Dissociation: The Process of Distress Management in Situational Crisis

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I declare that this report is my own original work and that, to the best of my knowledge and belief, it does not contain material from published sources without proper acknowledgement, nor does it contain material which has been accepted for the award of any other higher degree or graduate diploma in any university.

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Abstract

The following paper reviews the literature on the well established link between traumatic experience and dissociation (Doharty, Lewis, Miller, & Gee, 2003; Putnam, 1995) which has led to the development of theories suggesting dissociation serves a protective role against the enormity of the event. While this is a popular theory, there is limited empirical evidence to support the premise. Some preliminary research has suggested that peritraumatic dissociation results in arousal reduction (Griffin, Resick & Mechanic, 1997, Williams, Haines & Sale, 2003) and corresponding reduction in distress (Williams et al., 2003). It is suggested that peritraumatic dissociation mediates distress management in situational crisis (Griffin et al., 1997; Williams et al., 2003, Diskin & Hodgins, 2001) rather than a more general propensity to dissociate as suggested by others (Butler, 1996). The current empirical study investigates this suggestion using a four stage guided imagery methodology. Psychological and psychophysiological responses to imagery of traumatic and stressful events were recorded for participants divided on the basis of (1) dissociative propensity and, (2) peritraumatic dissociation. No significant results were found when participants were divided on the basis of dissociative capacity suggesting that · a tendency to experience dissociative capacity is not related to the use of a dissociative coping style in the face of stress or trauma. When differences between experiences of peritraumatic dissociation were considered, participants experiencing high levels of peritraumatic dissociation reported greater unreality levels throughout both traumatic and stressful events. There was no corresponding distress or arousal reduction. It is concluded that peritraumatic dissociation may be viewed as a more generalised stress response. More research is needed to investigate the dissociative stress response.

Literature Review

Dissociation: The Process of Distress Management in Situational Crisis

Abstract

Dissociation can be defined as a failure in the normally integrated functions of information, experience and perception (Putnam, 1996) with experiences ranging from daydreaming and absorption to amnesia for complex behaviour. Dissociation is thought to arise in response to a significant trauma and stress (Putnam, 1995). It is the well established association between traumatic experience and dissociative symptomatology that gives rise to theories of dissociation as a strategy for coping with overwhelming trauma (Arargun et al., 2003; Putnam, 1997). Williams, Haines and Sale (2003) have suggested that pathological dissociation can lead to a reduction in physiological arousal and psychological distress in response to imagery of a traumatic event involving significant dissociation. Griffin, Resick and Mechanic (1997) similarly found reduced psychophysiological arousal among trauma victims experiencing peritraumatic dissociation. Both findings are suggestive of the use of dissociation for arousal reduction at times of high stress. Butler et al. (1996) viewed dissociation as an autohypnotic process which depends on levels of hypnotic susceptibility and dissociative propensity. Preliminary research has been suggestive that dissociative capacity and peri-traumatic dissociation are not highly correlated (Diskin & Hodgins 2001), therefore, it may be that stress induced dissociation mediates arousal reduction rather than does a more general dissociative propensity. Although some research has been conducted investigating the role of dissociation as distress management in situational crisis, the empirical research is lacking and largely based on the trauma-dissociation link.

Dissociative experiences are characterised by a significant failure in the integration of information, experience, and perception. Experiences typically include functional amnesia for complex behaviours, extreme depersonalisation and derealisation, experiences of intense absorption and enthrallment, experiences of identity alteration, and experiences of passive influence (Putnam, 1996). Dissociation is related to the experience of consciousness, conflict, and the unity of self, and therefore, in dissociative experiences, bodily, mental, behavioural and emotional perceptions can change (Putnam, 1989). Previous research has demonstrated that physical, emotional, or sexual trauma can play a major role in the shift of this control function (Aderbigbe, Bloch, & Walker, 2001; Kluft, 1996; Steinberg, 1995).

Experiences of dissociation can range in severity and frequency from experiences such as daydreaming (Aberibigbe et al., 2001), absorption, meditative experiences and hypnosis (Martinez-Taboas & Bernal, 2000) to the pathological dissociation commonly associated with the DSMIV-TR axis 1 dissociative disorders (American Psychiatric Association; APA, 2000) such as amnesia and identity alteration. Dissociation has been demonstrated to present along four main dimensions of experience (Butler, Duran, Jasiukaitis, Koopman, & Spiegel, 1996). These include perception (depersonalisation and derealisation), behaviour and will (awareness of own behaviour and feeling of lack of control), affect (numbing and detachment), and memory and identity (amnesia and identity alteration). Derealisation and depersonalisation are a common feature of the dissociative experience and refer to experiencing oneself (depersonalisation) or the

external environment (derealisation) as dreamlike, unreal or internally generated (Kluft, 1996).

The present review aims to provide a background on dissociative symptomatology and the proposed continuum of experience, to present varying dissociation theories including the traumagenic model of dissociation and autohypnotic view points, and present evidence implicating dissociative responses as a psychological defence against overwhelming and potentially incapacitating trauma in light of not only overwhelming evidence highlighting the strong relationship between dissociation and traumatic experience, but in addition, empirical research and case study evidence to suggest a reduced stress reaction to trauma. Evidence presented will also include theoretical view points on the development and maintenance of dissociative disorders, research into stress induced dissociation and dissociative pain analgesia, and will be related to the proposed function as a psychological defence.

The nature of dissociation: a continuum of experience

Consistently in the literature, dissociation has been recognised as a continuum process spanning from minor or normative forms of dissociation to major or pathological forms of dissociation (Bernstein & Putman, 1986; Butler, 2004; Ross, 1999; Silberg, 2000; Stout, 2001). The recognition of dissociative experiences as consisting of a continuum of severity suggests that, at some point, normative experiences stop and pathological experiences begin. The differences identified between normal and pathological dissociative experiences are typically thought of in terms of the distinguishing features of pathological dissociation, including amnesia for complex

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behaviour and extreme forms of depersonalisation which rarely occur in the general population (Silberg, 2000).

Evidence for the existence of a continuum of dissociative severity comes from studies of the distribution of Dissociative Experience Scale (DES) scores in normal and psychiatric populations (Bernstein & Putnam, 1986). The DES was developed to reliably measure dissociation in normal and clinical populations, and is thought of as a general measure of dissociation experience, or a tendency to dissociate. The DES was administered to adults randomly selected from the general population, adolescent university students, and individuals suffering from alcoholism, agoraphobia, phobic-anxious disorders, posttraumatic stress disorder (PTSD), schizophrenia, and dissociative identity disorder (DID). The results of the study found a steady increase in DES scores from the normal population at one extreme to DID sufferers at the other extreme. Further, a study of responses from the adult non-clinical population yielded a normal distribution of DES scores. Therefore, it appears that some individuals have a greater propensity to experience dissociation than others, so that not only does dissociation increase from the non-clinical population at one extreme to clinical and pathological dissociators at the other, but there also appears to be a continuum of dissociative experience in the general non-clinical population, with some individuals being more prone to experiences of dissociation.

Further evidence suggesting that dissociative experiences commonly occur among the general population comes from a study conducted by Aderibigbe and colleagues (2001) investigating the prevalence of dissociative experiences in a US rural population. The study, using a random sample of 1,008 adults demonstrated that 19.1% of the

participants experienced depersonalisation, 14.4% experienced derealization, and 23.4% experienced either form of dissociation in the past year. Coons (1998) agreed that depersonalisation is the third most common psychiatric symptom after depression and anxiety, and has demonstrated that prevalence rates are high in the non-clinical population, with approximately half of the adult population experiencing a brief episode of depersonalisation in response to stress or trauma.

Ross, Joshi, and Currie (1990) also investigated experiences of dissociation among a random sample of 1055 adults using scores on the DES (Bernstein & Putnam, 1986). They found that 5%, 8.4%, and 12.8% of the sample had scores over 30, 25 and 20 respectively. Ross et al. (1990) argued that scores over 20 are suggestive of a considerable number of dissociative experiences. In a further study conducted by Ross, Yan, Voight and Eide (1991), it was found that in a sample of college students, 15.4% of the sample obtained DES scores of 20 or above, and median DES scores in a sample of Canadian high school students was 17.7.

