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Investigating Peri-Traumatic Dissociation Using Hypnosis During A Traumatic Film

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Abstract

We investigated the hypothesis that inducing a dissociative response (detachment) in healthy volunteers while they were watching a trauma film would lead to increased numbers of intrusive memories of the film during the following week. Hypnotized participants were given suggestions to dissociate during part of the film, and to watch the rest of the film normally from their own perspective. The order of these conditions, and the section of film watched under the two conditions, were counterbalanced. As predicted, watching the film under both conditions led to increases in dissociation. Explicit suggestions to dissociate were generally effective in inducing higher levels of dissociation. Contrary to prediction, there were no more intrusive memories of sections of the film for which participants had received dissociation suggestions. Implications of our results for views of the relationship between peri-traumatic dissociation and intrusive memories are discussed.

KEYWORDS: trauma, hypnosis, intrusive imagery, dissociation, stressful film, PTSD

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Dissociation is a response that is thought to protect individuals from experiencing overwhelming emotion. Several cognitive models of post-traumatic stress disorder (PTSD) have suggested that dissociation at the time of trauma may protect against extreme emotions such as fear and horror at that point in time (Brewin & Holmes, 2003). For example, a client with PTSD may report an out-of-body experience or feelings of unreality during the index trauma. Therapists may help the client make sense of such dissociative experiences as an understandable psychological response to trauma particularly perhaps when physical escape is not possible. However, there is now considerable evidence that reports of dissociative reactions during traumatic events are related to an increased risk of posttraumatic stress disorder subsequently developing (Ozer, Best, Lipsey, & Weiss, 2003). These naturalistic studies that rely on retrospective reports have been supplemented by experimental studies in which healthy volunteers watching a traumatic film describe their reactions immediately at the end of the film. Under these conditions, too, higher levels of reported dissociation predict a greater number of intrusive memories of the film in the succeeding week (Holmes, Brewin, & Hennessy, 2004). Using a similar paradigm, the current study attempted to establish the causal role of dissociation in producing post-trauma symptoms by attempting to induce an appropriate dissociative experience hypnotically and then investigating later reactions to a trauma film. Interestingly, although a link is commonly assumed in the literature, it is unclear precisely how dissociation may operate to produce intrusive memories. However, rather than exploring theoretical possibilities for an explanation of the link between the two, the current study attempts to seek further evidence that analogue peri-

traumatic dissociation may indeed be associated with a greater number of intrusive memories.

The term “dissociation” is notoriously complex and has been used in a variety of ways. In their review exploring what is meant by the term ‘dissociation’ Holmes et al., (2005) distinguished two forms - detachment and compartmentalisation. Post-traumatic stress disorder patients describe both a sense of detachment at the time of the trauma (commonly referred to as peri-traumatic dissociation) and impaired recall of the event, which may correspond better with compartmentalisation. In this study we attempted to manipulate analogue peri-traumatic detachment. However, in the literature described below this distinction has usually not been made thus the term “dissociation” in the context of trauma can be used as an umbrella term referring to both detachment and compartmentalisation. For further details about this definition and a further development of this model, see Brown (2006, this volume).

To date there have been several studies that have tried to induce dissociation experimentally. Murray (1997) asked participants to try to dissociate while watching a film involving a series of road traffic accidents. Guidelines were provided to help them do this, and participants were asked to practise strategies such as staring at a spot on the wall, staring into a mirror, or imagining that they were watching themselves from an external vantage point. There was no specific check that participants in this condition experienced more dissociative symptoms while watching the film. They rated themselves as moderately able to follow these instructions, but were not as successful as participants in other groups following different instructions to perform other tasks. Participants instructed to dissociate did not experience more intrusive memories involving the film in the following week than did those in a control condition.

Holmes et al., (2004) conducted a similar experiment using the same trauma film. They based their approach on a review of methods of inducing concurrent dissociation (Leonard, Telch, & Harrington, 1999), which suggested that prolonged staring at a small dot was likely to be effective. To ensure that participants were able to comply with the task, an initial screening phase was devised to eliminate those who were unable to dissociate using this method. The success of the manipulation was confirmed using a self-report measure of state dissociation, but again participants in this group did not experience more intrusive memories of a trauma film than those in a control group. Moreover, the self-report measure of dissociation did not correlate with drops in heart rate, a physiological measure that may also be an index of dissociation (Griffin, Resick, & Mechanic, 1997).

Hypnosis is becoming more widely accepted as a cognitive tool in psychological and neuropsychological research (Oakley, 2006, Raz & Shapiro, 2002) and we have recently begun to explore hypnotically suggested dissociative experiences as a potentially useful experimental analogue for traumatic dissociation. Suggestion in hypnosis has been used in experimental settings to create subjectively compelling, but reversible, experiences of amnesia for autobiographical episodes (Barnier, McConkey & Wright, 2004), emotional numbing (Bryant, 2005) gender change (Burn, Barnier & McConkey, 2003), functional blindness (Bryant & McConkey, 1999) auditory hallucinations (Szechtman, Woody, Bowers & Nahmias, 1998), non-veridical colour processing (Kosslyn, Thompson, Costantini-Ferrando, Alpert & Spiegel, 2000), functional pain (Derbyshire, Whalley, Stenger & Oakley, 2004), involuntary movement (Blakemore, Oakley & Frith, 2003; Haggard, Cartledge, Dafydd & Oakley, 2004) and functional paralysis (Halligan, Athwal, Oakley & Frackowiak, 2000). A number of these studies have also involved

neuroimaging and have found that the suggested phenomena are accompanied by congruent changes in activation in brain areas that would normally be involved in mediating the processes affected by the hypnotic suggestion (Blakemore et al, 2003; Derbyshire et al, 2004; Halligan et al, 2000; Kosslyn et al, 2000; Szechtman et al, 1998). This is consistent with the subjectively 'as-real' nature of hypnotically induced experiential changes. The same patterns of brain activity were not seen, however, when individuals were asked to imagine the same subjective events (Kosslyn et al., 2000) even when this was carried out in hypnosis (Derbyshire et al., 2004; Szechtman et al., 1998) or when hypnotised participants were instructed to simulate the hypnotically suggested effect (Ward, Oakley, Frackowiak & Halligan, 2003).

A common theme in the studies that have used hypnosis as an experimental tool is that the suggested effects are more strongly produced in individuals who are rated as medium to high in hypnotic susceptibility. It is interesting in this regard that there is convergent evidence that post-traumatic stress disorder and its symptoms are associated with higher levels of hypnotizability (Bryant, Guthrie, Moulds, Nixon & Felmingham, 2003). This raises the possibility of common underlying mechanisms between symptoms seen in post-traumatic stress disorder and comparable phenomena produced by suggestion in hypnosis. A similar case has been made for hypnotic phenomena and functional clinical symptoms (Oakley, 1999) with some supporting neuroimaging evidence for commonality in mechanism in the case of 'hysterical' (conversion disorder) limb paralysis and the corresponding hypnotically-produced paralysis (Halligan et al., 2000).

On the strength of this emerging evidence of the efficacy of hypnosis as an experimental tool we have recently adopted a similar approach to investigate the impact on intrusive images of experimentally induced somatoform dissociation (tonic

immobility) during a stressful film (Hagenaars, van Minnen, Holmes, Brewin & Hoogduin, 2006). Hypnotic suggestions were used to create catalepsy – that is to immobilize participants while viewing the film. This manipulation was designed to mimic the ‘freezing’ response that can be reported by people during a traumatic event (Nijenhuis, Van Engen, Kusters, & Van der Hart, 2001). Two comparison conditions were used, an ‘intentional no movement’ group, where participants were instructed to intentionally keep still but did not use hypnotic suggestion to create a cataleptic state, and a control group who were told they could sit and move as they wished while viewing the film. The results showed that the catalepsy condition proved an effective way of provoking somatoform dissociation. However, both experimental task conditions increased the number of intrusive images of the film compared to the control condition. No difference was found in intrusions between dissociation-related immobility and voluntary immobility. This suggests that it is unlikely that somatoform dissociation *per se* is responsible for an increase in trauma film images, but the immobility itself may have been an active ingredient.

To summarise, several attempts have now been made to induce dissociation experimentally. Although there have been some positive results in terms of changes on self-report measures, none has succeeded in bringing about a change in posttraumatic symptomatology such as the frequency of intrusive memories or has been able to show that dissociative aspects accounted for this. The current experiment again used hypnotic suggestion but with the intention of reproducing aspects of peri-traumatic dissociation other than the immobility or ‘freezing’ already investigated by Hagenaars, et al (2006). This raises the persistent problem in analogue studies of defining the target phenomenon. As discussed previously, Holmes et al., (2005) have divided the term ‘dissociation’ into two forms - detachment and

compartmentalisation. In this study we attempted to manipulate the experience of detachment as an analogue for peri-traumatic dissociation.

A within-subjects design was used whereby participants viewed a traumatic film while hypnotised. Some sections of the film were viewed following suggestions intended to generate peri-traumatic dissociation and other sections were viewed without such suggestions (Suggested Dissociation versus Control condition). As well as testing the ability of suggested dissociation to bring about appropriate changes in self-report measures, we also assessed whether there would be a concomitant change in peri-traumatic distress and in the experience of intrusive memories.

