ferguson & Kilburn, (2010) and Elson & Ferguson (2014) have found inconsistencies in Anderson, et al., (2010) as a result of the inclusion of studies that do not relate to 'serious' aggression, a biased unpublished sample of studies and unreliable use of analysis. Among many criticisms, Elson & Ferguson (2014) also claim that media behaviour is shaped by the user rather than the content itself, which was the previous focus of media and aggression research.

Desensitisation

Research has suggested that continual long-term violent media exposure may lead to desensitisation. The term originally stems from systematic desensitisation which is an intervention used to treat phobias by continual exposure to the fear or anxiety-inducing stimuli through the construction of a fear hierarchy (Wolpe & Lazarus 1966). However, in the context of media violence, desensitisation is defined as the habituation of negative cognitive, physiological, and emotional responses as a result of continual exposure to violent content (Engelhardt, et al., 2011). This habituation of negative emotions and physiological responses to violence, in turn, may lead to an increased likelihood of violent thoughts and behaviours (Huesmann, et al., 2003). Similarly, Bartholow and colleagues (2006) found that the relationship between media violence exposure and aggressive behaviours was mediated by the physiological responses as a result of such exposure. However, relatively few recent

studies have investigated these physiological responses such as heart rate and skin conductance (SCL) to repeated exposure to violent media content (Carnagey, et al., 2007a; Madan, et al., 2014). Overall findings are consistent with more dated research (Cline, et al., 1973; Geen, 1981; Linz, et al., 1989) concluding that prior exposure to violent or graphic content lowers physiological responses to later violence. These findings were presented in a more recent study by Krahé et al, (2011) who investigated such responses in undergraduates viewing a violent clip. Prior repeated exposure to violent media was negatively correlated with physiological responses (SCL) and was positively associated with pleasant arousal, response times for aggressive words and trait aggression and no relation with anxious arousal. These findings demonstrate this link between continual violent media exposure and diminished physiological responses to violent content, while also associating prior exposure to aggressive cues, enjoyment and decreased emotional arousal. Contrary to prior research, a study by Arrigaga et al, (2006) did not find this habituation of physiological responses in a violent or non-violent video game exposure. Previously mentioned claims made by Elson & Ferguson (2014) and a study conducted by Ballard and colleagues (2006) found that physiological reactivity declines over continual exposure to gameplay regardless of the content, suggesting that continual exposure to any type of content may lead to diminished physiological reactivity.

Continual exposure can lead to emotional desensitisation which is due to individuals not responding physiologically as they did at the initial presentation (Huesmann & Kirvil, 2007; Carnagey, et al., 2007a). This in turn diminishes the emotional reactivity of the assumed negative emotions such as fear and anxiety produced by viewing violence (Madan, et al., 2014). It has been established within the research that fear and anxiety are associated with media violence specifically for young children (Gentile & Walsh, 2002; Cantor, et al., 2010), with factual news reports also inducing fear (Smith & Wilson, 2002; Riddle, et al., 2012). In

line with the theory of desensitisation and physiological research, continual presentation of violent content will produce a diminished response in fear (Wolpe & Lazarus, 1966; Carnagey, et al., 2007a; Madan, et al., 2014). However, the context of the content is influential on this response. When individuals seek out violent content for their own pleasure and enjoyment this decreased fear response may occur after repeated exposure to violent media as they become comfortable with the content (Hoffner & Levine, 2005; Fanti, et al., 2009). Research has found that if this violent content is perceived as likely to occur in a real-life setting this causes an increase in fear responses and leads viewers to generalise this violence to the world around them (Sparks& Ogles, 1990; Singer, et al., 1984; Nabi & Riddle, 2008) and developing potential Mean World Syndrome, which is when an individual perceives the world as more dangerous than it is (Gerber, 1998). This effect is seen more in older children as they are more aware of the realism of violence (Sparks, 1986; Wright, et al., 1994) and individuals who are exposed to higher television violence (Gerber, 1969; Shanahan & Morgan, 1999; Morgan & Shanahan, 2010).

A decline in the emotional response of empathy and the lack of engagement in the act of prosocial behaviour is a prominent outcome of exposure to violent media (Funk, et al., 2003; Funk et, al., 2004; Fanti, et al., 2009; Brockmyer, 2015). Such studies expose individuals with a violent or non-violent stimulus such as a game or movie and later present them with a scenario regarding helping behaviours or feelings of empathy. Findings suggest that individuals presented with violent content are less likely to display helping behaviours and show lower empathy levels. This effect is also highlighted in a longitudinal study carried out by Krahé and Möller (2010), claiming that an increase in aggression and decrease in empathy as a result of media violence exposure within twelve months. However, Vossen and colleagues (2016) provided understanding that previous studies did not consider the dimensional nature of empathy but rather measured sympathy. In this study, sympathy was

found to be associated with exposure to media violence. In comparison, Scharrer, (2008) investigated such effect in the real-life news report and broadcasts, finding continual exposure to factual news reports also leading to desensitisation of violence with individuals with lower empathy levels at increased risk of desensitisation. These findings call into question the effect of real-life violence presented in the media also having an impact on the individual.

Real-Life and Media Violence

Although the real-life implications of media violence exposure have been established in research, little focus is on the effects of desensitisation to violence and tolerance to real-life aggression as a result of this repeated exposure. When investigating the influencing factor of violent exposure, studies examine individuals' real-life experiences of violence and the potential habituation of negative emotions as a result (Cooley-Quille et al, 2001; Ng-Mak, et al., 2004). For example, young children who witness violence regularly in an abusive home may have become tolerant to violence as they have been continually exposed. In an ongoing debate surrounding the impacts of media violence, Bushman & Huesmann (2014) imply that observing real-life acts of violence (e.g in the home) and media violence display similar psychological effects. This has been criticised by Elson & Ferguson (2014), who claims that real-life violence experienced by an individual is gravely different to that witnessed through media. A study by Mrug and colleagues (2016) considered the influence of real-life exposure and media violence exposure on the effects of viewing violent content. They found that individuals exposed to real-life violence after viewing violent content showed more PTSD symptoms and greater identification with fictional characters as well as a diminishing emotional distress response in male participants. High levels of exposure lead to a decline in emotional empathy and medium levels of exposure had lower elevations of blood pressure.