In summary, the empirical evidence has suggested that dissociation occurs not only as a manifestation of psychopathology, but also in response to traumatic and stressful experiences in non-clinical populations (Bernstein & Putnam, 1986; McFarlane & De Girolamo, 1996; Noyes & Kletti, 1977; Ross, 1997). As concluded by Martinez-Taboas and Bernal (2000), in "stressful or traumatic experiences, at least some persons have the propensity or potentiality to use dissociation as a psychological defence" (p. 38).

At this point it would be useful to make the distinction between traumatic versus stressful experiences, which both have the potential to elicit some form of dissociative response. A traumatic event is defined in the DSM IV (APA, 2000) as an event involving

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actual or perceived threat to the physical integrity of self or others, and which elicits a response of intense fear, helplessness or horror. Stressful events, however, can range from minor annoyances to major life pressures, and can include such things as minor illness to divorce or occupational stress (Davis, Eshelman, & McKay, 1988). In terms of dissociative response, the two experiences would differ in severity of response. The discussion will now turn specifically to peritraumatic dissociation and the established relationship between trauma and dissociation.

Dissociation and traumatic experiences

Although, as discussed above, dissociation is thought to be a relatively common experience among the general population, and can occur in response to a stressful event in those individuals who have a higher propensity to dissociate, it is more widely viewed as a trauma response. This is termed Peritraumatic dissociation and can be differentiated from a general capacity to dissociate in that it relates to the experience of dissociation during the actual trauma rather than a more general capacity or experience of dissociative symptomatology in day to day life (as the DES was designed to measure; Bernstein & Putnam, 1989). Griffin, Resick and Mechanic (1997) developed a more specific measure of trauma dissociation known as the Peritraumatic Dissociation (PDI) Index assessing dissociation specifically at the moment of trauma, including such symptoms as disorientation, numbness, changes in sense of time, and feelings of unreality.

Putnam (1995) proposed four main areas of evidence based research that highlight the trauma dissociation relationship. These include studies of the trauma histories of sufferers of dissociative disorders such as DID, evidence highlighting the clear difference in levels of dissociative symptomatology in traumatised versus non-traumatised

individuals, the correlation between the severity or magnitude of the trauma and the severity of dissociative symptoms in groups of traumatised individuals, and finally, the development of PTSD following traumatic experience in which reactions included significant dissociation. In what follows, research and theoretical viewpoints demonstrating the trauma dissociation-link will be reviewed.

Many studies have found experiences of dissociation to be associated with a history of childhood abuse or trauma. This includes strong relationships between dissociative symptomatology and child sexual abuse histories (Malinosky-Rummel & Hoier, 1991; Ogawa, Scruofe, Weinfield, Calrson, & Englefield, 1997), physical abuse (Atlas, Weissman, & Leibowitz, 1997; Coons, 1994), repeated medical trauma (Dell & Eisenhower, 1990), parental inconsistencies and rejection (Mann & Sanders, 1994), and exposure to violence and emotional abuse (Hornstein & Tyson, 1991). A study examining the relationship between self reported abuse and tendencies to experience dissociative symptomatology was conducted by Ray (1996). In a sample of 737 college students it was found that there was a positive relationship between child abuse and dissociative experiences as measured by the DES.

More recently, Dalenberg and Palesh (2004) replicated these findings in their study of trauma and abuse histories in Russian college students. Three hundred students completed the Dissociative Continuum Scale, as well as past violence and traumatic history questionnaires (the Violence History Questionnaire, the Traumatic Events Survey (TES). The results demonstrated that the most accurate predictors of experiences of dissociation were violent histories, child abuse and the experience of a fearful event. Individuals with previous child abuse experiences also experienced significantly more

dissociative symptoms after an adult trauma than those with no relevant history. Other cross-cultural findings provide further support for the trauma-dissociation connection in individuals subjected to political violence in Northern Ireland. This study found that dissociation was significantly higher in individuals exposed directly to political violence and those who experienced childhood emotional abuse among a group of 119 participants (Doharty, Lewis, Miller, & Gee, 2003).

Furthermore, studies have demonstrated that non-traumatised and traumatised groups of individuals can be reliably identified on the basis of the extent of their dissociative symptomatology. A study by Freidrich, Jaraworski, Huxsahl, and Bengston (1997) demonstrated that DES scores were a reliable means of distinguishing between a group of sexually and non sexually abused adolescents, with the sexually abused adolescent groups experiencing significantly more dissociative symptomatology. This concurs with the findings of Martinez-Taboas and Bernal (2000) who studied the association between dissociative experiences and abusive or traumatic experiences in a group of Latino university students. The results of this study supported the hypothesis that participants reporting abuse can be differentiated from those reporting no abusive experiences based on scores on the DES.

In a review of the trauma-dissociation literature, Silberg (2000) concluded that children subjected to severe maltreatment or other traumatic experiences bear a striking resemblance to one another in terms of displaying difficulties with memory, problems establishing a consistent identity, observation of trance like states, and a pattern of behaviour similar to that seen in adults with dissociative disorders (Putnam, 1997). The

presence of such symptoms in children subjected to trauma supports the suggested relationship between trauma and dissociation.

These research findings suggest that not only do individuals who have been subject to trauma experience significantly more dissociative symptomatology, but the relationship is so clear that traumatised and non-traumatised populations can be clearly differentiated on the basis of extent of dissociative symptomatology. This supports the proposition of several authors that a prominent experience of a traumatised individual consists of dissociative experiences and defences (Briere, 1996; Goulding & Schwartz, 1995; Waites, 1993). Further, recent research has demonstrated that this finding is robust across cultures and also suggests that past trauma perhaps predisposes people to use a dissociative style in subsequent trauma experiences (Dalenberg & Pelash, 2004; Doharty, Lewis, Millar, & Gee, 2003).

There are also well established links between a traumatic childhood history and pathological dissociation such as that characterising DID. Studies investigating the aetiology of DID have consistently found a history of childhood trauma among those diagnosed with the disorder (Birnbaum, & Thomannn, 1996; Coons, Bowman, & Milstein, 1988; Putnam, 1996; Putnam, Guroff, Silberman, Barban, & Post, 1986; Silberg, 2000). In fact, Putnam and colleagues (1986) collected data from 100 individuals who had received a diagnosis of DID, and found that the rates of reported child abuse were as high as 97% of cases (Putnam et al., 1986). Coons, Bowman, and Milstein (1988) similarly demonstrated that 85% of dissociative adult cases report severe trauma histories. So, in addition to trauma being associated with significantly more experiences of dissociation, there is also a seemingly clear link between early trauma

exposure and pathological forms of dissociation such as that seen in DID. The findings of Van Den Bosch, Verheul, Langeland, and Van Den Brink (2003) have provided further support of trauma histories in psychopathologies characterised by significant dissociative experiences. Their study demonstrated that females diagnosed with Borderline Personality Disorder (BPD) and reporting significant childhood trauma and neglect histories have also been found to experience significantly more dissociation.

Another research area which points towards a trauma-dissociation connection positively correlates the magnitude of trauma with the severity of dissociative symptoms. It was Putnam, Helmers, Horowitz, and Trickett (1995) who initially demonstrated that earlier age of onset of childhood abuse was a predictor of the levels of dissociative symptoms experienced later in life. Consistently, Van Den Bosch and colleagues (2003) demonstrated that among a group of 64 females with BPD and childhood trauma histories; sexual and physical abuse before the age of 16, multiple perpetrators, and severe maternal dysfunction were predictors of higher DES scores. The relationship between trauma severity and degree of dissociation was also demonstrated by Maercker, Beauducel, and Schützwohl (2000) in their study of former political prisoners. Again, trauma severity was found to be predictive for dissociation. Although not clearly delineating a causal relationship between the magnitude of trauma and resulting dissociation, this finding does implicate such a suggestion.

It is a common experience for not only victims of childhood abuse but also victims of later trauma to experience dissociation (Spiegel, 1991). According to Spiegel (1991), the detachment from a terrifying physical reality and the associated emotions can include depersonalisation, derealization and other alterations of perception and memory

and can lead to the later development of PTSD. It is this observed connection between dissociation in response to trauma and the later diagnosis of PTSD that has led many researchers to conduct empirical investigation of the notion that dissociation is a risk factor for poor post-trauma adjustment and development of PTSD.