Consistent with the theory that peri-traumatic dissociation protects individuals at the time from overwhelming emotion but increases later vulnerability to PTSD, we predicted that:

- 1) State dissociation (for details see the Measures section) will increase as a result of viewing the film under either condition compared to a baseline (pre-film).
- 2) Participants will report higher levels of state dissociation in the Suggested Dissociation condition compared to the Control condition
- 3) Participants will report lower levels of peri-traumatic distress in the Suggested Dissociation condition compared to the Control condition.
- 4) Participants will report more intrusive images during the week after the film in the Suggested Dissociation condition compared to the Control condition.

Method

Design

This study used a within-subjects design that involved viewing a film showing distressing scenes from road traffic accidents. The film was divided into two sections each of which was viewed by hypnotised participants under one of two conditions: (1)

following suggestions designed to evoke dissociative experiences (Suggested Dissociation condition) and (2) under the same viewing conditions but without suggestions for dissociation (Control condition). The order of these two viewing conditions and the order of presentation of the two film sections were independently counterbalanced. Measures of distress and state dissociation were collected after both sections of the film. Participants also recorded their experience of intrusions from the film in a diary for 1 week after the viewing and then returned for a follow-up session.

Participants

Ethical approval for this study was granted by the Joint UCL/UCLH Committees on the Ethics of Human Research, Study Number 01/0063. All participants gave their informed consent to taking part in the research. Recruitment took place from a volunteer database of seventy-three students from the Departments of Psychology and Medicine at University College London who had been previously categorised as highly or very highly hypnotisable (scoring 8 or more out of 12) on the Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS:A: Shor & Orne, 1962). The recruitment material included information about the traumatic film, in particular that it contained graphic scenes of the aftermath of road traffic accidents that could be involuntarily remembered afterwards. All participants confirmed in writing that they had not previously received treatment for a mental health problem in order to ensure informed consent. Of the 73 potential participants contacted by one email message (sent blind to other recipients), seventeen agreed to take part in the current experiment (12 male and 5 female) and received a small payment. Due to missing data for one participant, the final results presented are based on 16 participants. The mean age of those who volunteered was 20.31 ($SD = 0.95$, range 19 – 22). Their mean hypnotic susceptibility score was 9.25, $SD = 1.00$, range 8 - 11) and

mean trait dissociation (DES-II) score was 10.30 ($SD = 12.33$). All participants were tested singly.

Materials

Trauma video film. The 12.5 minutes of video film material used here comprised real-life scenes from the aftermath of five different road traffic accidents in Germany (compiled by Steil, 1996, used previously for example by Murray, 1997; Halligan, Clark, & Ehlers, 2002; Holmes et al., 2004; Stuart et al., 2006). The film included; victims being extracted from wreckage by emergency services personnel, injured victims screaming, body parts amongst wreckage and bodies being transferred to coffins. Previous studies (Holmes et al., 2004) have collected information about the content of intrusive images arising from this film, which allowed each intrusion to be located to a particular scene (intrusion sequence). This information from approximately 200 participants was used by Stuart et al., (2006) to calculate the average number intrusions that arose from each of the five scenes. Instead of dividing the film in terms of time (which could result in scenes with different relative intrusiveness) the film was divided into two (counterbalanced) sections that were expected to generate similar amounts of intrusions, as in Stuart et al., (2006).

Measures

Hypnotic susceptibility. The *Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A; Shor & Orne, 1962)* is administered to groups of participants and consists of a hypnotic induction procedure followed by 12 standard suggestions (categorised as ‘ideo-motor’, ‘challenge’ and ‘cognitive’) intended to create clearly defined subjective experiences with accompanying behavioural changes that are experienced as being involuntary and effortless. Responses to each of these suggestions are scored on a pass (1) or fail (0) basis giving a range of possible scores

from 0 to 12. Individuals scoring 11-12 are categorised as ‘very highly hypnotizable’ (5-7% of the normal population) and those scoring 8-10 as ‘highly hypnotizable’ (17-34%) (Barnier & McConkey, 2004). The HGSHS: A used to create the database from which participants were recruited for this study was delivered by audiotape.

Trait dissociation. The *Dissociative Experiences Scale - Revised version (DES-II; Carlson & Putnam, 1993)* is a 28-item scale on which participants indicate the percentage of time they have a given dissociative experience in daily life, from 0% (never) to 100% (always). It provides a trait type measure of dissociative experiences.

State Dissociation. Three measures were used to assess various aspects of dissociative experiences during the experiment. The first was a pre-post measure of state dissociation that has been used in previous experimental studies (e.g. Holmes et al., 2004). The second measure is a widely used clinical measure to assess peri-traumatic dissociation, relying on retrospective report experience during trauma. The third measure consisted of individually tailored visual analogue scale ratings related to suggestions given in the Suggested Dissociation condition of this experiment. Thus the first measure uses a difference score whereas the second two measures yield single scores.

(1) The 19 subject-rated items from the *Clinician Administered Dissociative States Scale (referred to here as the DSS; Bremner et al., 1998)* were used as a repeated measure of state dissociation to assess relevant symptom areas including depersonalization and derealization. Items are rated on a 5-point scale anchored with 0 (not at all) and 4 (extremely). A sample item is “Do things appear to be moving in slow motion”. The 19 items have satisfactory reliability (Cronbach’s alpha = .94; Bremner et al., 1998).

(2) The *Peritraumatic Dissociative Experiences Questionnaire (PDEQ;* Marmar, Weiss, & Metzler, 1997) is a measure of dissociative symptoms experienced at the time of trauma. The 10 items on this questionnaire are rated on a 5-point scale. As it asks participants about their experiences of dissociation *during* a particular time period it is particularly useful to use in a within-subjects design where two time periods are being compared.

(3) Three *Visual Analogue Scales (VAS)* were used to rate specific dissociative experiences during the viewing of the film in the context of the suggestions given in the Suggested Dissociation condition. Participants were asked to indicate by making a mark on a 100mm line how strongly they felt the experience i) of observing themselves looking at the film, ii) as if viewing the film was happening to someone else, and iii) of world around them being strange and unreal. The ends of the lines for each scale were anchored with 'I did not get that feeling at all' (0) and "The feeling was very strong indeed" (100).

Distress. Participants rated their distress associated with viewing the film on an 11-point scale anchored with 0 "not at all distressed" and 10 "extremely distressed".

Intrusions. Participants were instructed in how to use a tabular *Intrusion Diary* in which they were asked to record any intrusive images from the film for the 7 days following viewing it (as in Holmes et al., 2004). Each day was divided into four periods: morning, afternoon, evening and night. Intrusions were defined as 'intrusive memories of the film that suddenly pop into mind spontaneously' and not 'times when you deliberately think about it or mull over it'. The content of each intrusion experienced was also recorded so that the intrusions could later be identified as coming from a particular section of the film (for more details of this method see also

Stuart, Holmes & Brewin, 2006). For example, if the participant described an intrusive image of ‘a fireman carrying a baby’ this event only occurred at one point in the film, this image could be retrospectively matched according to within-subjects condition (i.e. what the participant had been doing at the time of encoding). Thus the number of intrusions was later calculated for each within-subjects condition. Participants were asked to carry the diary with them and fill in the appropriate sections at regular times during the day (divided into morning, afternoon and evening). They were also asked to set aside a specific time at the end of the day to complete the diary, even if they had had no intrusions, in which case they should enter a zero in the number box.

At the follow-up session, a *Diary Compliance Rating* was taken by asking participants to rate the truthfulness of the statement “I have often been unable (or forgotten) to record my intrusions in the diary” (Davies & Clark, 1998). The response scale was anchored with 0 (*not at all true*) to 10 (*completely true*), hence low scores indicate good compliance.

Procedure

After providing their informed consent to take part in the study, participants provided information about their age and completed the DES-II and DSS (baseline administration) questionnaire measures. Participants then sat in a chair approximately 1m from the television screen facing directly towards it throughout the experimental procedures. The two experimenters sat outside the participant’s line of sight, with Experimenter 2 to their right and Experimenter 1 to their far left. Experimenter 2 used a standardised protocol to explore the participant’s previous experiences of hypnosis, to personalise the induction script for them and to identify their unique ‘Special Place’ (Oakley, Deeley, & Halligan 2006).

Experimenter 2 then used the personalised standard induction script commencing with the participant's eyes closed, followed by instructions and suggestions for regular breathing and muscle relaxation, descent imagery and experience of their 'Special Place'. Half the participants were then exposed to the Suggested Dissociation condition while viewing one section of the film and then to the Control condition while viewing the other section. The order of these conditions was reversed for the other participants. It is noted that participants remained hypnotized during both conditions. Thus, the two within-subjects conditions were determined according to the dissociation suggestions or the control condition instructions.

For the Suggested Dissociation condition suggestions were given to create the subjective experience while they were viewing the film section of being disconnected from their body ('looking at the screen but seeing it from a different perspective as though you are viewing it from outside your own body – from a different point of view'); of feeling as if they were 'someone else' ('... as though you were another person ... being aware of the screen and being aware of yourself watching it') and that the world around them was strange and unreal ('... everything around you seeming strange and unreal as though you were somehow another person in a strange place.'). Additional suggestions were included to ensure that they continued to attend to the film while having these experiences ('When you open your eyes [you will] continue to have those feelings as you watch what is shown on the screen – being fully aware of the events taking place'). These suggestions were intended to emulate dissociative peri-traumatic experiences of detachment commonly reported in PTSD.

Once the dissociation suggestions had been given participants were told they would ‘Continue to have these feelings for the whole time you watch the film until you are given different instructions. Stay as hypnotized as you are now, open your eyes and watch the film’. At the end of the Suggested Dissociation condition the participant was asked by Experimenter 2 to shut their eyes and suggestions were given that they were ‘returning to normal feelings, experiencing the world from your own perspective – everything feeling as real and normal as it should’. When the participant indicated that this has occurred they were asked to return to their Special Place experience.