They also assessed the influence of media violence exposure on the effects of viewing violent content, finding a non-significant correlation to PTSD symptoms, diminished empathy or baseline blood pressure.

Research has focused on this exposure to media violence and the negative effects it holds on an individual's reaction to real-life violence. For example, when an individual continually engages in violent video gameplay and then is later presented with real-life violence, they may tolerate the witnessed aggression and be less likely to intervene. Increased toleration for violence was investigated in an early study by Drabman & Thomas, (1974) which found that following the presentation of a movie clip containing violence, younger children took longer to seek aid after observing an altercation than children who viewed a non-violent clip. Similarly, the results of a more recent study by Bushman & Anderson (2009) who conducted two studies finding that individuals who played the violent video game or viewed the violent clip took longer to seek aid for individuals in conflict following a fight or individuals who are experiencing pain. Emotional responsivity and physiological arousal of real-life aggression following exposure to violent content in children and adults also displayed decreased arousal as a result of prior exposure (Thomas, et al., 1977). Also seen in a study by Carnagey, et al., (2007a) that playing a short 20-minute video game led to diminished physiological arousal of heart rate (HR) and galvanic skin response (GSR) when exposed to visual displays of real-life violence.

Real-Life and Fictional Media

Little research focuses on the emotional reactions to both real-life and fictional violent media. An early study by Akins (1983) did compare the effects of both real-life and fictional visual media violence on aggression in young adults. This study found that both types of violence increased aggressiveness in individuals with the realistic condition inducing more

aggression with factors such as perceived realism, liking for the fight and attention facilitating this impact. A study by Walma van der Molen & Bushman, (2008) did investigate fright and worry responses following the viewing of news or fictional violence but only in children. Results suggested that fright and worry were greater in individuals who view less television and also when violent content was described as news this provided greater fear reactions than when described as fiction. These results are in line with previous theory and research surrounding the effect of real-life content on fear responses. However, factors that may influence this differentiation are not established in current research.

The Current Study

The current study aims to understand the effect of prior exposure to violent media on an individual's emotional reactivity as a response to both real-life and fictional violent content. This study also aims to investigate the individual's ability to emotionally differentiate between real-life and fictional media violence and if prior exposure to violent media content predicts this difference. This differentiation has received little focus in previous research, with one prior study focusing this difference with a sample of younger children (Van der Molen & Bushman, 2008) and another not examining the influence of prior exposure to media violence (Atkins, 1983). No prior research has investigated if previous violent media exposure impacts this difference in emotional reaction scores. Therefore, the current study addresses this gap by investigating this potential influence. The samples used in previous media violence literature consist of young children, adolescents and undergraduates as they are the most vulnerable to the influences of media (Committee of Public Education, 2001). In the case of the current study, the sample consists of older emerging adults (18-25) to observe if the desensitisation effect is carried on through early adulthood. Previous research has focused on the effect of desensitisation on the emotional reactivity to violence

presented in visual media such as television, movies and video games with a lack of focus on reactivity to media such as written extracts (Funk, et al., 2003). The current study builds on research by the use of written media as opposed to visual media when examining the effects of long-term prior exposure. This study produces the following questions and hypotheses:

Research question 1: Is previous exposure to violent media correlated to emotional reaction scores in both the real-life and fictional conditions? Hypothesis for research question 1: Increased previous exposure to violent content would lead to lower emotional reaction scores in both conditions

Research question 2: Is there differences in emotional reactions scores between the fictional and real-life condition? Hypothesis for research question 2: Differences will be found between both conditions, with higher emotional reaction scores being found in the real-life condition.

Research question 3: Does previous exposure to media violence predict the differences in emotional reaction scores between both the real-life and fictional conditions? Hypothesis for research question 3: Decreased previous exposure to media violence will predict differences between the emotional reaction scores in both conditions.

Method

Participants

Sixty-four participants took part in the current study. As a hierarchical multiple regression was being conducted, the sample size was calculated using Stevens (1996) formula of 15 participants per predictor variable (PV), therefore the minimum sample size required for the current study was n = 45. The sample consisted of 42 females, 20 males and 2 others ranging in age from 19-25 (M= 21.5, SD= 1.67). Participants were recruited using convenience sampling using a link on the social media platform of Instagram. Participation was voluntary and participants did not receive compensation for taking part in the study.

Materials/ Measures

The study consisted of demographic information and a presentation of two distinct paragraphs followed by two self-report scales. The demographic questionnaire obtained the information of age, sex and whether you view violent content.

Questionnaires

The Adjusted Content-Based Media Exposure Scale (Den Hamer, et al., 2017) is a self-report measure that assesses frequency and differential exposure to violent media content (See Appendix E). This includes 12 items that assess exposure to antisocial media content. Responses are rated on a 5-point Likert scale (Never=1; Incidentally=2; Sometimes=3; Often=4; Very often=5). This has been adapted from the original 22 item scale which was divided into antisocial media content (first 12 items) and prosocial media content (last 10 items). For the purpose of the current study, only participants' exposure to antisocial media content was assessed. Responses were calculated to produce a total score, ranging from the lowest possible score of 12 to the highest possible score of 60, with higher scores indicating increased prior exposure to antisocial based content. The antisocial subscale demonstrates

validity and reliability with a Cronbach's alpha of .89, which indicates high internal consistency. In the current study, the Cronbach's coefficient for exposure to media violence was .91, suggesting high internal consistency for the current sample.