Studies investigating the predisposing risk factors for later development of PTSD have found that the best predictor is dissociation close to the time of the traumatic event (Koopman, Clausen, & Spiegel, 1994; Marmar et al., 1994). This position has been widely supported by recent research findings. Elklit and Brink (2004) conducted a study using a group of individuals who were the victims of violent assault. Aims of the study were to investigate the ability of Acute Stress Disorder (ASD) and other trauma related factors to predict the later development of PTSD. The study found that 22% of the group studied met the diagnostic criteria for PTSD, and another 22% were displaying sub-clinical PTSD symptoms. It was also found that among the best predictors of PTSD was dissociation at the time of the traumatic event. Birmes and Colleagues (2001) conducted a similar prospective study of victims of assault. The victims were interviewed 24 hours following the assault to determine the presence of peritraumatic dissociation. Assessment for PTSD symptomatology was then conducted at a 3 month follow-up. The study demonstrated the predictive power of peritraumatic dissociation, with 11 of the 12 participants meeting diagnostic criteria for PTSD having reported peritraumatic dissociation soon after the event.

These studies highlight dissociation as a predisposing factor for the development of later trauma reactions such as PTSD. In the latter study, the follow-up from trauma was conducted soon after the event, therefore, the potential for forgetting details of past

emotional states has minimised. This tends to be one of the flaws in dissociation-PTSD

research often criticised by investigators (Candel & Merckelbach, 2004).

The majority of trauma and dissociation literature delineates an undeniable

connection between trauma and dissociation, and it is on this basis that assumptions of

dissociative coping have arisen. This will be discussed in the following section.

Dissociation: the process of distress management in situational crisis

The strong association between dissociation and experiences of stress and trauma

has led to the conceptualisation of dissociation as a defence mechanism to reduce the pain

and stress of a traumatic event. According to Matsakis (1994), numbing and dissociation

protect the individual from an intense emotional response which might have shattered

them during the trauma. Had this been experienced in full it would have made it difficult,

if not impossible, for them to act or think in a way to ensure their safety and survival.

Nijenhuis, Vanderlinden, and Spinhoven (1998) also proposed that dissociation evolved

as a mechanism for protection, suggesting that changes occurring during dissociation

such as numbing of pain, and narrowing of perception are necessary for survival in

situations of extreme danger. Similarly Perry, Pollard, Baker, and Vigilante (1995)

proposed that the increased vagal tone and activation of dopaminergic systems involved

in the dissociative process are an evolved adaptive response to stress and serve a

protective function.

According to Putnam (1995), the defensive functions of dissociation have four

main components; (1) automatisation, which is a redirection of conscious awareness

away from an activity and during which an individual feels no control over his or her

actions; (2) compartmentalisation, which refers to partitioning off areas of conscious

experience from each other, (3) alteration of identity, which could also isolate catastrophic psychological experiences (e.g. psychogenic amnesia, depersonalisation, out-of-body experiences, and in a more pathological presentation, DID); and (4) protection from unbearable pain, such as analgesia and anaesthesia, which are commonly reported during highly stressful events.

According to Agargun et al. (2003), individuals who fail to psychologically integrate their traumatic experience use a dissociative coping style. A study was conducted of 292 university students to examine the occurrence of dissociative experience and nightmares in groups who were, and were not, subjected to childhood trauma. The DES and Van Dream Anxiety Scale (VDAS; Aragun, Kara, & Bilici, 1999) were administered to all participants as well as questionnaires about nightmares, including information about content and frequency. It was demonstrated that individuals with trauma histories suffered significantly more nightmares and greater dream anxiety than those with no trauma history. In addition to this, individuals who suffered nightmares had significantly higher DES scores than those who did not. The DES scores were also negatively correlated with duration of nightmares in those who had childhood traumatic experiences. The authors concluded that the individuals with significant trauma histories failed to psychologically integrate their traumatic experiences and later used dissociation as a coping strategy.

There have been few empirical studies conducted which investigate the suggested role of dissociation as a strategy for coping with traumatic experience, and look specifically at peritraumatic responses. Griffin and colleagues (1997) studied a group of rape victims who were classified into high and low levels of dissociation based on results

of the Peritraumatic Dissociation Index. When the dissociation scores were compared with information obtained on reactions to the trauma and an interview to assess PTSD symptoms and peritraumatic dissociation, a different pattern of physiological arousal was found for the two groups. When assessed on their reactions to the traumatic event, individuals who reported significant levels of dissociation at the time of the trauma (as indicated by the PDI) demonstrated a decrease in peritraumatic psychophysiological arousal when compared to individuals reporting low peritraumatic dissociation. This effect was demonstrated despite continued reports from the participants of psychological distress in response to the traumatic events.

In an attempt to replicate the findings of Griffin et al. (1997), Kaufman and colleagues (2002) conducted a study of physiological responses and distress to trauma related stimuli in Vietnam combat veterans. It was hypothesised that suppressed physiological responses during exposure to such stimuli would occur as demonstrated by Griffiths et al. (1997). Participants were Vietnam veterans who all obtained high scores on the Peritraumatic Dissociative Experiences Scale. Those suffering from current PTSD were further divided into two groups on the basis of scores on the abbreviated version of the Peritraumatic Dissociative Experiences Questionnaire (aPDEQ) to form high and low dissociation groups. The study presented both standardised and idiographic trauma imagery to participants while monitoring physiologic responses. The high dissociation group reported greater PTSD-related symptomatic distress than did the low dissociation group, but the groups did not differ with respect to physiological reactivity to the trauma-related laboratory presentations.

The lack of consistency between the Griffiths et al. (1997) and Kaufman et al. (2002) studies may be due to the assessment of peritraumatic dissociation. While Griffiths et al. (1997) used the full PDEQ consisting of eight items rated on a likert scale, Kaufman created an abbreviated form of the scale consisting of assessment of the absence or presence of 4 symptoms. In fact, Kaufman et al. (2002) classified twice as many high dissociators compared to low dissociators. It may be the methods of the dissociative classification in this study were flawed. Further, in the Kaufman study decades had passed since the time of the trauma, which perhaps affected the accuracy of participant accounts. It may be that the perception of peritraumatic dissociation had become inaccurate over time and were contaminated by the presence of current dissociative symptomatology. Therefore, the study may be looking at persistent rather than peritraumatic dissociation.

Noyes and Kletti (1977) also studied responses to trauma in a non-clinical population. Questionnaire measures completed by 101 individuals who had experienced near death experiences were used to assess reactions at the time of the trauma. It was demonstrated that contrary to the Griffin and colleagues (1997) study, heightened arousal occurred, but this was accompanied by a decrease in distressing emotions at the time of the trauma. These findings seem incongruous, on the one hand suggesting a reduced psychological distress and on the other, a reduced physiological response.

More recently, Williams, Haines and Sale (2003) conducted a case study with an individual diagnosed with DID. This study utilised an imagery methodology to assess reactions to traumatic, stressful and neutral events personally reported by the individual. The study demonstrated that a reduction of psychophysiological arousal occurred in

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response to imagery of a distressing traumatic event involving dissociation and detachment, when compared to both stressful and neutral imagery. Therefore, dissociation was seen to be associated with a reduction in arousal levels. In this case, the participant's reports of psychological distress were consistent with the psychophysiological responses, indicating feelings of calm and detachment during the trauma. It was concluded that this finding may be due to the fact that the individual was highly stressed, and had a long history of dissociative experience. Thus, she may have learned that the state of dissociation is associated with feelings of calm and detachment (Williams et al., 2003). Clearly though, the state of dissociation in this case was being utilised as a coping strategy for traumatic experience.

All of these empirical findings have suggested that not only has dissociation been demonstrated to be associated with feelings of calm and detachment during a traumatic event, but also has been found to be associated with a reduction in physiological response and arousal at a time when arousal and psychological distress would be expected. In addition to these studies which have outlined dissociation as a coping mechanism, researchers have proposed dissociative coping theories to explain the development of DID.

The trauma dissociation model of dissociation

Theories of the development and maintenance of dissociative disorders have been based around the trauma dissociation model, implicating dissociation as a form of defence against overwhelming experience. The trauma model of DID states that the condition arises as a psychological strategy for coping with severe and chronic abuse and trauma (Putnam, 1995). DID is characterised by the presence of two or more distinct

identity states recurrently taking control of the person's behaviour and an inability to recall important personal information which cannot be explained by ordinary forgetfulness (APA, 2000). These identity states are thought to develop in victims of abuse as a defence to create discrete, specialised personalities to cope with different forms of abuse, contain the effects of the abuse, and to perform necessary life functions (Putnam, 1985, 1989, 1991, 1997; Ross, 1989; Spiegel, 1984). According to this view, individuals can separate traumatic memories into alternate personalities, as well as use detachment as a form of coping with pain and unpleasant emotions, for example, dissociation, trance states and amnesic states. This form of coping protects alternate personality states from painful memories and experiences, allowing the individual to function effectively by daily living, and not be disabled in trying to manage memories and painful emotions (Putnam, 1997).