For the Control condition participants were told that when they opened their eyes they would watch the film as they normally would ‘from your own perspective’ and then ‘Stay as hypnotized as you are now, open your eyes and watch the film.’ No reference was made to being ‘relaxed’ or feeling ‘normal’ while watching the film. At the end of the Control condition viewing the participant was asked to return to their special place experience. For the full hypnotic script for each condition, please see Appendix 1.

For all participants there was a break of approximately two minutes between the two viewings of the two counterbalanced sections of the film during which they remained hypnotized and experiencing their Special Place. Once testing under both conditions was complete all hypnotic suggestions were removed and hypnosis was terminated. The rating of distress when viewing the film, the DSS, the PDEQ, and the VAS ratings of dissociative experiences were then recorded separately for both viewings of the film. After finishing both conditions, participants were instructed in how to complete the intrusion diaries. One week later there was a follow-up session at which participants returned their intrusion diaries and rated their diary compliance.

Participants were debriefed and thanked for their participation. In our clinical opinion, no participant displayed a significant level of distress at the follow-up session.

Following ethical guidelines a procedure was in place should participants subsequently wish to make contact with the experimenters, but none did so.

Results

The data analysis software used was SPSS version 13 for Windows.

Measures of State Dissociation

DSS. In order to examine whether, as predicted, the experience of dissociation would increase as a result of viewing the film under either condition as compared to baseline (pre-film), we examined only the scores from baseline to the end of the first condition. Due to the counterbalanced order of presentation, for half of the participants the first condition was Suggested Dissociation and for half the Control condition. Paired sample *t*-tests were used on the data shown in Table 1. There was a significant increase in state dissociation from baseline in the Suggested Dissociation condition, $t(8) = 8.16, p < .001$, mean change = 22.56 ($SD = 8.29$), $d = 4.84$ indicating a large effect size. There was also a significant increase in the Control condition, $t(6) = 5.17, p = .002$, mean change = 9.29 ($SD = 4.75$), $d = 3.12$ indicating a large effect size.

In order to examine whether changes in state dissociation were significantly greater in the Suggested Dissociation than in the Control condition, change scores were computed by subtracting the *DSS* score before each condition from the *DSS* score after that condition. The data were entered into a 2 (Experimental condition: Suggested Dissociation versus Control Condition) x 2 (Order: Suggested Dissociation first versus Control Condition first) mixed model ANOVA. Experimental condition was a repeated measures factor and Order a between-subjects factor. There was a

significant main effect of Experimental condition on change in dissociation, $F(1,14) = 32.65, p < .001$, partial eta squared = 0.70, indicating a large effect size. There was a significant main effect of Order, $F(1,14) = 1.52, p = .024$, partial eta squared = 0.50, indicating a large effect size. There was also a significant interaction between Experimental condition and Order, $F(1,14) = 37.45, p = .002$, partial eta squared = 0.73, again indicating a large effect size.

This interaction was decomposed by using two paired sample t-tests to examine the effect of Experimental condition on change in state dissociation for each of the two Orders. As shown in Table 1, when Suggested Dissociation was followed by the Control condition, there was a significant difference in state dissociation change between the experimental conditions, $t(8) = 8.33, p < .001, d = 5.29$, with mean change scores in line with predictions, +22.56 ($SD = 8.29$) vs. -19.00 (7.86). However, when the Control condition was first no significant difference was found, $t(6) = 0.30, p = .77, d = 0.30$, equivalent mean change scores = 7.86 ($SD = 9.67$) vs 9.29 ($SD = 4.75$). Thus with respect to the initial hypotheses, our results indicate that Suggested Dissociation led to a greater increase in state dissociation as measured by the DSS than the Control condition but that this increase was significant only when Suggested Dissociation came first in the experimental order.

PDEQ. A similar mixed-model analysis on retrospective ratings of dissociative experiences during the film indicated a significant main effect of Experimental condition on PDEQ scores, $F(1,14) = 25.41, p < .001$, partial eta squared = 0.65, indicating a large effect size. There was no significant main effect of Order, $F(1,14) = 0.11, p = .75$, and no significant interaction between Experimental condition and Order, $F(1,14) = 0.89, p = .36$. The mean overall PDEQ score for the

Suggested Dissociation condition was 24.37 ($SD = 6.90$) and for the Control condition was 15.56 ($SD = 4.91$).

VAS. Participant ratings of the three dimensions of dissociative experience (related to the experimental suggestions) in the Suggested Dissociation and Control conditions are shown in Table 2. A comparison of scores using related t tests revealed significant differences in the predicted direction between conditions on each of the three ratings. Order effects were investigated using mixed-model ANOVAs but there were no main effects of order or condition by order interactions except for a weak main effect of order on the extent participants felt they were seeing themselves from outside of their own body, $F(1,14) = 4.80$, $p = .046$, partial eta squared = .25.

Distress Ratings

It was predicted that participants in the Suggested Dissociation condition, compared to the control condition, would report the lower levels of peri-traumatic distress. In line with this prediction, there was significant difference in the amount of distress experienced during the Suggested Dissociation condition ($M = 4.38$, $SD = 2.25$) compared to the control condition ($M = 6.31$, $SD = 1.96$), $t(15) = 3.18$, $p = .006$, $d = .98$. Possible order effects were explored using mixed-model ANOVAs, but there was no significant effect of order and no condition by order interaction.

Intrusive Images of the Film

Consistent with previous studies, the mean level of diary compliance was 2.00 ($SD = 1.37$), indicating that participants had recorded most of their intrusions in the diary. Forty-four intrusive images were recorded. Of these images, there were six which we were unable to identify within the film. The remaining images corresponded to a clear moment within the traumatic film (e.g. a fireman carrying a

baby), which enabled us to calculate how many of each participant's intrusions came from each condition (c.f. Stuart et al., 2005).

The mean number of images from the Suggested Dissociation condition was 0.94 ($SD = 1.00$) while the mean number of images from the Control condition was 1.69 ($SD = 1.54$). These data were entered into a 2 (Experimental condition: Suggested Dissociation versus Control) x 2 (Order: Suggested Dissociation condition first versus Control condition first) mixed model ANOVA. There were no significant effects of Experimental condition, $F(1,14) = 3.13$, $MSE = 1.46$, $p = 0.098$, partial eta squared = 0.18, or Order $F(1,14) = 2.17$, $MSE = 1.85$, $p = 0.16$, partial eta squared = 0.13. Inspection of F values however, given the small sample size, indicates that future studies with better power might usefully explore this issue. The interaction was also non-significant, $F(1,14) = 0.08$, $p = .93$. Since the interaction was non-significant, helpful comments by reviewers suggested that we further examine the intrusion data using a paired sample t-test for the number of intrusions between condition. The results of this again hint towards a trend in the *opposite* direction to that predicted, that mean value indicate the suggested dissociation condition may have been associated with fewer (rather than more) intrusive images, $t(15) = 1.82$, $p = .091$, $d = 0.49$. However, given the small sample size and power of the study any conclusions drawn must be tentative.

Qualitative Findings

Participants offered some comments describing their experience of Suggested Dissociation. These are included here to provide some qualitative information about the experience of the manipulation. The themes contained in the suggestions we gave our participants of being disconnected from their body, as if they were someone else

and in a world that had become strange and unreal are all clearly reflected along with some embellishments of their own.

Feelings of detachment were frequently mentioned: 'I felt really strange - like the lights were on but nobody was in. I felt as though I wasn't me. I felt as though I was viewing it from outside.'; 'It felt weird, you are watching it but not as yourself - as someone else.'; 'Physically I felt different - I was watching the film separately from my body.' For some the experiences were accompanied by distortions of body image:- 'The whole experience felt unreal, as if I wasn't there also my feet felt really big - what was that all about?'; 'I felt really tall as though I was above my body'. For others the sense of altered viewing location was particularly noticeable:- 'It was too strange - I've never felt anything like it. - I was crouched on the small filing cabinet across the way [over to the left of him].'; 'I kinda thought I was over there [points to his right] looking at you guys. But I thought it was weird; I'm not there I'm in the chair! ... I was watching someone else but someone else was wearing my clothes.'; 'I could see myself sitting to my right ... I could sense myself watching myself from the other view and I could see what I was watching.' Their comments also reflected the reduced distress they experienced when watching in the Suggested Dissociation condition:- 'I felt less involved and interested than [in] the other film. I was watching and feeling it should be a lot more distressing'; 'It didn't seem half as bad, the people in it were just actors and it didn't seem half as gruesome'.

Discussion

To our knowledge this is the first study to attempt to induce a dissociative state of detachment using hypnosis, comparing responses in a within-subjects design to a control condition in which participants were hypnotized but not given dissociation suggestions. The measure of state dissociation (DSS) that was taken

before as well as after the experimental manipulations confirmed our first prediction, that watching the trauma video in the control condition would be associated with spontaneous dissociation. Ratings taken after film viewings using a standardized (and clinically used) measure of peri-traumatic dissociation as well as individual rating scales confirmed our second and third predictions that participants would report higher levels of dissociative experiences and less distress in the Suggested Dissociation condition. Further analysis of the DSS data revealed a more complex picture, however. In particular, the experimental manipulation did not appear to be so effective when the Suggested Dissociation condition came second (Order 1), as participants tended to respond more strongly with spontaneous dissociative experiences to watching the film during the first, Control, condition. When the Suggested Dissociation condition came first (Order 2), however, spontaneous dissociation in the Control condition appeared less marked and the difference in dissociation between the conditions was clear-cut.