The Emotional Reactions Scale (Cohen-Bendahan, et al., 2014) is used to measure the emotional reaction to a presented stimulus (See Appendix G). This includes 11 different emotions to assess emotional reactions. This scale was divided into two subscales: sympathy (6 items) and anger (5 items). Responses are rated on a 4-point Likert scale (1 = not at all to 4 = very strongly), with two items on the sympathy subscale (neutral, happy) reverse scored. The first 6 items were calculated to produce a sympathy score, ranging from the lowest possible score of 6 to the highest possible score of 24, with higher scores indicating a high reaction of sympathy. The second 5 items were calculated to produce an anger score, ranging from the lowest possible score of 5 to the highest possible score of 20, with higher scores indicating a high reaction of anger. Both scales demonstrate reliability and validity, sympathy scale (Cronbach's alpha = .69) and anger scale (Cronbach's alpha = .78). For the current study, the Cronbach's alpha coefficient for the sympathy scale was .77 in both conditions, suggesting high internal consistency for the current sample. For the current study, the Cronbach's alpha coefficient for the anger scale in the fictional and real-life conditions were .93 and .91 respectively, suggesting high internal consistency for the current sample.

The Immediate Fear Scale (Lin, 2017) is used to measure immediate fear response following exposure to intense content (See Appendix F). This includes three items rated on a 7-point Likert scale (1 = very low to 7 = very high). Responses were calculated to produce a total score ranging from the lowest possible score of 3 to the highest possible score of 21, with higher scores indicating higher levels of immediate fear. This scale demonstrates validity and reliability with a Cronbach's alpha of .89, which indicates high internal consistency. For the current study, the Cronbach's alpha coefficient for the fear scale in the

fictional and real-life conditions were .93 and .89 respectively, suggesting high internal consistency for the current sample.

Stimuli

There are two conditions, 'real-life' and 'fictional' violent media presented in the current study. The 'real life' condition contains a factual violent written extract (see Appendix C). The participant will be presented with a statement before reading this extract informing them of the factual nature of the extract. This statement is as follows: *Please read the passage below. This is a true account of the Irish Republican Bobby Sands and the violence he endured while being incarcerated*. The 'fictional' condition contains a fictional violent written extract (see Appendix B). The participant will be presented with a statement before reading the extract informing them of the fictional nature of the violence and that information presented is not factual. This statement is as follows: *Please read the passage below. This is a fictional paragraph that was taken from the book Fight Club by Chuck Palahniuk.*

Design

The current study adopted a cross-sectional and a within-groups design. This study was qualitative in nature and data was collected using an online survey. For hypothesis one, non-parametric correlations assessed the variable of prior exposure to violent media and association to the emotional reaction scores of fear, sympathy and anger in both the real-life and fictional condition. For hypothesis two, a within-groups design was used as emotional reaction scores of fear, sympathy and anger were compared separately between both the real-life and fictional conditions. For hypothesis three, hierarchical multiple regression was conducted to assess if exposure to media violence predicted differences in emotional reaction scores between both conditions, after controlling for age and sex. Three analyses were

conducted to assess the emotional reaction scores separately. The predictor variables (PV) for all analyses were age, sex and exposure to media violence. The criterion variable (CV) in each analysis was the difference in the emotional reaction scores of fear, sympathy and anger.

Procedure

Data was collected by the use of an online study hosted by Google Forms. Before collecting data, the survey was piloted by three individuals to ensure no issues were encountered. As there were no difficulties presented and this data was included in the final analysis.

The participants accessed the survey on an electronic device by clicking a link presented on the researcher's social media account of Instagram. This link was presented with the title of the study and the eligibility criteria of participation. Following accessing the link, participants were then presented with the Information sheet containing the nature of the study, author and supervisor, regulations of data and eligibility criteria of participation (see Appendix A). To proceed with the study participants gave their consent for their participation by clicking a box presented below the Information sheet. Following granted consent, they then completed a demographic questionnaire containing age, sex and whether they view violent content. Participants were then asked to complete the Adjusted Content-Based Media Exposure Scale questionnaire (see Appendix E). Participants were then presented with the fictional violence extract (see Appendix B) then asked to complete the Immediate Fear Scale (see Appendix F) and the Emotional Reactions Scale (see Appendix G) following reading the extract. Participants were then presented with the real-life violence extract (see Appendix C) and then asked to complete the Immediate Fear Scale (see Appendix F) and the Emotional Reactions Scale (see Appendix G) following reading the extract. Following the completion of the study, participants were presented with a Debriefing form, stating the nature of the study,

various helplines in the case of experienced distress and thanked for their participation. (see Appendix D). The approximated completion time for participants ranged from 10-15 minutes.

The current research study was approved by the National College of Ireland Ethics Committee, consideration for the participant and handling of data is in line with The Psychological Society of Ireland Code of Professional Ethics and the NCI Ethical Guidelines and Procedures for Research involving Human Participants.

Results

The sample for the current study was collected from 64 participants. As can be seen from Table 1, the participants were categorised by sex and viewing of violent content. In this study, a large majority of participants were female and a majority of participants view violent content.

Table 1

Table of descriptive statistics for the categorical variables of sex and viewing of violent content (n=64).

Variable	Frequency	Valid %
Sex		
Male	20	31.3
Female	42	65.6
Other	2	3.1
Viewing of Violent Content		
Yes	54	85.7
No	9	14.3

As can be seen in Table 2, descriptive statistics measured age, total exposure to violent media, total immediate fear scores for both fictional and real-life conditions, sympathy scores for both fictional and real-life conditions, anger scores for both fictional and real-life conditions, difference in fear scores, difference in sympathy scores and difference in anger scores. Preliminary analyses indicated no violation according to the Kolmogorov-Smirnov test, Histogram and Q-Q Plots in the variable of total exposure to violent media, difference in fear scores and difference in sympathy scores, with the presence of one outlier detected in the variables of total exposure to media violence and difference in fear scores.