As the significant majority of DID sufferers report childhood trauma, this coping strategy is thought to arise in childhood. Peterson (1991) proposed that children may block off painful memories using dissociative forms of coping to distance themselves from the trauma, for example, the child may dissociate the behaviour of the care giver, separating the abusive from the care taking behaviour, and this leads to the development of separate and distinct representations of the care giver. For the child to preserve an attachment to the care giver, the child must separate memories of care giving from those memories of abuse and, therefore, the child develops separate senses of self, one associated with the abusive and one associated with the care giving role so that these memories are separated from the memories of normal experience (Blizzard, 1997). Silberg (2000) concurred that children living in an abusive environment face a double

bind where there is a conflict between attachment to the source of the abuse and escape from threat. The child avoids this conflict by escaping to his/her inner world using dissociative coping.

This dissociative process may become a preferred pattern of response to traumatic and emotional experiences (Post, Rubinow, & Ballenger, 1984). From this process, a pattern of protective dissociations may develop, leading to the creation of newly established and increasingly distinct parts of the self, and memory segments that are unavailable to the rest of that person's consciousness (Peterson, 1991). Silberg (2000) proposed it is this process which is learnt over time and shapes the symptoms evident in later dissociative disorders and it is suggested that this occurs through a number of processes, including classical and operant conditioning, over learning, and decision making. This is perhaps an example of the most extreme form of dissociative coping style.

Therefore, if experiences of dissociation associated with DID are thought of as a form of dissociative coping, it can be proposed that dissociation in the non-clinical population is used for a similar purpose. It follows that dissociation should result in a reduction in physiological arousal (Griffin et al., 1997; Williams et al., 2003) as well as reduced anxiety and distress (Noyes & Kletti, 1977; Williams et al., 2003), and this arousal reduction provides the protective function thought as the role of dissociation.

The diathesis stress model of dissociation

An alternative view of dissociation proposes a diathesis stress model of dissociation. This theory forms its basis around the supposedly numerous similarities between the dissociative state and the state of hypnosis. Hypnosis can be defined as "a

state of intense focal concentration with a diminished perceptual awareness that is usually coupled with a high degree of relaxation" (Shader, Fredrick, & Paulker, 2003). A number of authors have highlighted the similarities between dissociation and hypnosis (Bliss, 1984; Butler et al., 1996; Janet, 1907; Putnam, 1991; Spiegel & Cardena, 1990). Much of this theory is based around the findings that individuals with a psychiatric diagnosis, which is seen to involve dissociative symptomatology, have significantly higher levels of hypnotisability when compared to other clinical groups and to non-clinical groups (Carlson & Putnam, 1989). According to Bliss (1980, 1984), the state of DID arises out of the unintentional abuse and over use of self hypnosis.

In their diathesis stress model, Butler et al. (1996) proposed that central to the experience of dissociative symptomatology is the interaction of psychological and environmental factors, the psychological factor being the capacity to dissociate, which they see as akin to hypnotisability. The environmental factors, they proposed, may either be a stress inducer such as a traumatic event or "intrapsychic distress" (pp 45). Butler and colleagues (1996) described hypnotisability as a predisposing factor or vulnerability to dissociative states under traumatic or stressful conditions. The model assumes that much like dissociation, hypnotisability is normally distributed among the population (Shader et al., 2003; Spiegel & Spiegel, 1978) occurring along a continuum from individuals who report never having experienced absorption in everyday activities and are resistant to hypnosis to those who are highly susceptible to hypnotic induction and suggestion. Butler et al. (1996) put forward that although the observed dissociative continuum may be a reflection of the resemblance of dissociative and hypnotic states, they preferred to view the dissociative continuum as a reflection of an underlying process; that is of auto-

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hypnosis. In support of this view the authors presented evidence exemplifying the similarities between states of dissociation and hypnosis across the domains of dissociation; perception, behaviour and will, affect and memory and identity.

Perceptual Domain

Changes to the perceptual domain were seen as one of the primary features of dissociative reactions, and Butler et al. (1996) viewed a number of hypnotic phenomena as parallel to this type of experience. They outlined the similar experience of sensorimotor loses, hallucinations, analgesia and experiences of depersonalization and derealisation which can occur in both dissociative and hypnotic states of consciousness. For example Butler et al. (1996) drew similarities between the traumatic flashback in which the individual is not just remembering but reliving the trauma and, seeing this as a hallucinatory state, comparing this to hallucinations occurring in visual, auditory, gustatory or tactile domains in hypnosis, occurring as either positive (perceiving stimuli that are not present) or negative (failure to perceive stimuli that are present).

Domain of Behaviour and Will

In the area of domain and will, comparisons were made between the lack of awareness of one's behaviour, the lack of control of behaviour, and the experience of one's behaviour as being externally controlled in both hypnotic and dissociative states. In the case of hypnosis, there have been well documented cases of dissociated awareness of behaviour. One such example is 'automatic writing' in which the writing occurs outside of the individual's awareness or is experienced as non-volitional (Braybrooke, 1994).

Butler and colleagues (1996) highlighted the connection between sleep and hypnotic states ('natural' vs. 'artificial' somnambulism). Janet (1907) generalised this

somnambulistic state to describe dissociative conditions in which, outside of hypnotic states, individuals act as though they are in a dream while acting out complex behaviour, and referred to this as hysterical somnambulism. Butler et al. (1996) described this in a more contemporary context as the conscious perpetual re-experience of traumatic memories and propose the behaviours are secondary to a profound state of perceptual dissociation and responses to the experiential content. Traumatic memories are often experienced as beyond volitional control and, therefore, are likened to similar experiences of loss of control in hypnotic states (Butler et al., 1996). A further example of the dissociative experience of lack of control of ones behaviour are the well documented cases of possession and trance states in which ones behaviour is experienced as lacking volitional control or under the control of a possessing agent (Cardena, 1992).

Affective Domain

In the affective domain, both dissociation and hypnosis have been seen as instrumental in the moderation of emotional responses. For example, under conditions of threat, which is often the case in traumatic experiences, dissociation invokes emotional control via dissociative states replacing fear and helplessness with feelings of calm and detachment as a way of surviving these overwhelming emotions (Silberg, 2000). Hypnosis is also a state in which affective alteration is possible, although in this case not for the purposes of dealing with overwhelming circumstances but in the removal of identifiable mood states (Butler et al., 1996). Studies have demonstrated the ability of hypnotic suggestion to induce desired mood states, for example, in a study of the effect of mood states on childhood memory recall (Kihlstrom & Hoyt, 1990) and for clinical

purposes in moderating mood while recalling past traumas (Maldonado & Spiegel, 1994; Spiegel, 1992).

Domain of Memory and identity

Memory loss is a distinguishing feature of many dissociative responses, and this is a common experience in times of trauma, for example, 'weapon focus' in which there is a focus on the weapon of an assailant but neglecting in taking in other aspects of the situation and event (Loftus, 1979). The more extreme example would be the amnesic characteristic of dissociative disorders, for example, loss of memory for personal details in dissociative fugue, amnesia for identity switches in DID (Butler et al., 1996) and amnesia for documented child abuse (Williams, 1994). Amnesia is also demonstrated to occur following hypnosis, occurring in one of two ways; suggested or spontaneous. Although spontaneous amnesia is considered quite rare and an indicator of high hypnotisability (Spiegel & Spiegel, 1978), suggested amnesia is thought to be successful in approximately one third of hypnotisable individuals (Hilgard & Cooper, 1965). It has also been suggested that individuals who meet the diagnostic criteria for a dissociative disorder are more susceptible to posthypnotic suggestion for amnesia (Frischholz, Braun, Lipman, & Sachs, 1992).