It is important to emphasize that if the spontaneous dissociation elicited by the trauma film had not been entered into the DSS analysis it is likely that there would have been significant differences between the conditions in Order 1 also. Another factor to take into account is that the power to detect differences between conditions in this study was in any case low because of the relatively small numbers of participants. Overall, therefore, the formal measures employed here have provided promising evidence that dissociative experiences can be effectively manipulated by hypnotic suggestion. The effectiveness of the manipulation was also underscored by comments offered by participants describing their experience of Suggested Dissociation (see the Results section on Qualitative Findings). However, there are some limitations that are addressed below.

We feel that the study reported here merits replication and extension. In future studies using within-subjects designs of this sort it should be borne in mind, however, that data acquired retrospectively on completion of the experiment may be subject to demand characteristics, and measures should be included at the beginning and end of each condition wherever possible. As well as the small sample size there are several other methodological limitations to this study which means interpretations drawn should be made with caution. Although participants all confirmed that they had not attended mental health services in the past, this does not rule out the possibility that they may have experienced trauma, and as a result PTSD, even if only at a sub-clinical level. In line with previous experimental work attempting to investigate the impact of peri-traumatic dissociation on analogue PTSD symptoms (e.g. Holmes et al., 2004; Murray, 1997; Stuart et al., 2006), we have focussed on intrusive images of the trauma. Methodologically this allows us to use this type of within-subject design and manipulate processing during particular sequences of analogue trauma. Perhaps future methodological innovations might develop ways in which avoidance or hyperarousal could be assessed within this type of design. Future studies may also benefit from examining different types of trauma films (e.g. Orsillo, Plumb, Luterek, & Roessner, 2004). Dissociation is a complex construct and we used three measures of state dissociation to assess this and make comparable to other research: a repeated measure as used in previous experimental paradigms, a clinical measure of retrospective report, as well as tailored rating scales for the hypnotic suggestions. However it is possible that the use of multiple ANOVAs increased family wise error rates.

Consistent with all previous attempts to induce dissociation experimentally (Hagenaars et al., 2006; Holmes et al., 2004, Exp. 1; Murray, 1997), we did not

succeed in significantly influencing the number of intrusive memories of the trauma film participants recorded in their diaries. Indeed, mean values appeared in the opposite value to that predicted, that is the Suggested Dissociation condition had a smaller mean number of images than the Control condition. These results contrast with data indicating that both trait dissociation (Holmes et al., 2004; Murray, 1997), and spontaneous state dissociation (Holmes et al., 2004, Experiments 1 and 2) are correlated with increased levels of subsequent intrusions. One possibility is that attempts to experimentally manipulate dissociation have mostly been limited to those aspects that represent detachment, to use the distinction employed by Holmes et al. (2005) For an exception see Hageraars et al., (2006) who manipulated catalepsy - pseudo-paralysis may be more akin to compartmentalization. An alternative approach would be to manipulate other features of dissociation that reflect other aspects of compartmentalization, such as partial amnesia. This could be done in a hypnotic context for example by eliciting selective or partial amnesia for the viewing experience and the content of the video with suggestions designed to produce the sort of memory distortions and losses typically reported in PTSD. It may be that the experience of detachment serves the protective function of reducing the distress experienced at the time of the trauma but it may be compartmentalization of memory functions that leads to later intrusions. While Holmes et al., (2005) highlight there are two forms of 'dissociation' - detachment and compartmentalization, both these forms further subdivide. In this study we attempted to manipulate those aspects of analogue peri-traumatic detachment highlighted in the hypnotic suggestions. In future work on analogue trauma we may need to more precisely manipulate, and use outcome measures which tap into these various forms of 'dissociation'.

A second possible explanation for the lack of a significant difference in intrusions between the two conditions is that spontaneous dissociation in the Control condition had produced a ceiling effect so that increasing dissociation still further had no additional influence on subsequent intrusions. One way of testing this possibility would be to use hypnotic suggestion to *reduce* the level of dissociation in the experimental condition using the reverse of the suggestions used in the present study to inhibit spontaneous dissociation whilst viewing a trauma film.

A third possibility is that though there are similarities between reports of spontaneous and the suggested dissociative experiences used here there may nevertheless be important differences between the two. As we reviewed in the introduction, there is increasing evidence of functional convergence between hypnotically suggested phenomena and their more naturally occurring counterparts, in many instances the similarities are supported by evidence from neuroimaging. It would be interesting in the light of this to compare brain activations in spontaneous and hypnotically suggested dissociative states using both neutral and trauma film viewing. We would anticipate very similar patterns of brain activation in the hypnotically suggested and the spontaneous dissociation conditions. However any differences might give a clue as to what is perhaps missing from hypnotically suggested dissociation but is present in spontaneous dissociation and this in turn may explain the relative lack of effect of hypnotically suggested dissociation (detachment) on subsequent intrusions.

Hypnotically suggested dissociation, in common with hypnotic phenomena generally, appears to occur involuntarily and effortlessly – there were no reports from our participants that they had to make any conscious effort to produce the suggested experiences. However this may not be the case in earlier studies that used other

strategies to generate analogue dissociative states. It may be important that individuals in those experiments had to devote effort and attention to the instructions they have been given to dissociate. This requirement may alter the conditions necessary for the development of intrusions. It would be interesting to take a group of people who regularly use dissociation as a coping strategy and ask them to utilize this when watching the film. Another possibility is that dissociation is only associated with later intrusions when it occurs spontaneously, rather than as a deliberate coping strategy or, as in our study, as a suggested state. As in previous studies, we found that participants watching the film reported some dissociative reactions even when they had not been given any instructions to do so. Spontaneous dissociation may, for instance, be a more direct reflection of loss of control or other processes that are linked to intrusion development. Future studies could profitably question participants exhibiting spontaneous dissociation to determine whether this was a voluntary or involuntary reaction.

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Table 1

Mean DSS scores across three time points for both orders of experimental condition.

	Order 1 (<i>N</i> = 7)			Order 2 (<i>N</i> = 9)		
	Baseline	Control condition	Suggested Dissociation condition	Baseline	Suggested Dissociation condition	Control condition
DSS score mean (SD)	1.71 (2.98)	11.00 (5.07)	18.86 (11.39)	2.89 (4.68)	25.44 (9.99)	6.33 (4.06)

Table 2

The additional ratings of dissociative experience in each experimental condition

Rating of dissociative experience	Suggested Dissociation condition Mean (SD)	Control condition Mean (SD)	<i>t</i> (15)
Outside your body	51.18 (25.01)	9.94 (14.84)	7.32*
Feeling as if you were someone else	47.94 (25.22)	16.41 (23.98)	5.53*
Other people and objects feeling strange and unreal	52.12 (31.00)	10.47 (15.65)	5.76*

* $p < .001$

Appendix 1.

Scripts used for (i) control condition (ii) Suggested dissociation condition.

i) Script for Control condition

“Stay as hypnotized as you are now with your eyes closed - imagine that you are looking at a television screen - begin to have the experience of the screen in front of you. Watching it normally from your own perspective. *[Pause. Participant is asked to signal with a head nod when this has been achieved]*. In a few moments I will ask you to open your eyes in order to watch the film. Stay as hypnotized as you are now, open your eyes and watch the film.”

When video ends “Please close your eyes now – and return to your special place”

ii) Script for Suggested Dissociation condition.

Stay as hypnotized as you are now with your eyes closed - imagine that you are looking at a television screen - begin to have the experience of the screen in front of you. *[Pause. Participant is asked to signal with a head nod when this has been achieved]*. As you do that begin to have the experience of looking at the screen but of seeing it from a different perspective as though you are viewing it from outside your own body – from a different point of view – looking at the screen and being aware of yourself looking at the screen almost as though you were another person ... being aware of the screen and being aware of yourself watching it. As you continue to look at the screen, everything around you beginning to seem strange and unreal as though you were somehow another person in a strange place. Begin to have that feeling of being outside yourself and of the screen and surroundings being unfamiliar *[Pause. Participant is asked to signal with a head nod when this has been achieved]*. Good just let those feelings of being outside yourself develop further as you watch the screen - and those feelings of the screen and your surroundings being unfamiliar and unreal becoming stronger and clearer - until they are as strong as they

can be for you just now. *[Pause. Participant is asked to signal with a head nod when this has been achieved]*. In a few moments I will ask you to open your eyes in order to watch the film. When you open your eyes continue to have those feelings as you watch what is shown on the screen - being fully aware of the events taking place in the film - watching what happens as though you are viewing it from outside your own body ... what is shown on the screen feeling strange and unreal as though you were someone else watching what is happening - all the time paying full attention to what is being shown on the screen whilst watching it from another perspective ... Continue to have these feelings for the whole time you watch the film until you are given different instructions. Stay as hypnotized as you are now, open your eyes and watch the film.

When video ends “ Please close your eyes now – returning to normal feelings, experiencing the world from your own perspective – everything feeling as real and normal as it should *[Pause. Participant is asked to signal with a head nod when this has been achieved]*. Return now to your special place.

Holmes, E. A., Oakley, D. A., Stuart, A., & Brewin, C. R. (2006). Investigating peri-traumatic dissociation using hypnosis during a traumatic film. *Journal of Trauma and Dissociation*, 7, *Exploring Dissociation: Mapping Definitions, Development, and Cognitive Correlates*(4).