This violation of normality according to the Kolmogorov-Smirnov test, Histogram and Q-Q Plots was present in the variables of age, total fear scores for both fictional and real-life conditions, sympathy scores for both fictional and real-life conditions, anger scores for both fictional and real-life conditions and difference in anger scores, indicating that the data is non-normally distributed.

Table 2

Table template for descriptive statistics for the continuous variables of age, total exposure to violent media, total immediate fear scores for both fictional and real-life conditions, sympathy scores for both fictional and real-life conditions and anger scores for both fictional and real-life conditions. (n=64).

Variable	*M* [95% CI]	*SD*	Range
Age	21.5[21.08-21.92]	1.67	19-25
Exposure to Violent Media	40.41[37.95-42.87]	9.85	12-60
Fear (Fiction Condition)	10.97[9.64-12.3]	5.32	3-21
Fear (Real-Life Condition)	12.22[10.86-13.57]	5.42	3-21
Sympathy (Fiction Condition)	17.13[16.08-18.17]	4.18	9-24
Anger (Fiction Condition)	11.27[10.05-12.48]	4.86	5-20
Sympathy (Real-Life Condition)	18.39[17.32-19.46]	4.29	7-24
Anger (Real-Life Condition)	14.47[13.23-15.71]	4.96	5-20
Difference in Fear Scores	1.25[.12-2.38]	4.53	-9-13
Difference in Sympathy Scores	1.27[.4-2.13]	3.46	-7-10
Difference in Anger Scores	3.2[1.98-4.43]	4.92	-7-15

Preliminary analyses were performed to ensure no violation of the assumptions of normality; total fear scores, sympathy scores and anger scores in both conditions were found to be non-normally distributed. Therefore, non-parametric alternatives were used.

Hypothesis 1

A Spearman's Rank Order correlation coefficient was conducted to assess the relationship between total fear scores in both conditions (fictional and real-life) and exposure to media violence. There was a non-significant, negative correlation between fictional fear scores and exposure to media violence ($r = -.137$, $n = 64$, $p = .28$). Similarly, there was a non-significant positive correlation between real-life fear scores and exposure to media violence ($r = .013$, $n = 64$, $p = .921$). Results indicate that exposure to media violence is not associated with fear in both the fictional and real-life condition.

A Spearman's Rank Order correlation coefficient was conducted to assess the relationship between sympathy scores in both conditions (fictional and real-life) and exposure to media violence. There was a non-significant, negative correlation between fictional sympathy scores and exposure to media violence ($r = -.179$, $n = 64$, $p = .158$). Similarly, there was a non-significant, negative correlation between real-life sympathy scores and exposure to media violence ($r = -.042$, $n = 64$, $p = .744$). Results indicate that exposure to media violence is not associated with sympathy in both the fictional and real-life condition.

A Spearman's Rank Order correlation coefficient was conducted to assess the relationship between anger scores in both conditions (fictional and real-life) and exposure to media violence. There was a non-significant, negative correlation between fictional anger scores and exposure to media violence ($r = -.129$, $n = 64$, $p = .308$). Similarly, there was a non-significant, positive correlation between real-life anger scores and exposure to media violence ($r = .097$, $n = 64$, $p = .445$). Results indicate that exposure to media violence is not associated with anger in both the fictional and real-life conditions.

Table 3

Correlation between measured variables

Variable	1.	2.	3.	4.	5.	6.	7.
1. Exposure to Media Violence	1						
2. Fictional Fear	-.137	1					
3. Real- Life Fear	.013	.642***	1				
4. Fictional Sympathy	-.179	.746***	.719***	1			
5. Real-Life Sympathy	-.042	.493***	.812***	.669***	1		
6. Fictional Anger	-.129	.532***	.620***	.711***	.46***	1	
7. Real- Life Anger	.097	.259**	.718***	447***	.728***	.501***	1

Note: Statistical significance: *p < .05; **p < .01; ***p < .001; N = 64

Hypothesis 2

A Wilcoxon Signed Rank Test was conducted to compare fear scores in the fictional and real-life condition. There was statistically significant differences between both conditions with the real-life condition (M = 12) producing higher fear scores than the fictional condition (M = 11.5), z = -1.963, p = .05, with a small effect size (r = .17).

A Wilcoxon Signed Rank Test was conducted to compare sympathy scores in the fictional and real-life condition. There was statistically significant differences between both conditions with the real-life condition (M = 19) producing higher sympathy scores than the fictional condition (M = 17), z = -2.696, p = .007, with a small effect size (r = .24).

A Wilcoxon Signed Rank Test was conducted to compare anger scores in the fictional and real-life condition. There was a significant differences between both conditions with the real-life condition (M = 15) producing higher anger scores than the fictional condition (M = 11), z = -4.456, p < .001, with a medium effect size (r = .39).

Hypothesis 3

Hierarchical multiple regression was used to assess the ability of exposure to media violence to predict the difference in fear scores between both real-life and fictional conditions, after controlling for the influence of age and sex. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity according to the Kolmogorov-Smirnov test, Histogram, Q-Q Plots. While one outlier was detected in the model, it was included in the final analysis An analysis of the assumption of multicollinearity indicated the Tolerance and VIF values were in an acceptable range, these results indicate no violation and the data is therefore suitable for multiple regression analyses. Age and sex were entered at step 1, explaining .012% of the variance in the difference in fear scores. After the entry of exposure to media violence at step 2, the total variance explained by the model as a whole was .048%, $F(3,60) = 1.02$, $p = .392$. Exposure to media violence explained an additional .036% in variance in the difference in fear scores, after controlling for age and sex, R squared change = .036, F change $(1, 60) = 2.276$, $p = .137$. As can be seen in Table 4, in the final model all three control measures were non-statistically significant, age (beta value = .255, $p = .467$), sex (beta value = 1.336, $p = .259$) and exposure to media violence (beta value = .092, $p = .137$).