More recent corroboration of the diathesis stress perspectives comes from Bryant, Guthrie and Moulds (2001) in their investigation of the association of hypnosis and dissociation in their study of traumatised individuals who subsequently either developed acute stress disorder, subclinical acute stress disorder and no stress disorder. The study demonstrated that although the acute stress and sub-clinical acute stress disorder participants displayed similar non-dissociative psychopathology, the acute stress disorder

group had significantly higher levels of hypnotisability and were more likely to demonstrate post hypnotic amnesia than both the sub-clinical and non-clinical groups. Bryant et al. (2001) viewed the findings as a diathesis stress process mediating trauma related dissociation and proposed that those individuals who go on to develop acute stress disorder have a stronger tendency to experience dissociative symptomatology to those who do not develop the disorder.

Although the diathesis stress model of dissociation proposes that hypnotisability may be the diathesis for dissociative states, and numerous arguments are presented in support of this idea, much of the supportive literature is outdated and there is a lack of evidence presented to suggest any empirically demonstrated correlation between hypnotisability and dissociative tendency, with the proposed connection being more implicit. In fact, there is evidence to suggest that there is little relationship between dissociation and hypnotisability (Frischholz et al., 1992; Kihlstrom, Gilsky, & Anguilo, 1994). As indicated in a review by Putnam and Carlson (1998), the correlation between hypnotisability and dissociation across clinical and non-clinical samples and different hypnosis and dissociation measures is found to be weak, ranging between 0.08 and 0.27. This concurs with the findings of Frischholz et al. (1992) who found low magnitude correlations between measures of hypnotisability and dissociation, accounting for just 1-4% of the shared variance. Further, there has been no empirical evidence to suggest that childhood trauma increases hypnotisability (Putnam, 1996). Studies have demonstrated that hypnotisability measures are unable to distinguish between abused and non-abused participants (Putnam & Carlson, 1998; Putnam et al., 1995). Therefore, it appears that although numerous parallels between the two states of consciousness can be

demonstrated, there is a lack of clear empirical support of the suggestion of dissociation as an autohypnotic process.

Dissociation and stressful life events

Although it is well established that dissociation can occur not only as a trauma response, but also as a reaction to stressful life events (Coons, 1998; Martinez- Taboas & Bernel, 2000; McFarlane & DeGirolamo, 1996; Ross, 1997), little empirical research has been conducted specifically investigating the effects of dissociation in mediating responses to stressful life events. Furthermore, the majority of research into the area of stressful life events and dissociative responses has involved investigation of general dissociative propensity rather than looking more specifically at dissociative states during stressful events. An example of this is a study by Martin (1998) who investigated dissociative responses and the relationship between traumatic and non-traumatic stress in a normal population. The Life Experiences Scale (LES), Derogatis Stress Profile (Total Stress and Subjective Stress; Derogatis, 1987) as well as a measure of traumatic stress, the Life Stressor Checklist-Revised (LTS), were used to establish the degree of stress experienced across the life span. Dissociative symptoms were assessed using the DES, as well as examining in an interview different manifestations of dissociation including absorption, amnesia, and depersonalization. In conflict to previous findings, the study did not demonstrate a relationship between dissociation (DES scores) and non-traumatic stress, with the exception of Life Experience Stress (LES). LES was also significantly related to amnesic experiences, a major component of dissociation. The latter findings suggested that dissociative amnesia is used in non-clinical populations as a coping response to life stress.

This study presents conflicting results. General dissociative symptomatology was investigated using the DES and investigation was made of the prevalence of use of various dissociative symptoms such as amnesia, adsorption and depersonalisation in day to day life. It did not specifically investigate the occurrence of these dissociative experiences during a specific stressful life event. It could be argued that the investigators would find less ambiguous results and a clearer association between dissociative coping strategies and stressful life events had this been included in the investigation. Although in general, a dissociative coping style in response to stress was not found, perhaps the study was investigating another factor altogether, for example, the lack of clear results may have been due to the fact that general or persisting dissociative symptomatology is unrelated to the tendency to use a dissociative coping style in a stressful situation.

Morgan et al. (2001) again presented conflicting findings in their study of stress induced dissociation in military personnel during survival training (including stressors such as starvation, sleep deprivation, exposure to cold, psychological stress, and physical exhaustion). These results demonstrated that stress induced dissociation was extremely common among a group of otherwise psychologically well adjusted individuals. The study included investigation of the responses of Special Forces personnel as well as general infantry men to intense survival training. The Special Forces participants were shown to report fewer dissociative symptoms post-stress compared to the general infantry participants, while at the same time reporting a diminished distress response compared to the general infantry men (Morgan et al., 2001). This does not support dissociation as having an adaptive role in stress reduction during high stress as suggested in previous studies (Griffin et al., 1997; Noyes & Kletti, 1977; Williams et al., 2003). However, it

could be argued that the sample studied was not a group that can be considered representative of the general population, and that individuals prone to stress induced dissociation may be screened out in the selection process of Special Forces service men. This population may represent a group who are able to function unaffected in stressful situations. The authors also suggested that in addition, previous stressful and traumatic life experiences have inoculated this resilient group against stress (Morgan et al., 2001).

Many researchers have theorised that gambling behaviour may serve as an escape from unhappiness or distress, and that this may be the product of a dissociative process (Anderson & Brown, 1984; Dickerson, 1993; Jacobs, 1988; Walker, 1992). Therefore, it can be suggested that for problem gamblers, the gambling serves as an escape from unpleasant emotions and possibly stressful life conditions, and this is attained through a dissociative form of coping. A study by Diskin and Hodgins (2001) more specifically investigated dissociative responses during times of high stress, focusing on gambling behaviour. The study investigated occasional and problem gamblers in an attempt to replicate the findings of Brown (1996), who demonstrated that people with a gambling addiction scored more highly on an assessment of dissociation during the gambling experience as well as on the DES than those without a gambling addiction. The Diskin and Hodgins (2001) study found that although the problem and occasional gamblers did not differ on their DES scores, the problem gamblers reported significantly more dissociative experiences while gambling than did the occasional gamblers. Specifically, symptoms included loss of time and memory loss while gambling. The findings suggested that, at times of stress, individuals with a gambling addiction use an avoidance coping response which is attained through dissociation and detachment. The study

presented another interesting finding, suggesting that high dissociative capacity (as indicated by DES scores) was not related to, or predictive of, a dissociative style of coping in a gambling situation. Therefore, it could be argued that by investigating general dissociative experiences, the research is not necessarily investigating the issue of dissociative coping styles during times of stress, but something else entirely, as demonstrated by this lack of correlation between general symptoms of dissociation and dissociative experience during times of stress.

Further support for the use of dissociative styles of coping in a stress situation has been demonstrated in an investigation of the stress responses and coping strategies used by female marathon runners. Freischlag (1981) found that runners have a genetic capacity toward tolerance of the physical stress usually associated with marathon running. Physical stress tolerance was indicted by eye colour, which gives a measure of bodily neuromelanin, a natural component thought to inhibit reactivity of the nervous system. Strategies reportedly used most often by the runners to cope with physiological and psychic stress included dissociation from body functioning and substitution of thoughts concerning personal or race related issues. This finding is suggestive that detachment or dissociation from bodily sensations was used as a strategy for coping with physical and psychological stress, and was also related to a possible reduced physiological reactivity in situations involving bodily and mental stress.

Physical distress such as chronic and acute pain is a further domain in which dissociation can be viewed as a stress coping response, more specifically in the management of physical pain or pain analgesia. A number of studies have found a relationship between dissociation and physical pain (Aberibigbe et al., 2001; Fishbain,

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Cutler, Rosomoff, Rosomoff, & Steele, 2001; Pitman, van der Kolk, Orr, & Greenberg, 1990). Aberibigbe and colleagues (2001) found that respondents reporting chronic pain were three times more likely to report dissociative symptoms than those who did not. Specifically, chronic pain tripled the likelihood of experiencing depersonalisation and doubled the likelihood of experiencing derealisation. This finding may indicate that those experiencing chronic pain are more likely to experience dissociative symptoms as a mechanism for pain reduction or as a means of detachment from physical symptomatology.

Self injurious behaviour (SIB) is defined as self inflicted moderate damage to the body surface, such as cutting, carving, and burning the skin (Coid, Allolio, & Rees, 1983; Simpson & Porter, 1981). A study by Claes, Vandereycken and Vertommen (2001) investigated SIB in eating disorder sufferers, including an investigation of experiences of pain while mutilating, and associated dissociative experiences. The study demonstrated that 38.9% of the scratching patients, 16.7% of the self-bruising patients, and 33% of the cutting patients do not feel physical pain while injuring themselves. Further, the patients who did not experience pain during SIB demonstrated systematically higher levels of dissociation than those experiencing pain, as measured by the Dissociation Questionnaire (DIS-Q; Vanderlinden et al., 1993). This finding was significant only for those who cut, excluding other forms of self harm (Claes et al., 2001). Scores on dissociation for individuals engaging in other forms of self harm were also higher for those who experienced no pain when compared to those who experienced pain during SIB, however, not significantly so. Consistent with these findings, it has been demonstrated that a

dissociative tendency in children is related to pain tolerance (Orbach, Mikulincer, King, Cohen, & Stein, 1997).