Investigating Peri-Traumatic Dissociation Using Hypnosis During A Traumatic Film

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Abstract

We investigated the hypothesis that inducing a dissociative response (detachment) in healthy volunteers while they were watching a trauma film would lead to increased numbers of intrusive memories of the film during the following week. Hypnotized participants were given suggestions to dissociate during part of the film, and to watch the rest of the film normally from their own perspective. The order of these conditions, and the section of film watched under the two conditions, were counterbalanced. As predicted, watching the film under both conditions led to increases in dissociation. Explicit suggestions to dissociate were generally effective in inducing higher levels of dissociation. Contrary to prediction, there were no more intrusive memories of sections of the film for which participants had received dissociation suggestions. Implications of our results for views of the relationship between peri-traumatic dissociation and intrusive memories are discussed.

KEYWORDS: trauma, hypnosis, intrusive imagery, dissociation, stressful film, PTSD

Investigating Peri-Traumatic Dissociation Using Hypnosis During A Traumatic Film

Dissociation is a response that is thought to protect individuals from experiencing overwhelming emotion. Several cognitive models of post-traumatic stress disorder (PTSD) have suggested that dissociation at the time of trauma may protect against extreme emotions such as fear and horror at that point in time (Brewin & Holmes, 2003). For example, a client with PTSD may report an out-of-body experience or feelings of unreality during the index trauma. Therapists may help the client make sense of such dissociative experiences as an understandable psychological response to trauma particularly perhaps when physical escape is not possible. However, there is now considerable evidence that reports of dissociative reactions during traumatic events are related to an increased risk of posttraumatic stress disorder subsequently developing (Ozer, Best, Lipsey, & Weiss, 2003). These naturalistic studies that rely on retrospective reports have been supplemented by experimental studies in which healthy volunteers watching a traumatic film describe their reactions immediately at the end of the film. Under these conditions, too, higher levels of reported dissociation predict a greater number of intrusive memories of the film in the succeeding week (Holmes, Brewin, & Hennessy, 2004). Using a similar paradigm, the current study attempted to establish the causal role of dissociation in producing post-trauma symptoms by attempting to induce an appropriate dissociative experience hypnotically and then investigating later reactions to a trauma film. Interestingly, although a link is commonly assumed in the literature, it is unclear precisely how dissociation may operate to produce intrusive memories. However, rather than exploring theoretical possibilities for an explanation of the link between the two, the current study attempts to seek further evidence that analogue peri-

traumatic dissociation may indeed be associated with a greater number of intrusive memories.

The term “dissociation” is notoriously complex and has been used in a variety of ways. In their review exploring what is meant by the term ‘dissociation’ Holmes et al., (2005) distinguished two forms - detachment and compartmentalisation. Post-traumatic stress disorder patients describe both a sense of detachment at the time of the trauma (commonly referred to as peri-traumatic dissociation) and impaired recall of the event, which may correspond better with compartmentalisation. In this study we attempted to manipulate analogue peri-traumatic detachment. However, in the literature described below this distinction has usually not been made thus the term “dissociation” in the context of trauma can be used as an umbrella term referring to both detachment and compartmentalisation. For further details about this definition and a further development of this model, see Brown (2006, this volume).

To date there have been several studies that have tried to induce dissociation experimentally. Murray (1997) asked participants to try to dissociate while watching a film involving a series of road traffic accidents. Guidelines were provided to help them do this, and participants were asked to practise strategies such as staring at a spot on the wall, staring into a mirror, or imagining that they were watching themselves from an external vantage point. There was no specific check that participants in this condition experienced more dissociative symptoms while watching the film. They rated themselves as moderately able to follow these instructions, but were not as successful as participants in other groups following different instructions to perform other tasks. Participants instructed to dissociate did not experience more intrusive memories involving the film in the following week than did those in a control condition.

Holmes et al., (2004) conducted a similar experiment using the same trauma film. They based their approach on a review of methods of inducing concurrent dissociation (Leonard, Telch, & Harrington, 1999), which suggested that prolonged staring at a small dot was likely to be effective. To ensure that participants were able to comply with the task, an initial screening phase was devised to eliminate those who were unable to dissociate using this method. The success of the manipulation was confirmed using a self-report measure of state dissociation, but again participants in this group did not experience more intrusive memories of a trauma film than those in a control group. Moreover, the self-report measure of dissociation did not correlate with drops in heart rate, a physiological measure that may also be an index of dissociation (Griffin, Resick, & Mechanic, 1997).

Hypnosis is becoming more widely accepted as a cognitive tool in psychological and neuropsychological research (Oakley, 2006, Raz & Shapiro, 2002) and we have recently begun to explore hypnotically suggested dissociative experiences as a potentially useful experimental analogue for traumatic dissociation. Suggestion in hypnosis has been used in experimental settings to create subjectively compelling, but reversible, experiences of amnesia for autobiographical episodes (Barnier, McConkey & Wright, 2004), emotional numbing (Bryant, 2005) gender change (Burn, Barnier & McConkey, 2003), functional blindness (Bryant & McConkey, 1999) auditory hallucinations (Szechtman, Woody, Bowers & Nahmias, 1998), non-veridical colour processing (Kosslyn, Thompson, Costantini-Ferrando, Alpert & Spiegel, 2000), functional pain (Derbyshire, Whalley, Stenger & Oakley, 2004), involuntary movement (Blakemore, Oakley & Frith, 2003; Haggard, Cartledge, Dafydd & Oakley, 2004) and functional paralysis (Halligan, Athwal, Oakley & Frackowiak, 2000). A number of these studies have also involved

neuroimaging and have found that the suggested phenomena are accompanied by congruent changes in activation in brain areas that would normally be involved in mediating the processes affected by the hypnotic suggestion (Blakemore et al, 2003; Derbyshire et al, 2004; Halligan et al, 2000; Kosslyn et al, 2000; Szechtman et al, 1998). This is consistent with the subjectively 'as-real' nature of hypnotically induced experiential changes. The same patterns of brain activity were not seen, however, when individuals were asked to imagine the same subjective events (Kosslyn et al., 2000) even when this was carried out in hypnosis (Derbyshire et al., 2004; Szechtman et al., 1998) or when hypnotised participants were instructed to simulate the hypnotically suggested effect (Ward, Oakley, Frackowiak & Halligan, 2003).

A common theme in the studies that have used hypnosis as an experimental tool is that the suggested effects are more strongly produced in individuals who are rated as medium to high in hypnotic susceptibility. It is interesting in this regard that there is convergent evidence that post-traumatic stress disorder and its symptoms are associated with higher levels of hypnotizability (Bryant, Guthrie, Moulds, Nixon & Felmingham, 2003). This raises the possibility of common underlying mechanisms between symptoms seen in post-traumatic stress disorder and comparable phenomena produced by suggestion in hypnosis. A similar case has been made for hypnotic phenomena and functional clinical symptoms (Oakley, 1999) with some supporting neuroimaging evidence for commonality in mechanism in the case of 'hysterical' (conversion disorder) limb paralysis and the corresponding hypnotically-produced paralysis (Halligan et al., 2000).

On the strength of this emerging evidence of the efficacy of hypnosis as an experimental tool we have recently adopted a similar approach to investigate the impact on intrusive images of experimentally induced somatoform dissociation (tonic

immobility) during a stressful film (Hagenaars, van Minnen, Holmes, Brewin & Hoogduin, 2006). Hypnotic suggestions were used to create catalepsy – that is to immobilize participants while viewing the film. This manipulation was designed to mimic the ‘freezing’ response that can be reported by people during a traumatic event (Nijenhuis, Van Engen, Kusters, & Van der Hart, 2001). Two comparison conditions were used, an ‘intentional no movement’ group, where participants were instructed to intentionally keep still but did not use hypnotic suggestion to create a cataleptic state, and a control group who were told they could sit and move as they wished while viewing the film. The results showed that the catalepsy condition proved an effective way of provoking somatoform dissociation. However, both experimental task conditions increased the number of intrusive images of the film compared to the control condition. No difference was found in intrusions between dissociation-related immobility and voluntary immobility. This suggests that it is unlikely that somatoform dissociation *per se* is responsible for an increase in trauma film images, but the immobility itself may have been an active ingredient.

To summarise, several attempts have now been made to induce dissociation experimentally. Although there have been some positive results in terms of changes on self-report measures, none has succeeded in bringing about a change in posttraumatic symptomatology such as the frequency of intrusive memories or has been able to show that dissociative aspects accounted for this. The current experiment again used hypnotic suggestion but with the intention of reproducing aspects of peri-traumatic dissociation other than the immobility or ‘freezing’ already investigated by Hagenaars, et al (2006). This raises the persistent problem in analogue studies of defining the target phenomenon. As discussed previously, Holmes et al., (2005) have divided the term ‘dissociation’ into two forms - detachment and

compartmentalisation. In this study we attempted to manipulate the experience of detachment as an analogue for peri-traumatic dissociation.

A within-subjects design was used whereby participants viewed a traumatic film while hypnotised. Some sections of the film were viewed following suggestions intended to generate peri-traumatic dissociation and other sections were viewed without such suggestions (Suggested Dissociation versus Control condition). As well as testing the ability of suggested dissociation to bring about appropriate changes in self-report measures, we also assessed whether there would be a concomitant change in peri-traumatic distress and in the experience of intrusive memories.