Table 4
Hierarchical multiple regression model predicting difference in fear scores between both real-life and fictional conditions.

Variable	R^2	R^2 Change	*B*	*SE*	*β*	*t*	*p*
Step 1	.012						
Age			.216	.351	.08	.617	.559
Sex			.807	1.31	.092	.714	.540
Step 2	.048	.036					
Age			.255	.348	.094	.732	.467
Sex			1.336	1.173	.153	1.139	.259
Exposure to Media Violence			.092	.061	.199	1.509	.137

Note: R^2 = R-squared; R^2 change = R-squared change; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; N = 64; Statistical Significance: *p < .05; **p < .01; ***p < .001.

Hierarchical multiple regression was used to assess the ability of exposure to media violence to predict the difference in sympathy scores between both real-life and fictional conditions, after controlling for the influence of age and sex. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity according to the Kolmogorov-Smirnov test, Histogram, Q-Q Plots. While three outliers were detected in the model, the data was included in the final analysis An analysis of the assumption of multicollinearity indicated the Tolerance and VIF values were in an acceptable range, these results indicate no violation and the data is therefore suitable for multiple regression analyses. Age and sex were entered at step 1, explaining .032% of variance in differences in sympathy scores. After entry of exposure to media violence at step 2, the total variance explained by the model as a whole was .055%, F(3,60) = 1.16, p = .334. Exposure to media violence explained an additional .023% in variance in the difference in

sympathy scores, after controlling for age and sex, R square change = .023, F change (1,60) = 1.429, p = .237. As can be seen in Table 5, in the final model all three control measures were non-statistically significant, age (beta value = .359, p = .181), sex (beta value = -.027, p = .976) and exposure to media violence (beta value = .055, p = .237).

Table 5

Hierarchical multiple regression model predicting difference in sympathy scores between both real-life and fictional conditions.

Variable	R^2	R^2 Change	*B*	*SE*	*β*	*t*	*p*
Step 1	.032						
Age			.335	.265	.162	1.266	.210
Sex			-.346	.854	-.052	-.405	.687
Step 2	.055	.023					
Age			.359	.265	.173	1.355	.181
Sex			-.027	.892	-.004	-.031	.976
Exposure to Media Violence			.055	.046	.157	1.195	.237

Note: R^2 = R-squared; R^2 change = R-squared change; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; N = 64; Statistical Significance: *p < .05; **p < .01; ***p < .001.

Hierarchical multiple regression was used to assess the ability of exposure to media violence to predict differences in anger scores between both real-life and fictional conditions, after controlling for the influence of age and sex. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity according to the Kolmogorov-Smirnov test, Histogram, Q-Q Plots. An analysis of the assumption of multicollinearity indicated the Tolerance and VIF values were in an acceptable range, these results indicate no violation and the data is therefore suitable for multiple

regression analyses. Age and sex were entered at step 1, explaining .024% of the variance in differences in anger scores. After the entry of exposure to media violence at step 2, the total variance explained by the model as a whole was .083%, F (2,60) = 1.8, p = .157. Exposure to media violence explained an additional .059% in variance of differences in anger scores, after controlling for age and sex, R square change = .059, F change (1,60) = 3.835, p = .055. As can be seen in Table 6, in the final model all three control measures were non-significant, age (beta value = .473, p = .207), sex (beta value = .369, p = .769) and exposure to media violence (beta value = .127, p = .055).

Table 6

Hierarchical multiple regression model predicting difference in anger scores between both real-life and fictional conditions.

Variable	R^2	R^2 Change	*B*	*SE*	*β*	*t*	*p*
Step 1	.024						
Age			.42	.378	.143	1.11	.271
Sex			-.363	1.219	-.038	-.298	.767
Step 2	.083	.059					
Age			.473	.371	.161	1.275	.207
Sex			.369	1.249	.039	.295	.769
Exposure to Media Violence			.127	.065	.254	1.958	.055

Note: R^2 = R-squared; R^2 change = R-squared change; β = standardized beta value; B = unstandardized beta value; SE = Standard errors of B; N = 64; Statistical Significance: *p < .05; **p < .01; ***p < .001.

To summarise, there was no significant correlation found between exposure to media violence and the emotional reaction scores of fear, sympathy and anger in both the real-life or fictional condition. Significant differences in the emotional reaction scores of fear, sympathy and anger were found between both the real-life and fictional condition, with the real-life

condition producing higher emotional reaction scores. Exposure to media violence did not statistically predict the difference in the emotional reaction score of fear, sympathy and anger between both conditions, after controlling for age and sex.

Discussion

The current study aimed to investigate the relationship between prior exposure to violent media and an individual's emotional reactivity to violent content. This study also aimed to investigate if there are differences in emotional reactions between fictional and real-life violent content and if prior exposure to violent media would predict this difference.

For the first hypothesis, we proposed that there would a relationship between prior exposure to media violence and emotional reactivity scores. This was explored using Spearman's Rank order, finding no statistically significant relationship between prior exposure to media violence and the emotional reaction scores of fear, sympathy and anger. Therefore, the first hypothesis that increased previous exposure to violent content would lead to lower emotional reaction scores in both conditions was not supported.

For the second hypothesis, we proposed that there would be differences found in emotional reactivity scores between both the real-life and fictional condition. This was explored using repeated measures t-test, finding statistically significant differences in the emotional reactivity scores of fear, sympathy and anger between both the real-life and fictional conditions. Therefore, the second hypothesis that differences will be found between both conditions, with the real-life condition inducing higher reaction scores was supported.