Noll, Horowitz, Bonanno, Trickett, and Putnam (2003) also suggested that self-harm in female physical and sexual assault victims is positively correlated with both peritraumatic and pathological dissociation in those with significant trauma and childhood sexual abuse histories compared to those with no childhood trauma history and comparison non-abused females. This suggested that those with trauma histories may have developed dissociative coping strategies and, therefore, are more likely to self harm. It is possible they are able to dissociate from the pain experienced during self harm.

Orbach (1994) proposed that some suicidal individuals have a predisposition towards dissociation manifested as a relative insensitivity to pain and indifference to their own body. He further suggested that certain psychological variables influence tolerance to pain, including perception, motivation, emotions and behavioural and cognitive strategies of pain control. Such factors are said to interact in order to make the act of suicide possible by increasing pain tolerance. Orbach (1994) claimed that previous research and theory into pain and suicide indicates that early and continuous stress leads to the development of dissociative tendencies including indifference to pain and the body, and this can increase risk of engaging in suicidal behaviour.

In support of this idea Reimer, Gotze, and Dahme (1981), in their study of suicidal behaviour, found that those suicide attempters who engaged in violent methods reported far less sensitivity to pain than those who used non-violent methods. Van den Kolk and Herman (1993) further studied self harm and attempted suicide, and demonstrated that physical and sexual abuse as well as parental separation and neglect

were strongly related to dissociation, self cutting and suicide in adults. They suggested that dissociation brings about a protective detachment to overwhelming emotions and events but in addition, brings about pain analgesia and detachment from oneself.

Therefore, it seems that early life stress or trauma can bring about dissociative coping tendencies which can increase the ability to tolerate physical pain (i.e., dissociation allows elevated coping response to physical stress). The fact that the individual is engaging in suicidal and self harming behaviours suggests that although there is an increase tolerance to physical pain, there is no consistent increase in coping with psychological pain, however, stress is likely to be chronic and lasting and in the case of suicidality is likely to co-exist with helplessness and hopelessness and a general narrowing of options.

Likewise Pitman and colleagues (1990) studied pain responses in a population of Vietnam War veterans suffering PTSD. It was found that in comparison to a group of participants from the general population, Vietnam veteran's demonstrated 30% reduction in pain responses to heat stimulation following the presentation of combat videos. This decrease was no longer observable following administration of Naloxone, an opioid antagonist. It could be suggested that following the presentation of combat footage, the war veterans experienced a trauma response (and, therefore, dissociated) which resulted in the production of endogenous opioids with resultant stress induced analgesia which was reversed by opiod antagonism (Naloexene). Therefore, opiod analgesia may be a component of an acute dissociative response (Cardena & Spiegel, 1993). Duckworth, Iezzi, Archibald, Haertlein, and Klinck, (2000) concurred in their study of chronic pain in which patients with chronic pain reported more frequent dissociation than did normal

adults and persons diagnosed with alcohol use disorders, specific phobias, and agoraphobic avoidance.

Collectively, these findings may indicate that dissociation acts as an "anaesthesia" for the numbing of pain as well as bodily detachment or indifference to one's body. Therefore, not only can dissociative coping be viewed as a means of managing affective state, physiological arousal and memories of the traumatic event, but as a means of managing physical symptomatology as well.

In summary, it seems that there is a lack of conclusive empirical evidence on the use of dissociation during stressful life events in the management of psychological pain, and there is a clear need to look more closely at this relationship to more definitively investigate the role of dissociation as a stress response. As discussed previously, many researchers have proposed that peritraumatic dissociation serves a protective role during a trauma, allowing the trauma victim to dissociate from overwhelming events and continue to function in an effective manner (Agargun et al., 2003; Griffin et al., 1997; Matsakis, 1994; Nijenhuis et al., 1998; Putnam, 1995; Williams et al., 2003). Although this is the stance of many researchers, other research has pointed towards dissociation being a maladaptive response to trauma which has been linked to the development of post trauma psychopathology such as PTSD (Birmes et al., 2001; Elkhit & Brink, 2004; Koopman et al., 1994; Marmar et al., 1994).

In an attempt to clarify this issue, Panasetis and Bryant (2003) conducted a study of both peritraumatic and persistent dissociation following trauma, as indicated by the Peritraumatic Dissociative Experiences Questionnaire, (PDEQ; Marmar, Weiss, & Metzler, 1997), which indexes peritraumatic dissociation during the event and

dissociation at the time of the assessment. The relationship between peritraumatic and persisting dissociation and the later development of Acute Stress Disorder was studied. The study demonstrated that persistent rather than peri-traumatic dissociation was related to Acute Stress Disorder severity and intrusive symptoms, implying that it is not the dissociation that occurs during the course of a traumatic event, but dissociation that persists following the event that predicts the development of psychopathologies such as Acute Stress Disorder and PTSD. Therefore, findings of previous research indicating that peritraumatic dissociation is a maladaptive trauma response and leads to posttraumtic stress (Birmes et al., 2001; Elkhit & Brink, 2004; Koopman et al., 1994; Marmar et al., 1994) may be misleading and, perhaps, are the result of a lack of distinction between peritraumatic dissociation and dissociation persisting after a traumatic event (Panasetis & Bryant, 2003). This may change the views on the role of peritraumatic dissociation and post trauma interventions.

Others have also proposed that peritraumatic dissociation does not necessarily serve a maladaptive function (Horowitz, 1986). Ongoing dissociation may be more important in the development of posttraumatic stress psychopathology as it impedes access to and resolution of traumatic memories (Foa & Herst-Okeda, 1996; Putnam, 1993). Therefore, over use of dissociative coping styles have became maladaptive and leads to the development of psychopathology. Given that, in a trauma situation, dissociation can be viewed as a adaptive coping response to allow individuals to continue normal functioning in the face of traumatising events and possibly life threatening danger, it is reasonable to assume that dissociation may serve a similar role in response to life stressors, that is, dissociation may allow individuals to cope with life stress so as to

allow them to continue with day to day life as effectively as possible. It is then the overuse of the coping style that may become maladaptive. If dissociation can be viewed in this way, as a generalised coping strategy for dealing with high situational stress, and can be considered to be distinct from dissociative styles persisting beyond situational stress (i.e., persisting or generalised dissociation), the label of *peritraumatic* dissociation may be somewhat misleading. Further empirical investigation of these issues may lead to the development of a re-conceptualisation of peritraumatic dissociation as a more generalised response to high stress, rather than specifically as a trauma response.

Conclusion

In conclusion, it appears that dissociation is a continuum of experience which occurs in both clinical and non-clinical populations. The vast amount of research into the connection of dissociation and previous traumatic experience has suggested that there is a causal link between theses two factors, and many theories of dissociation have been modelled around this idea, with theorists proposing that dissociation acts as a protective factor for dealing with traumatic events. The high percentage of individuals suffering from DID who have significant trauma histories has also lead many theorists to suggest that dissociation serves to protect the individual from painful and traumatic events and memories, and that this becomes a pathological and preferred coping style, for example, identity switching in response to stress among sufferers of DID.

Alternative theories have suggested that dissociation is a process of autohypnosis in which an individual who has a greater propensity to dissociate (which is seen to be equivalent to high hypnotisability) will be more likely to do so at times of trauma and stress. This theory seems flawed, as there is much evidence to suggest little correlation

between dissociative symptomatology and hypnotic susceptibility, as well as childhood trauma experience and hypnotisability.

Although some preliminary research has been conducted investigating the suggested role of dissociation as a process of distress management in situational crisis, which implicates dissociation in psychological and psychophysiological arousal reduction, the empirical support seems to be somewhat lacking in volume, and little research has been conducted on the relationship between stressful life events and dissociative coping styles.. Therefore, the evidence is largely based on dissociation theory derived from the clear connection between dissociation and trauma. Consequently, although the trauma-dissociation theories have been well researched and theoretically grounded, further empirical investigation into the proposition of distress management is needed so that the role of dissociation in trauma and stress experiences can be more fully understood.