Consistent with the theory that peri-traumatic dissociation protects individuals at the time from overwhelming emotion but increases later vulnerability to PTSD, we predicted that:

- 1) State dissociation (for details see the Measures section) will increase as a result of viewing the film under either condition compared to a baseline (pre-film).
- 2) Participants will report higher levels of state dissociation in the Suggested Dissociation condition compared to the Control condition
- 3) Participants will report lower levels of peri-traumatic distress in the Suggested Dissociation condition compared to the Control condition.
- 4) Participants will report more intrusive images during the week after the film in the Suggested Dissociation condition compared to the Control condition.

Method

Design

This study used a within-subjects design that involved viewing a film showing distressing scenes from road traffic accidents. The film was divided into two sections each of which was viewed by hypnotised participants under one of two conditions: (1)

following suggestions designed to evoke dissociative experiences (Suggested Dissociation condition) and (2) under the same viewing conditions but without suggestions for dissociation (Control condition). The order of these two viewing conditions and the order of presentation of the two film sections were independently counterbalanced. Measures of distress and state dissociation were collected after both sections of the film. Participants also recorded their experience of intrusions from the film in a diary for 1 week after the viewing and then returned for a follow-up session.

Participants

Ethical approval for this study was granted by the Joint UCL/UCLH Committees on the Ethics of Human Research, Study Number 01/0063. All participants gave their informed consent to taking part in the research. Recruitment took place from a volunteer database of seventy-three students from the Departments of Psychology and Medicine at University College London who had been previously categorised as highly or very highly hypnotisable (scoring 8 or more out of 12) on the Harvard Group Scale of Hypnotic Susceptibility: Form A (HGSHS:A: Shor & Orne, 1962). The recruitment material included information about the traumatic film, in particular that it contained graphic scenes of the aftermath of road traffic accidents that could be involuntarily remembered afterwards. All participants confirmed in writing that they had not previously received treatment for a mental health problem in order to ensure informed consent. Of the 73 potential participants contacted by one email message (sent blind to other recipients), seventeen agreed to take part in the current experiment (12 male and 5 female) and received a small payment. Due to missing data for one participant, the final results presented are based on 16 participants. The mean age of those who volunteered was 20.31 ($SD = 0.95$, range 19 – 22). Their mean hypnotic susceptibility score was 9.25, $SD = 1.00$, range 8 - 11) and

mean trait dissociation (DES-II) score was 10.30 ($SD = 12.33$). All participants were tested singly.

Materials

Trauma video film. The 12.5 minutes of video film material used here comprised real-life scenes from the aftermath of five different road traffic accidents in Germany (compiled by Steil, 1996, used previously for example by Murray, 1997; Halligan, Clark, & Ehlers, 2002; Holmes et al., 2004; Stuart et al., 2006). The film included; victims being extracted from wreckage by emergency services personnel, injured victims screaming, body parts amongst wreckage and bodies being transferred to coffins. Previous studies (Holmes et al., 2004) have collected information about the content of intrusive images arising from this film, which allowed each intrusion to be located to a particular scene (intrusion sequence). This information from approximately 200 participants was used by Stuart et al., (2006) to calculate the average number intrusions that arose from each of the five scenes. Instead of dividing the film in terms of time (which could result in scenes with different relative intrusiveness) the film was divided into two (counterbalanced) sections that were expected to generate similar amounts of intrusions, as in Stuart et al., (2006).

Measures

Hypnotic susceptibility. The *Harvard Group Scale of Hypnotic Susceptibility, Form A (HGSHS:A; Shor & Orne, 1962)* is administered to groups of participants and consists of a hypnotic induction procedure followed by 12 standard suggestions (categorised as ‘ideo-motor’, ‘challenge’ and ‘cognitive’) intended to create clearly defined subjective experiences with accompanying behavioural changes that are experienced as being involuntary and effortless. Responses to each of these suggestions are scored on a pass (1) or fail (0) basis giving a range of possible scores

from 0 to 12. Individuals scoring 11-12 are categorised as ‘very highly hypnotizable’ (5-7% of the normal population) and those scoring 8-10 as ‘highly hypnotizable’ (17-34%) (Barnier & McConkey, 2004). The HGSHS: A used to create the database from which participants were recruited for this study was delivered by audiotape.

Trait dissociation. The *Dissociative Experiences Scale - Revised version (DES-II; Carlson & Putnam, 1993)* is a 28-item scale on which participants indicate the percentage of time they have a given dissociative experience in daily life, from 0% (never) to 100% (always). It provides a trait type measure of dissociative experiences.

State Dissociation. Three measures were used to assess various aspects of dissociative experiences during the experiment. The first was a pre-post measure of state dissociation that has been used in previous experimental studies (e.g. Holmes et al., 2004). The second measure is a widely used clinical measure to assess peri-traumatic dissociation, relying on retrospective report experience during trauma. The third measure consisted of individually tailored visual analogue scale ratings related to suggestions given in the Suggested Dissociation condition of this experiment. Thus the first measure uses a difference score whereas the second two measures yield single scores.

(1) The 19 subject-rated items from the *Clinician Administered Dissociative States Scale (referred to here as the DSS; Bremner et al., 1998)* were used as a repeated measure of state dissociation to assess relevant symptom areas including depersonalization and derealization. Items are rated on a 5-point scale anchored with 0 (not at all) and 4 (extremely). A sample item is “Do things appear to be moving in slow motion”. The 19 items have satisfactory reliability (Cronbach’s alpha = .94; Bremner et al., 1998).

(2) The *Peritraumatic Dissociative Experiences Questionnaire (PDEQ;* Marmar, Weiss, & Metzler, 1997) is a measure of dissociative symptoms experienced at the time of trauma. The 10 items on this questionnaire are rated on a 5-point scale. As it asks participants about their experiences of dissociation *during* a particular time period it is particularly useful to use in a within-subjects design where two time periods are being compared.

(3) Three *Visual Analogue Scales (VAS)* were used to rate specific dissociative experiences during the viewing of the film in the context of the suggestions given in the Suggested Dissociation condition. Participants were asked to indicate by making a mark on a 100mm line how strongly they felt the experience i) of observing themselves looking at the film, ii) as if viewing the film was happening to someone else, and iii) of world around them being strange and unreal. The ends of the lines for each scale were anchored with 'I did not get that feeling at all' (0) and "The feeling was very strong indeed" (100).

Distress. Participants rated their distress associated with viewing the film on an 11-point scale anchored with 0 "not at all distressed" and 10 "extremely distressed".

Intrusions. Participants were instructed in how to use a tabular *Intrusion Diary* in which they were asked to record any intrusive images from the film for the 7 days following viewing it (as in Holmes et al., 2004). Each day was divided into four periods: morning, afternoon, evening and night. Intrusions were defined as 'intrusive memories of the film that suddenly pop into mind spontaneously' and not 'times when you deliberately think about it or mull over it'. The content of each intrusion experienced was also recorded so that the intrusions could later be identified as coming from a particular section of the film (for more details of this method see also

Stuart, Holmes & Brewin, 2006). For example, if the participant described an intrusive image of ‘a fireman carrying a baby’ this event only occurred at one point in the film, this image could be retrospectively matched according to within-subjects condition (i.e. what the participant had been doing at the time of encoding). Thus the number of intrusions was later calculated for each within-subjects condition. Participants were asked to carry the diary with them and fill in the appropriate sections at regular times during the day (divided into morning, afternoon and evening). They were also asked to set aside a specific time at the end of the day to complete the diary, even if they had had no intrusions, in which case they should enter a zero in the number box.

At the follow-up session, a *Diary Compliance Rating* was taken by asking participants to rate the truthfulness of the statement “I have often been unable (or forgotten) to record my intrusions in the diary” (Davies & Clark, 1998). The response scale was anchored with 0 (*not at all true*) to 10 (*completely true*), hence low scores indicate good compliance.

Procedure

After providing their informed consent to take part in the study, participants provided information about their age and completed the DES-II and DSS (baseline administration) questionnaire measures. Participants then sat in a chair approximately 1m from the television screen facing directly towards it throughout the experimental procedures. The two experimenters sat outside the participant’s line of sight, with Experimenter 2 to their right and Experimenter 1 to their far left. Experimenter 2 used a standardised protocol to explore the participant’s previous experiences of hypnosis, to personalise the induction script for them and to identify their unique ‘Special Place’ (Oakley, Deeley, & Halligan 2006).

Experimenter 2 then used the personalised standard induction script commencing with the participant's eyes closed, followed by instructions and suggestions for regular breathing and muscle relaxation, descent imagery and experience of their 'Special Place'. Half the participants were then exposed to the Suggested Dissociation condition while viewing one section of the film and then to the Control condition while viewing the other section. The order of these conditions was reversed for the other participants. It is noted that participants remained hypnotized during both conditions. Thus, the two within-subjects conditions were determined according to the dissociation suggestions or the control condition instructions.

For the Suggested Dissociation condition suggestions were given to create the subjective experience while they were viewing the film section of being disconnected from their body ('looking at the screen but seeing it from a different perspective as though you are viewing it from outside your own body – from a different point of view'); of feeling as if they were 'someone else' ('... as though you were another person ... being aware of the screen and being aware of yourself watching it') and that the world around them was strange and unreal ('... everything around you seeming strange and unreal as though you were somehow another person in a strange place.'). Additional suggestions were included to ensure that they continued to attend to the film while having these experiences ('When you open your eyes [you will] continue to have those feelings as you watch what is shown on the screen – being fully aware of the events taking place'). These suggestions were intended to emulate dissociative peri-traumatic experiences of detachment commonly reported in PTSD.