For the final hypothesis, we proposed that prior exposure to media violence would predict the differences in emotional reactivity scores between both conditions, after controlling for the variables of age and sex. This was explored using hierarchical multiple regression, which displayed the overall models having no statistical significance with none of the variables significantly predicting the difference in the emotional reactivity scores of fear, sympathy and anger. Therefore, the final hypothesis that decreased previous exposure to media violence will predict differences in the emotional reaction scores between both conditions was not supported.

These findings for the current study are inconsistent with the majority of previous desensitisation research surrounding the relationship between prior exposure to media violence and diminished emotional responses following exposure to both fictional (Fanti, et al., 2009; Madan, et al., 2014; Brockmyer, 2015) and real-life (Thomas, et al., 1977; Carnagey, et al., 2007a) violent content. Other studies have provided support that increased prior exposure to real-life media violence results in an increased reaction in the emotion of fear (Gerber, 1969; Morgan & Shanahan, 2010), due to viewers generalising this real-life content to the real-world around them (Sparks & Ogles, 1990; Singer, et al., 1984; Nabi & Riddle, 2008). However, the current study did not find a correlation between increased levels of fear in the real-life condition and prior exposure to media violence.

A potential explanation for the inconsistencies may be due to the type of media presented in the current study. Multiple studies have mentioned factors such as perceived realism and identification as influential factors on emotional responses (Atkins, 1983; Huesmann, 2003; Lin, 2013), which are present in visual displays of violence. The graphic and realistic visual nature of film, TV and video games may influence the emotional responses of an individual which were not presented in the written extracts. Although, common associations with violence depicted in films such as visual displays of blood, cuts and bruises and the presence of weapons were present in the extract, it was the reader's responsibility to imagine such scenes. Identification is also influential in the emotional responsivity of an individual. It is common for individuals to identify with characters who share similar traits gender, and attitudes (Hoffner & Buchanan, 2005). This identification may not occur in a short-written extract due to similarities not being recognised as they would in a short visual display. Unless the character is being physically described or values being explained it may be hard for the reader to identify with a particular character in the story, which would lead to higher emotional reactions. Further research is needed to evaluate

prior media violence exposure and written depictions of violence and to potentially compare the impact of both visual and written displays of violent content.

However, consistent with the findings, few studies have found that repeated exposure to media violence was not related to diminished emotional responses, finding no support for desensitisation (Mrug,, et al., 2016) This may be due to a sample of emerging adults used, also used in the current study. The desensitisation effect may not be carried through to emerging adulthood as individuals are more aware of the differences between real-life and fictional media (Wright, et al., 1994) and such are not generalizable to the younger population. Future research is required using an emerging adult sample to provide additional research surrounding desensitisation in an older population. It is also important to note if an individual is exposed to violence on visual forms of media such as television rather than written media such as novels or newspapers, the desensitisation processes may only occur in the media form in which they are familiar. However, Funk and colleagues (2003) measured both short-term and long-term exposure of violent video games in young children with the use of written vignettes to assess emotional reactions, displaying significant findings. Therefore, further research is required to understand if habituation of violence only occurs in the form in which it was continually viewed.

Findings are in support of previous literature suggesting that emotional reactions to violence differ between both real-life and fictional violent content (Atkins, 1983; Walma van der Molen, 2008). The main explanation for this consistency is the context in which the content was presented. When the violent extract was described as a fictional excerpt taken from a book, the fantasy aspect of the violence was made known to the reader. Although readers did emotionally react to the fictional violence being explained, there was an awareness that this story did not occur in the real world. However, when the violence was described as factual, the real-life aspect lead the reader to emotionally react to a greater extent

as they knew this violence took place in the real world around them. Research has suggested when the factual nature of violence is known to the viewer this leads to increased emotional responses (Riddle, et al., 2012) and causes the viewer to view the world as more violent (Gerber, 1998). The form of media in the current study did not impact this ability to differentiate between real-life and fictional content. However, as the nature of the extract was made aware to the reader, the impact of perceived realism in a fictional condition was not assessed in regards to this differentiation, common among visual media displays of violence.

There is no prior research in identifying if prior exposure to media violence is a factor that contributes to the ability to emotionality differentiate between real-life and fictional violence. The current study found that differences in emotional reactions were not influenced by prior exposure to violent content but rather most likely the context in which the content was presented. This is supported by previous research suggesting that emotional reactions such as fear and aggression are influenced by if the violence was described or perceived as real (Atkins, 1983; Walma van der Molen, 2008). Research has claimed that factors suggesting the realism of media texts are plausibility, typicality, factuality, emotional involvement, narrative consistency and perceptual persuasiveness (Hall, 2003). Further research is required to assess if prior exposure to media violence affects an individual's ability to emotionally differentiate between both types of violence in violent visual media.

Overall, consideration for other possible influencing factors on the consistency of results to previous literature should be addressed. The measure used to assess exposure to media violence differs among research. The current study used the Adjusted Content-Based Media Exposure Scale (Den Hamer, et al., 2017) which is a self-reported measure assessing an individual's exposure to antisocial, violent and aggressive behaviours presented across all forms of media (e.g tv/film/books). This is similar to multiple studies focusing on long-term

exposure that utilise self-reported measures assessing frequency and type of media content in which the individual is exposed (Mrug, et al., 2016). Another form of media exposure is the viewing or engagement of tv/film and video game violence (Bushman & Anderson, 2009; Fanti, et al., 2009; Brockmyer, 2015), which eliminates the participant's self-reported bias regarding previous exposure. However, this methodology provides evidence for short-term habituation to violent content rather than continual habituation, few studies have focused on both measures when investigating effects (Funk, et al., 2003; Krahé, et al., 2011).