The relationship between dissociative experiences and stressful life events has been somewhat neglected as an area of research, and some research findings have been conflicting and inconclusive. Although some investigations have found a relationship between non-traumatic stress and dissociative experience, others have found this relationship to be unclear. Little research has been conducted into dissociative responses at the time of a stressful event, preferring instead to investigate general dissociative capacity. However, when the distinction between stress specific versus generalised experiences of dissociation is made, there have been found to be dissociative coping styles in use during stressful life events and in addition, this has been shown to have little relationship to general dissociative capacity. Studies investigating the experience of

chronic pain and self-injurious behaviour have also found there to be a connection with experiences of dissociation. These findings have been viewed in a manner consistent with the major theories of dissociation, with dissociation serving a protective function, which in this case is physical pain analgesia.

It has been suggested that peritraumatic dissociation can be considered as a coping response to extreme stress. However, with some evidence pointing towards dissociative coping styles in operation during more minor life stressors, it could be suggested that *peritraumatic* dissociation is mislabelled, and can be considered as a more generalised response to stress.

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Empirical Report

Dissociation: The Process of Distress Management

in Situational Crisis

Abstract

Consistently in the literature a relationship has been found to exist between dissociative symptoms and traumatic experience (Putnam, 1995), with dissociation being found to occur frequently in the non-clinical population (Bernstein & Putnam, 1986). The trauma-dissociation link has led researchers to propose that dissociation serves a protective role, with some research demonstrating reduced distress and arousal during trauma when dissociation occurs (Kluft, 1984). This study attempted to provide some empirical support for this proposition, and proposes that distress management is based on peritraumatic dissociation rather than general dissociative symptomatology. A four stage guided imagery methodology with traumatic, stressful and neutral events was used to explore the psychophysiological and psychological responses to trauma and dissociation. Participants included 27 undergraduate students. Analysis one divided participants into high and low propensity to dissociative groups. No group differences or reductions in arousal or distress during times of stress were observed. Analysis two divided the groups on the basis of experience of peritraumatic dissociation during trauma. Results demonstrated differences in levels of unreality in response to both stress and trauma only, with no corresponding distress reduction. It is concluded that dissociative capacity is not significantly related to dissociative response to high stress, and that peritraumatic dissociation may be better viewed as a general stress response. Further research is warranted to further investigate the role of dissociation during times of stress.

The Diagnostic and Statistical Manual for Mental Disorders (DSM IV) defines dissociation as a disruption to the normally integrated functions of consciousness, memory, identity, or perception of the environment (American Psychiatric Association, [APA] 2000). The essential feature of dissociation is that information is available but may not be accessible or linked to other relevant information in the way normally expected (Putnam, 1996). Most definitions of dissociation have outlined a set of common dissociative experiences which have been supported by much empirical research. These have included functional amnesia for complex behaviours, extreme depersonalisation or derealisation, experiences of intense absorption and enthrallment, experiences of identity alteration, and feelings of being possessed, or passive influence phenomena (Putnam, 1996). Therefore, dissociation involves changes in bodily, mental, behavioural and emotional perceptions (Putnam, 1989).

Dissociation can range in severity and frequency from experiences of daydreaming, absorption, meditative states and hypnosis to amnesia for complex behaviour and identity alteration which is considered to be more pathological dissociation (Gleaves, Williams, Harrison, & Cororve, 2000) that is characteristic of DSM IV dissociative disorders, such as Dissociative Identity Disorder (DID; APA, 2000). Derealisation and depersonalisation are common dissociative experiences. Spiegel (1991) explained these experiences as a detachment from, or alteration in, the experience of the physical environment (derealisation) or the self (depersonalisation). Derealisation and depersonalisation experiences can include, for example, feelings of unreality, altered passage of time, automatic movement, lack of emotional response, and feelings of detachment or distance from the body (Kluft, 1996).

It has been proposed that dissociative experiences represent a continuum of experience, with normal experiences such as day dreaming and absorption at one end of the spectrum, through to pathological dissociation including identity alteration at the other (Bernstein & Putnam, 1986; Butler, 2004; Ross, 1999; Silberg, 2000; Stout, 2001). This view is contrary to the idea held by some researchers that these two extremes represent discreet symptomatology (Putnam, Carlson, Ross, & Anderson, 1996; Waller, Putnam, & Carlson, 1996). Evidence for a continuum of dissociative experiences comes from a number of studies (Butler, 2004; Bernstein & Putnam, 1996; Ross, 1999; Silberg, 2000; Stout, 2001). Bernstein and Putnam (1986) conducted a study utilising the Dissociative Experiences Scale (DES), a questionnaire designed to investigate dissociative symptomatology, which demonstrated a steady increase in dissociative experiences in the normal population through to various clinical populations including, agoraphobia, phobic-anxious disorders, posttraumatic stress disorder (PTSD), schizophrenia and DID. Furthermore, the Bernstein and Putnam (1996) study demonstrated that, in the normal population, DES scores yielded a normal distribution suggesting that not only does dissociation occur in the normal population (Kihlstrom, Gilsky, & Angiulo, 1994; Ray, 1996; Ross, Joshi, & Currie, 1990), but some individuals have a greater propensity to dissociate than others. This is supported by the findings of Kluft (1984).

It is well established in the literature that dissociation occurs not only as a manifestation of psychopathology, but in response to trauma in the non-clinical population (McFarlane & Girolamo, 1996; Ross, 1997; Spiegel, 1991). According to Spiegel (1991), traumatic experiences such as rape, natural disaster, or combat can be

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understood as a sudden and extreme discontinuity in a person's experience. Therefore, reactions to trauma incorporate discontinuities of experience such as dissociation. Further, evidence has suggested that, not only does dissociation occur in response to trauma in the non-clinical population, but is also a relatively common stress response occurring as a reaction to more minor life stressors (Aderibigbe et al., 2001; Ross, Joshi, & Currie, 1990). According to Coons (1998), depersonalisation is the third most common psychological symptom after depression and anxiety and is experienced by at least half of the adult population at one time or another in response to stress or trauma. Aberibigbe and colleagues (2001) studied the dissociative experiences of a US rural population. The study, using a random sample of 1,008 participants, demonstrated that 19.1% of the participants experienced depersonalisation, 14.4% experienced derealisation, and 23.4% experienced either form of dissociation in the past year. Therefore, it seems dissociation is relatively common and normally distributed in the general population, and can occur in response to traumatic or stressful life events.

For the purposes of delineating the differences between a traumatic versus a stressful experience it should be noted that; the DSM IV defines a traumatic experience as an event in which the physical integrity of the self or others is threatened or perceived to be threatened in some way, and in which the response includes intense fear, hopelessness and horror (APA, 2000). On the other hand a stressful experience can include minor annoyances through to major life pressures, for example, divorce or a major change in occupational conditions (Davis, Eshelman, & McKay, 1988). So, dissociative response to traumatic and stressful experiences may differ in terms of

everity of dissociation, or where on the dissociative continuum the symptom is seen to fall (Putnam, 1999).

The relationship between traumatic experience and dissociation is well grounded in empirical research, and is based around four main areas of research (Putnam, 1995). These include (1) studies of the trauma histories of DID sufferers, (2) studies comparing the levels of dissociation in traumatised groups compared to non-traumatised individuals, (3) studies which have positively correlated the magnitude of trauma with the severity of dissociative symptoms, and finally (4) studies which have consistently found links with dissociation and the subsequent development of PTSD.

The trauma histories of individuals diagnosed with DID and other psychopathologies characterised by a significant experience of dissociation have been well researched (Birnbaum & Thomann, 1996; Doharty, Lewis, Miller, & Gee, 2003; Putnam, 1996; Van Den Bosch, Verheul, Langeland, & Van Den Brink, 2003). Putnam, Guroff, Silberman, Barban and Post (1986) conducted a study of one hundred DID sufferers, and found reported childhood abuse to be as high as 97% of cases. Similarly, Coons, Bowman and Milstein (1988) have found that 85% of adults diagnosed with some form of dissociative disorder experienced some form of childhood trauma among. Therefore, it could be suggested that the prominent experience of individuals subjected to child abuse and trauma is dissociation to a pathological degree.