Once the dissociation suggestions had been given participants were told they would ‘Continue to have these feelings for the whole time you watch the film until you are given different instructions. Stay as hypnotized as you are now, open your eyes and watch the film’. At the end of the Suggested Dissociation condition the participant was asked by Experimenter 2 to shut their eyes and suggestions were given that they were ‘returning to normal feelings, experiencing the world from your own perspective – everything feeling as real and normal as it should’. When the participant indicated that this has occurred they were asked to return to their Special Place experience.

For the Control condition participants were told that when they opened their eyes they would watch the film as they normally would ‘from your own perspective’ and then ‘Stay as hypnotized as you are now, open your eyes and watch the film.’ No reference was made to being ‘relaxed’ or feeling ‘normal’ while watching the film. At the end of the Control condition viewing the participant was asked to return to their special place experience. For the full hypnotic script for each condition, please see Appendix 1.

For all participants there was a break of approximately two minutes between the two viewings of the two counterbalanced sections of the film during which they remained hypnotized and experiencing their Special Place. Once testing under both conditions was complete all hypnotic suggestions were removed and hypnosis was terminated. The rating of distress when viewing the film, the DSS, the PDEQ, and the VAS ratings of dissociative experiences were then recorded separately for both viewings of the film. After finishing both conditions, participants were instructed in how to complete the intrusion diaries. One week later there was a follow-up session at which participants returned their intrusion diaries and rated their diary compliance.

Participants were debriefed and thanked for their participation. In our clinical opinion, no participant displayed a significant level of distress at the follow-up session.

Following ethical guidelines a procedure was in place should participants subsequently wish to make contact with the experimenters, but none did so.

Results

The data analysis software used was SPSS version 13 for Windows.

Measures of State Dissociation

DSS. In order to examine whether, as predicted, the experience of dissociation would increase as a result of viewing the film under either condition as compared to baseline (pre-film), we examined only the scores from baseline to the end of the first condition. Due to the counterbalanced order of presentation, for half of the participants the first condition was Suggested Dissociation and for half the Control condition. Paired sample *t*-tests were used on the data shown in Table 1. There was a significant increase in state dissociation from baseline in the Suggested Dissociation condition, $t(8) = 8.16, p < .001$, mean change = 22.56 ($SD = 8.29$), $d = 4.84$ indicating a large effect size. There was also a significant increase in the Control condition, $t(6) = 5.17, p = .002$, mean change = 9.29 ($SD = 4.75$), $d = 3.12$ indicating a large effect size.

In order to examine whether changes in state dissociation were significantly greater in the Suggested Dissociation than in the Control condition, change scores were computed by subtracting the *DSS* score before each condition from the *DSS* score after that condition. The data were entered into a 2 (Experimental condition: Suggested Dissociation versus Control Condition) x 2 (Order: Suggested Dissociation first versus Control Condition first) mixed model ANOVA. Experimental condition was a repeated measures factor and Order a between-subjects factor. There was a

significant main effect of Experimental condition on change in dissociation, $F(1,14) = 32.65, p < .001$, partial eta squared = 0.70, indicating a large effect size. There was a significant main effect of Order, $F(1,14) = 1.52, p = .024$, partial eta squared = 0.50, indicating a large effect size. There was also a significant interaction between Experimental condition and Order, $F(1,14) = 37.45, p = .002$, partial eta squared = 0.73, again indicating a large effect size.

This interaction was decomposed by using two paired sample t-tests to examine the effect of Experimental condition on change in state dissociation for each of the two Orders. As shown in Table 1, when Suggested Dissociation was followed by the Control condition, there was a significant difference in state dissociation change between the experimental conditions, $t(8) = 8.33, p < .001, d = 5.29$, with mean change scores in line with predictions, +22.56 ($SD = 8.29$) vs. -19.00 ($SD = 7.86$). However, when the Control condition was first no significant difference was found, $t(6) = 0.30, p = .77, d = 0.30$, equivalent mean change scores = 7.86 ($SD = 9.67$) vs 9.29 ($SD = 4.75$). Thus with respect to the initial hypotheses, our results indicate that Suggested Dissociation led to a greater increase in state dissociation as measured by the DSS than the Control condition but that this increase was significant only when Suggested Dissociation came first in the experimental order.

PDEQ. A similar mixed-model analysis on retrospective ratings of dissociative experiences during the film indicated a significant main effect of Experimental condition on PDEQ scores, $F(1,14) = 25.41, p < .001$, partial eta squared = 0.65, indicating a large effect size. There was no significant main effect of Order, $F(1,14) = 0.11, p = .75$, and no significant interaction between Experimental condition and Order, $F(1,14) = 0.89, p = .36$. The mean overall PDEQ score for the

Suggested Dissociation condition was 24.37 ($SD = 6.90$) and for the Control condition was 15.56 ($SD = 4.91$).

VAS. Participant ratings of the three dimensions of dissociative experience (related to the experimental suggestions) in the Suggested Dissociation and Control conditions are shown in Table 2. A comparison of scores using related t tests revealed significant differences in the predicted direction between conditions on each of the three ratings. Order effects were investigated using mixed-model ANOVAs but there were no main effects of order or condition by order interactions except for a weak main effect of order on the extent participants felt they were seeing themselves from outside of their own body, $F(1,14) = 4.80$, $p = .046$, partial eta squared = .25.

Distress Ratings

It was predicted that participants in the Suggested Dissociation condition, compared to the control condition, would report the lower levels of peri-traumatic distress. In line with this prediction, there was significant difference in the amount of distress experienced during the Suggested Dissociation condition ($M = 4.38$, $SD = 2.25$) compared to the control condition ($M = 6.31$, $SD = 1.96$), $t(15) = 3.18$, $p = .006$, $d = .98$. Possible order effects were explored using mixed-model ANOVAs, but there was no significant effect of order and no condition by order interaction.

Intrusive Images of the Film

Consistent with previous studies, the mean level of diary compliance was 2.00 ($SD = 1.37$), indicating that participants had recorded most of their intrusions in the diary. Forty-four intrusive images were recorded. Of these images, there were six which we were unable to identify within the film. The remaining images corresponded to a clear moment within the traumatic film (e.g. a fireman carrying a

baby), which enabled us to calculate how many of each participant's intrusions came from each condition (c.f. Stuart et al., 2005).

The mean number of images from the Suggested Dissociation condition was 0.94 ($SD = 1.00$) while the mean number of images from the Control condition was 1.69 ($SD = 1.54$). These data were entered into a 2 (Experimental condition: Suggested Dissociation versus Control) x 2 (Order: Suggested Dissociation condition first versus Control condition first) mixed model ANOVA. There were no significant effects of Experimental condition, $F(1,14) = 3.13$, $MSE = 1.46$, $p = 0.098$, partial eta squared = 0.18, or Order $F(1,14) = 2.17$, $MSE = 1.85$, $p = 0.16$, partial eta squared = 0.13. Inspection of F values however, given the small sample size, indicates that future studies with better power might usefully explore this issue. The interaction was also non-significant, $F(1,14) = 0.08$, $p = .93$. Since the interaction was non-significant, helpful comments by reviewers suggested that we further examine the intrusion data using a paired sample t-test for the number of intrusions between condition. The results of this again hint towards a trend in the *opposite* direction to that predicted, that mean value indicate the suggested dissociation condition may have been associated with fewer (rather than more) intrusive images, $t(15) = 1.82$, $p = .091$, $d = 0.49$. However, given the small sample size and power of the study any conclusions drawn must be tentative.

Qualitative Findings

Participants offered some comments describing their experience of Suggested Dissociation. These are included here to provide some qualitative information about the experience of the manipulation. The themes contained in the suggestions we gave our participants of being disconnected from their body, as if they were someone else

and in a world that had become strange and unreal are all clearly reflected along with some embellishments of their own.

Feelings of detachment were frequently mentioned: 'I felt really strange - like the lights were on but nobody was in. I felt as though I wasn't me. I felt as though I was viewing it from outside.'; 'It felt weird, you are watching it but not as yourself - as someone else.'; 'Physically I felt different - I was watching the film separately from my body.' For some the experiences were accompanied by distortions of body image:- 'The whole experience felt unreal, as if I wasn't there also my feet felt really big - what was that all about?'; 'I felt really tall as though I was above my body'. For others the sense of altered viewing location was particularly noticeable:- 'It was too strange - I've never felt anything like it. - I was crouched on the small filing cabinet across the way [over to the left of him].'; 'I kinda thought I was over there [points to his right] looking at you guys. But I thought it was weird; I'm not there I'm in the chair! ... I was watching someone else but someone else was wearing my clothes.'; 'I could see myself sitting to my right ... I could sense myself watching myself from the other view and I could see what I was watching.' Their comments also reflected the reduced distress they experienced when watching in the Suggested Dissociation condition:- 'I felt less involved and interested than [in] the other film. I was watching and feeling it should be a lot more distressing'; 'It didn't seem half as bad, the people in it were just actors and it didn't seem half as gruesome'.

Discussion

To our knowledge this is the first study to attempt to induce a dissociative state of detachment using hypnosis, comparing responses in a within-subjects design to a control condition in which participants were hypnotized but not given dissociation suggestions. The measure of state dissociation (DSS) that was taken

before as well as after the experimental manipulations confirmed our first prediction, that watching the trauma video in the control condition would be associated with spontaneous dissociation. Ratings taken after film viewings using a standardized (and clinically used) measure of peri-traumatic dissociation as well as individual rating scales confirmed our second and third predictions that participants would report higher levels of dissociative experiences and less distress in the Suggested Dissociation condition. Further analysis of the DSS data revealed a more complex picture, however. In particular, the experimental manipulation did not appear to be so effective when the Suggested Dissociation condition came second (Order 1), as participants tended to respond more strongly with spontaneous dissociative experiences to watching the film during the first, Control, condition. When the Suggested Dissociation condition came first (Order 2), however, spontaneous dissociation in the Control condition appeared less marked and the difference in dissociation between the conditions was clear-cut.