As the current study relies on immediate reactions, individual factors may have influenced the participant's response. An individual's mood while completing the survey may have influenced the immediate responses to presented stimuli. An individual's temporary mood state can influence evaluations with negative mood leading to a more pessimistic view of the world (Heide & Gronhaug, 1991). For example with the nature of the content presented, real-life violent media is associated with real-world fears and therefore and individuals' fear response may have been impacted. The enjoyment of violent content may also be a confounding variable when assessing emotional responses to violence (Hoffner & Levine, 2005; Fanti, et al., 2009). If an individual has a preference for violent content this may lead to diminished responses, which is commonly seen in desensitisation.

Implications

Findings obtained in the current study have practical and theoretical implications. Despite most of the research supporting prior exposure to media violence impacting emotional reactivity, the current study did not perceive this effect with a sample of older emerging adults. Based on these findings, the desensitisation effect may not be carried on through emerging adulthood. More research is required to establish the age in which violent

content may not produce adverse effects such as diminished emotions and aggressive behaviours.

Although content containing extreme violence has ratings and restrictions for over the ages of 18, young children are still continually exposed to violent content. Parents and guardians of younger children should aim to prevent or restrict violent media content exposure until older adolescence to prevent negative impacts. As established throughout research that younger children can be unaware of the nature of the violent content and fail to distinguish real-life and fictional content (Wright, et al., 1994), with this ability being found in emerging adults.

Strengths and Limitations

One of the strengths of the current study was the age sample used, as individuals aged 18 to 25 have received little focus in media violence research. To the researcher's knowledge, it is not currently established in research if desensitisation is carried on through to adulthood, as most research focuses on younger populations' use of violent media. As this study found a non-significant relationship between previous violent media exposure and emotional reactivity to real-life and fictional media violence, as demonstrated in research, may be specific to a younger population. Another strength of the current study was the investigation of influencing factors excluded from prior research. To the researcher's knowledge, no prior research has focused on the influence of previous violent media exposure on an individual's ability to emotionally differentiate between real-life and fictional specific to written media.

The study identifies several limitations. Firstly, the use of self-reported measures may be a limitation in the current study due to participant bias. When assessing emotions, measures such as physiological arousal would have supplied a more well-rounded and reliable immediate emotional reaction measure during and following the presentation of the

violent stimulus. As seen in previous research, physiological responses are found to be diminished by repeated exposure, in turn, impacting one's emotional reaction (Krahé, 2011; Madan, 2014; Mrug, et al., 2016). Future research should utilise both measures when assessing the effect of written media to produce additional findings in the literature.

Secondly, an order effect may have occurred in both the presentation of the real-life and fictional extracts as well as the Emotional Reactions Scale (Cohen-Bendahan, et al,.2014). As all participants complete both conditions, following the presentation of the first stimulus (fictional extract) they may become bored and/or familiar or practised with reactions to the second stimulus (real-life extract). Therefore, future research should consider the use of counterbalancing, which would randomise the presentation of the extracts to eliminate and control for order effect. Regarding the Emotional Reactions Scale, all questions assessing the emotion of anger were presented together, and the same for sympathy which may have produced a question order effect. This may have potentially influenced the participant's emotional responses. Therefore, further research should ensure the randomisation of emotional responses to ensure the accuracy of results.

Lastly, as it is a cross-sectional design this does not infer causality. Although, this is not a major limitation as the majority of findings indicated non-significant results. However, the use of experimental and longitudinal studies would supply a more causal result, this may pose a risk to the participant as continual violent exposure is associated with decreased emotional reactions, physiological responses and increased likelihood of aggression and violent behaviours (Carnagey, et al., 2007b). Further research of long-term exposure should be conducted with caution.

Conclusion

The current study expands on the literature surrounding continual media violence exposure and its potential negative impacts on an individual's emotional reactions to violence. Findings were inconsistent with prior research surrounding impacts of viewing visual violence, with samples of younger children or adolescents. This may be due to the current sample used in the study, inferring that desensitisation may not be experienced by an older population. This may be a result of older individuals having an ability to differentiate between real-life and fictional violent content, which is not affected by previous exposure to violent content. While this study was a novel attempt to address gaps in the literature, future studies are required to provide additional evidence in understanding the populations most vulnerable and how different forms of media both fictional and real-life impact their relationship with violence. Hence, implications of the study, are in support of ratings and restrictions of violent content in the younger population to prevent adverse effects surrounding emotional reactions to violence.

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Appendices

Appendix A

Participant Information Sheet

Desensitisation to violence: Real-Life vs Fictional Media

You are being invited to take part in the current study. Before participating in the study, please read this document carefully which describes what the study entails and what is required of you and decide whether you wish to proceed to take part. If you have any concerns or queries do not hesitate to contact me on the email given below.

What is the study about?

I am Nicole and I am in my final year of the BA in the Psychology programme at National College of Ireland. As an undergraduate, I am required to complete an independent research project on a topic in the field of Psychology. For my research, I aim to understand the effect of repeated exposure to violent content on reactions following reading a violent extract.

What will taking part in the study involve?

If you decide to take part in this study, you are required to read two separate violent extracts and complete questionnaires on how you felt after reading each extract. This should take 15-20 minutes approx.

Who can take part?

You can take part in this study if you are between the ages of 18 and 25. You cannot take part in the study if you are under the age of 18, over the age of 25, have past experiences with violence or if you have been diagnosed with a mental illness that the exposure to violent content would cause undue levels of distress.

Do I have to take part?

Participation in the current study is voluntary and you will receive no consequences for refusing to participate. You will receive no compensation for your participation. You have the right to withdraw at any time during the study without penalisation or judgement and the information completed will not be recorded, used, or presented in the study. All information obtained from this study is anonymised and therefore following completion your data cannot be accessed. The extract presented will include violent descriptions and content. There is a risk of feelings of emotional or psychological distress or discomfort while reading the content presented. If you feel that this exposure may cause you to experience an undue level of distress or discomfort, you should not participate in the study.