It is important to emphasize that if the spontaneous dissociation elicited by the trauma film had not been entered into the DSS analysis it is likely that there would have been significant differences between the conditions in Order 1 also. Another factor to take into account is that the power to detect differences between conditions in this study was in any case low because of the relatively small numbers of participants. Overall, therefore, the formal measures employed here have provided promising evidence that dissociative experiences can be effectively manipulated by hypnotic suggestion. The effectiveness of the manipulation was also underscored by comments offered by participants describing their experience of Suggested Dissociation (see the Results section on Qualitative Findings). However, there are some limitations that are addressed below.

We feel that the study reported here merits replication and extension. In future studies using within-subjects designs of this sort it should be borne in mind, however, that data acquired retrospectively on completion of the experiment may be subject to demand characteristics, and measures should be included at the beginning and end of each condition wherever possible. As well as the small sample size there are several other methodological limitations to this study which means interpretations drawn should be made with caution. Although participants all confirmed that they had not attended mental health services in the past, this does not rule out the possibility that they may have experienced trauma, and as a result PTSD, even if only at a sub-clinical level. In line with previous experimental work attempting to investigate the impact of peri-traumatic dissociation on analogue PTSD symptoms (e.g. Holmes et al., 2004; Murray, 1997; Stuart et al., 2006), we have focussed on intrusive images of the trauma. Methodologically this allows us to use this type of within-subject design and manipulate processing during particular sequences of analogue trauma. Perhaps future methodological innovations might develop ways in which avoidance or hyperarousal could be assessed within this type of design. Future studies may also benefit from examining different types of trauma films (e.g. Orsillo, Plumb, Luterek, & Roessner, 2004). Dissociation is a complex construct and we used three measures of state dissociation to assess this and make comparable to other research: a repeated measure as used in previous experimental paradigms, a clinical measure of retrospective report, as well as tailored rating scales for the hypnotic suggestions. However it is possible that the use of multiple ANOVAs increased family wise error rates.

Consistent with all previous attempts to induce dissociation experimentally (Hagenaars et al., 2006; Holmes et al., 2004, Exp. 1; Murray, 1997), we did not

succeed in significantly influencing the number of intrusive memories of the trauma film participants recorded in their diaries. Indeed, mean values appeared in the opposite value to that predicted, that is the Suggested Dissociation condition had a smaller mean number of images than the Control condition. These results contrast with data indicating that both trait dissociation (Holmes et al., 2004; Murray, 1997), and spontaneous state dissociation (Holmes et al., 2004, Experiments 1 and 2) are correlated with increased levels of subsequent intrusions. One possibility is that attempts to experimentally manipulate dissociation have mostly been limited to those aspects that represent detachment, to use the distinction employed by Holmes et al. (2005) For an exception see Hageraars et al., (2006) who manipulated catalepsy - pseudo-paralysis may be more akin to compartmentalization. An alternative approach would be to manipulate other features of dissociation that reflect other aspects of compartmentalization, such as partial amnesia. This could be done in a hypnotic context for example by eliciting selective or partial amnesia for the viewing experience and the content of the video with suggestions designed to produce the sort of memory distortions and losses typically reported in PTSD. It may be that the experience of detachment serves the protective function of reducing the distress experienced at the time of the trauma but it may be compartmentalization of memory functions that leads to later intrusions. While Holmes et al., (2005) highlight there are two forms of 'dissociation' - detachment and compartmentalization, both these forms further subdivide. In this study we attempted to manipulate those aspects of analogue peri-traumatic detachment highlighted in the hypnotic suggestions. In future work on analogue trauma we may need to more precisely manipulate, and use outcome measures which tap into these various forms of 'dissociation'.

A second possible explanation for the lack of a significant difference in intrusions between the two conditions is that spontaneous dissociation in the Control condition had produced a ceiling effect so that increasing dissociation still further had no additional influence on subsequent intrusions. One way of testing this possibility would be to use hypnotic suggestion to *reduce* the level of dissociation in the experimental condition using the reverse of the suggestions used in the present study to inhibit spontaneous dissociation whilst viewing a trauma film.

A third possibility is that though there are similarities between reports of spontaneous and the suggested dissociative experiences used here there may nevertheless be important differences between the two. As we reviewed in the introduction, there is increasing evidence of functional convergence between hypnotically suggested phenomena and their more naturally occurring counterparts, in many instances the similarities are supported by evidence from neuroimaging. It would be interesting in the light of this to compare brain activations in spontaneous and hypnotically suggested dissociative states using both neutral and trauma film viewing. We would anticipate very similar patterns of brain activation in the hypnotically suggested and the spontaneous dissociation conditions. However any differences might give a clue as to what is perhaps missing from hypnotically suggested dissociation but is present in spontaneous dissociation and this in turn may explain the relative lack of effect of hypnotically suggested dissociation (detachment) on subsequent intrusions.

Hypnotically suggested dissociation, in common with hypnotic phenomena generally, appears to occur involuntarily and effortlessly – there were no reports from our participants that they had to make any conscious effort to produce the suggested experiences. However this may not be the case in earlier studies that used other

strategies to generate analogue dissociative states. It may be important that individuals in those experiments had to devote effort and attention to the instructions they have been given to dissociate. This requirement may alter the conditions necessary for the development of intrusions. It would be interesting to take a group of people who regularly use dissociation as a coping strategy and ask them to utilize this when watching the film. Another possibility is that dissociation is only associated with later intrusions when it occurs spontaneously, rather than as a deliberate coping strategy or, as in our study, as a suggested state. As in previous studies, we found that participants watching the film reported some dissociative reactions even when they had not been given any instructions to do so. Spontaneous dissociation may, for instance, be a more direct reflection of loss of control or other processes that are linked to intrusion development. Future studies could profitably question participants exhibiting spontaneous dissociation to determine whether this was a voluntary or involuntary reaction.

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Table 1

Mean DSS scores across three time points for both orders of experimental condition.

	Order 1 (<i>N</i> = 7)			Order 2 (<i>N</i> = 9)		
	Baseline	Control	Suggested	Baseline	Suggested	Control
	condition	condition	Dissociation	condition	Dissociation	condition
			condition		condition	
DSS	1.71	11.00	18.86	2.89	25.44	6.33
score	(2.98)	(5.07)	(11.39)	(4.68)	(9.99)	(4.06)
mean						
(SD)						

Table 2

The additional ratings of dissociative experience in each experimental condition

Rating of dissociative experience	Suggested Dissociation condition Mean (SD)	Control condition Mean (SD)	<i>t</i> (15)
Outside your body	51.18 (25.01)	9.94 (14.84)	7.32*
Feeling as if you were someone else	47.94 (25.22)	16.41 (23.98)	5.53*
Other people and objects feeling strange and unreal	52.12 (31.00)	10.47 (15.65)	5.76*

* $p < .001$

Appendix 1.

Scripts used for (i) control condition (ii) Suggested dissociation condition.

i) Script for Control condition

“Stay as hypnotized as you are now with your eyes closed - imagine that you are looking at a television screen - begin to have the experience of the screen in front of you. Watching it normally from your own perspective. *[Pause. Participant is asked to signal with a head nod when this has been achieved]*. In a few moments I will ask you to open your eyes in order to watch the film. Stay as hypnotized as you are now, open your eyes and watch the film.”

When video ends “Please close your eyes now – and return to your special place”

ii) Script for Suggested Dissociation condition.

Stay as hypnotized as you are now with your eyes closed - imagine that you are looking at a television screen - begin to have the experience of the screen in front of you. *[Pause. Participant is asked to signal with a head nod when this has been achieved]*. As you do that begin to have the experience of looking at the screen but of seeing it from a different perspective as though you are viewing it from outside your own body – from a different point of view – looking at the screen and being aware of yourself looking at the screen almost as though you were another person ... being aware of the screen and being aware of yourself watching it. As you continue to look at the screen, everything around you beginning to seem strange and unreal as though you were somehow another person in a strange place. Begin to have that feeling of being outside yourself and of the screen and surroundings being unfamiliar *[Pause. Participant is asked to signal with a head nod when this has been achieved]*. Good just let those feelings of being outside yourself develop further as you watch the screen - and those feelings of the screen and your surroundings being unfamiliar and unreal becoming stronger and clearer - until they are as strong as they

can be for you just now. *[Pause. Participant is asked to signal with a head nod when this has been achieved]*. In a few moments I will ask you to open your eyes in order to watch the film. When you open your eyes continue to have those feelings as you watch what is shown on the screen - being fully aware of the events taking place in the film - watching what happens as though you are viewing it from outside your own body ... what is shown on the screen feeling strange and unreal as though you were someone else watching what is happening - all the time paying full attention to what is being shown on the screen whilst watching it from another perspective ... Continue to have these feelings for the whole time you watch the film until you are given different instructions. Stay as hypnotized as you are now, open your eyes and watch the film.

When video ends “ Please close your eyes now – returning to normal feelings, experiencing the world from your own perspective – everything feeling as real and normal as it should *[Pause. Participant is asked to signal with a head nod when this has been achieved]*. Return now to your special place.