What are the possible risks and benefits of taking part?

There are no direct benefits to you for taking part in this research. However, the information gathered will contribute to research in the understanding of the effect of continual exposure to violence in the media. There is a possibility that the content presented in the study may cause minor emotional or psychological distress or discomfort. If you experience this, please discontinue participation, and seek help by contacting helplines presented at the end of the study.

Will taking part be confidential and what will happen to my data?

Personal information such as your name will not be recorded in the current study. All data collected for the study will be treated in the strictest confidence. Only the researcher and academic supervisor have access to your data which will be stored for a period of 5 years. All

data will be recorded and stored according to regulations of the PSI Code of Ethics and the NCI Ethical Guidelines and Procedures for Research involving Human Participants.

What will happen to the results of the study?

The results of this study will be presented in the researcher's final dissertation, which will be submitted to National College of Ireland.

Who should you contact for further information?

Researcher

Name: Nicole Martin

Contact Information: x19307323@student.ncirl.ie

Supervisor: Fearghal O'Brien

Contact Information: Fearghal.Obrien@ncirl.ie

Appendix B

Fictional Excerpt is taken from Fight Club by Chuck Palahniuk (pp. 449-452)

This is a fictional paragraph that was taken from the book Fight Club by Chuck Palahniuk. The first fight I get, the guy gets me in a full nelson and rams my face, rams my cheek, rams the hole in my cheek into the concrete floor until my teeth inside snap off and plant their jagged roots into my tongue ... The teeth planted in my tongue, I taste the blood... My second fight, the guy puts a knee between my shoulder blades. The guy pulls both my arms together behind my back and slams my chest into the concrete floor. My collarbone on one side, I hear it snap... Fight number three, I wake up and it's time for fight number three…

Number three seems to know what I need and holds my head in the dark and the smother. There's a sleeper hold that gives you just enough air to stay awake. Number three holds my

head in the crook of his arm, the way he'd hold a baby or a football, in the crook of his arm, and hammers my face with the pounding molar of his clenched fist. Until my teeth bite through the inside of my cheek. Until the hole in my cheek meets the corner of my mouth, the two run together into a ragged leer that opens from under my nose to under my ear. Number three pounds until his fist is raw. Until I'm crying… One more punch and my teeth click shut on my tongue. Half of my tongue drops to the floor and gets kicked away.

Appendix C

Real-Life Excerpt taken from One Day in My Life by Bobby Sands (pp. 28-29)

This is a true account of the Irish Republican Bobby Sands and the violence he endured while being incarcerated.

It was great fun; everybody was killing themselves laughing, except me, while all the time a barrage of punches rained down on my naked body. I was writhing in pain. They gripped me tighter as each blow found its destination. My face was smashed against the table and blood smeared the table under my face. I was dazed and hurt. Then they dragged me off the table and let me drop to the floor. My first reaction was to wrap the towel which lay beside me around my reddened waist.

Again, I was gripped by the arms from behind and dragged towards the other wing. I just caught a glimpse of one of my comrades being beaten and dragged to the table, while in the background someone else was being kicked out of his cell. A cell door opened, and I was flung inside. The door slammed shut and I lay on the concrete floor, chest pounding and every nerve in my body strained. Could have been worse, I tried to tell myself as a consolation. But this didn't convince me or my aching body one bit. The cold drove me off the floor. Every part of my body protested as I made the slow ascent to my feet. A trickle of

blood ran from my mouth on to my long shaggy beard and dripped on to the floor. My skin was finely emblazoned with host of bruises and marks. I was trembling.

Appendix D

Debriefing Sheet

Thank you for taking part in this research on Desensitisation to violence: Real-life vs fictional media.

The aim of this study was to investigate the effect of violent media on individuals' emotional sensitivity to violence. This study also aimed to investigate an individual's ability to emotionally differentiate between real-life violence and fictional media. The data collected will add to the understanding of the effect of exposure to violent content on individuals' emotional reactions to fictional and real-life violence.

If you experienced any psychological or emotional distress during your participation in this study, please contact someone you trust, or an appropriate helpline listed below.

Samaritans

Email: jo@samaraians.ie

Phone: 116 123

Mental Health Ireland

Email: info@mentalhealthireland.ie

Crisis Line

Text: HELLO to 50808

All data collected will be recorded and stored according to regulations of the PSI Code of Ethics and the NCI Ethical Guidelines and Procedures for Research involving Human Participants. If you have any more queries or concerns, please contact the researcher x19307323@student.ncirl.ie.

Appendix E

The Adjusted Content-Based Media Exposure Scale (Den Hamer, et al., 2017)

Please report for every question how often to you view this on TV/Movies/ Games/ Books om the following scale: 1 = Never; 2 = Hardly Ever; 3 = Sometimes; 4 = Often; 5 = Very Often.

How often do you view ...

1. People who fight?
2. People who openly talk about sex?
3. People who use drugs?
4. People who destroy someone else's belongings?
5. People who shoot at another person?
6. People who make a fool of someone else?
7. People who drink a lot of alcohol?
8. People who are having sex?
9. People who say negative things about another person behind there back?
10. People who make someone trip and fall for fun?
11. People who steal?

Appendix F

The Immediate Fear Scale (Lin, 2017)

Answer the following questions in response to reading the passage on the following scale: 1= very low to 7=very high

1. The degree to which I feel afraid
2. The degree to which I was frightened
3. The degree to which I do not want to recall the experience

Appendix G

The Emotional Reactions Scale (Cohen-Bendahan, et al., 2014)

Following reading the passage, rate how you are feeling on the following scale: 1= not at all to 4 = very strongly

Sympathy

concerned

sympathetic

anxious

happy (reversed scored)

neutral (reversed scored)

nervous

Anger

angry

irritated

frustrated

annoyed

disgusted