Further empirical evidence is suggestive of significant dissociative symptomatology following trauma in the non-clinical population. Dissociation has been connected to childhood sexual abuse histories (Malinosky, Rummel, & Hoier, 1991; Ogawa, Scroufe, Carlson, & Engelfield, 1997), physical abuse (Altas, Weissman, &

Leibowitz, 1997; Coons, 1994), and parental inconsistencies and rejection (Mann & Sanders, 1994). Dalenberg and Palesh (2003) conducted a study of Russian university students and found that the best predictive factors for dissociative symptoms were violent histories, child abuse and the experience of some sort of fearful event. Furthermore, it has been demonstrated that due to the clear relationship between abuse histories and dissociation, groups of traumatised and non-traumatised individuals can actually be differentiated on the basis of dissociative experiences. This has been found to be the case in a group of sexually and non-sexually abuse adolescents (Freidrick, Jaraworski, Huxsahl, & Bengston, 1997), and Latino university students with abuse histories (Martinez-Taboas & Bernal, 2000). In both cases, those with abuse histories were characterised by a significantly greater amount of dissociative experience as indicated by DES scores (Bernstein & Putnam, 1986). This is consistent with Silberg's (2000) view that children subjected to traumatic experiences are similar to one another in terms of their difficulties with memory, establishing identity, observation of trance states and other dissociative characteristics.

Correlations between the severity of trauma and degree of dissociation have provided further support for the trauma dissociation link. A number of studies investigating factors thought to contribute to the severity of trauma have been demonstrated to result in more dissociative symptoms (Putnam, Helmers, & Horowitz, 1995), including abuse before the age of 16, multiple perpetrators, severe maternal dysfunction (Van Den Bosch et al., 2003), and trauma severity as assessed by the Persecution and Maltreatment Checklist, a scale devised to determine threat to one's life (Maercker, Beauducel, & Schützwohl, 2000).

The final area of research highlighting the relationship between trauma and dissociation has demonstrated the connection between peritraumatic dissociation and the later development of PTSD (Koopman, Clausen, & Spiegel, 1994, Marmar et al., 1994). Prospective studies of the development of PTSD following traumatic events have demonstrated that the most accurate predictor for PTSD diagnosis is dissociation at the time of the event (Birmes et al., 2001; Elkhit & Brink, 2004). These studies have suggested that dissociation may be a risk factor for poor posttraumatic adjustment and possible psychopathology.

The trauma dissociation relationship and consistent findings of trauma histories in individuals diagnosed with DID have lead to theorist conceptualising the disorder as a trauma response. It is suggested that DID is an extreme form of defence against overwhelming trauma, in which specialised personalities are created to cope with different forms of abuse and perform necessary life functions (Putnam, 1985, 1989, 1991, 1997; Ross, 1989; Spiegel, 1984). This theory has posited that individuals can separate traumatic memories into alternate personality states as well as use detachment as a form of coping with pain and unpleasant emotions, for example trance and amnesic states. This can protect alternate identity states from painful memories and experiences (Blizzard, 1997).

The development of this dissociative coping is thought to arise in childhood, where the child in an abusive environment faces a double bind where conflict exists between attachment to the source of the abuse and escape from threat. This conflict is escaped through dissociative coping and splitting or subdivision of self into separate and distinct identity states which later in life manifests as DID, as this becomes a learned

coping response (Blizzard, 1997; Peterson, 1991; Silberg, 2000). This is perhaps the most extreme example of dissociation used as a coping strategy, and one which is possibly also operating among non-clinical dissociators.

In support of the view that dissociation is a strategy for coping with trauma, studies have found that individuals experience a reduction in psychophysiological arousal in response to dissociative experiences, and have focused on peritraumatic dissociative responses in addition to emotional and physical reactions at the time of the trauma (Griffin, Resick, & Mechanic, 1997; Noyes & Kletti, 1977; Williams, Haines & Sale, 2003). At this point it is important to highlight the difference between dissociative capacity and peritraumatic dissociation. The tendency to dissociate, as indicated by general levels of dissociative symptomatology (measured by the DES), can be distinguished from peritraumatic dissociation which refers specifically to experiences of dissociation that occur at the time of a traumatic event. Peritraumatic dissociation can include disorientation, numbness, alteration in the sense of time, feelings of unreality and a lack of control or sense of automatic response in one's behaviour (Griffin et al., 1997).

Griffin and colleagues (1997) classified participants who had been the victim of rape into high and low levels of peritraumatic dissociation based on results of the Peritraumatic Dissociation Index (PDI). When these scores were compared to information obtained on physiological and psychological reactions to the trauma, a different pattern of physiological arousal was found for the two groups. Individuals with high peritraumatic dissociation showed a decrease in psychophysiological arousal during the event when compared to the low peritraumatic dissociative group, despite continued reports of psychological distress. Noyes and Kletti (1977) also studied responses to

trauma in a non-clinical population. In this case, questionnaire measures completed by individuals who had endured near death experiences reflected heightened arousal, accompanied by a decrease in distressing emotions at the time of the trauma and feelings of calm and detachment.

More recently, Williams et al. (2003) conducted a case study on the dissociative reactions of an individual diagnosed with DID. This study demonstrated that a reduction of psychophysiological arousal occurred in response to imagery of a distressing traumatic event involving dissociation and detachment, when compared to both stressful and neutral imagery. Therefore, dissociation was seen to be associated with a reduction in arousal levels. In this case, the participant's reports of psychological distress were also consistent with the psychophysiological response indicating feelings of calm and detachment during the trauma. It was concluded that this finding may be due to the fact that the individual was highly stressed, and had a long history of dissociative experience. Thus, she may have learned that the state of dissociation is associated with feelings of calm and detachment (Williams et al., 2003). The studies outlined above have suggested that peritraumatic dissociation is the important factor when predicting management of distress reactions to traumatic crisis.

The diathesis stress model of dissociation puts forward an alternate view of dissociation. The basis of this model is in the numerous parallels between experiences of dissociation and hypnosis (Butler et al., 1996), and the higher hypnotisability which has been found in individuals diagnosed with psychopathologies characterised by dissociative symptomatology, including DID (Frischholz, Braun, Lipman, & Sachs, 1992; Frischholz, Lipman, Braun, & Sachs, 1992) and PTSD (Carlson & Putnam, 1989). Butler et al.

(1996) proposed that hypnotic susceptibility is the predisposing factor to dissociative states in response to traumatic or stressful environmental factors, and is a state of auto-hypnosis. In support of the model, Butler et al. (1996) highlighted the similarities of the two states across the domains of dissociation, including, perception (depersonalisation and derealisation and similar experiences common to hypnosis), behaviour and will (lack of awareness or control of behaviour during trauma and experiences such as 'automatic writing' in hypnosis), affect (moderation of emotional response to trauma such as calm and detachment and affective alteration demonstrated in hypnosis), and memory and identity (amnesia for childhood trauma and suggested or spontaneous amnesia in hypnosis).

Although the model proposes a number of parallels between dissociation and hypnosis, much of the research on which Butler et al. (1996) based their theory is outdated. More importantly, a number of studies have suggested that there is a significant lack of support for a connection between hypnotisability and dissociation (Frischolz, 1992; Kihlstrom, Gilsky, & Anguilo, 1994; Putnam & Carlson, 1998) or childhood trauma (Putnam, 1996; Putnam & Carlson, 1998; Putnam et al., 1995). As indicated by Putnam and Carlson (1998), the overwhelming majority of studies investigating the hypnosis-dissociation relationship have found only weak connections between the two states of consciousness across clinical and non-clinical populations, with correlations ranging between 0.08 and 0.27. Putnam (1996) further argued that there is no evidence to suggest greater hypnotic susceptibility in individuals with child abuse histories, and studies are unable to distinguish abused and non-abused individuals on the basis of hypnotisability measures (Putnam & Carlson, 1998; Putnam et al., 1995). It is the lack of

clear empirical support that contradicts the theory of dissociation as an auto-hypnotic process, in preference indicting the trauma-dissociation model.

Although the majority of research has suggested dissociative experiences can be elicited at times of life stress and are not limited to trauma (Coons, 1998; Martinez-Taboas & Bernel, 2000; McFarlane & DeGirolamo, 1996; Ross, 1997), limited research has been conducted specifically investigating dissociative responses to stressful life events. Further, the research conducted has resulted in inconsistent conclusions. In an investigation of non-traumatic versus traumatic life stress, Martin (1998) found only partial support for the connection of dissociation and the occurrence of non-traumatic life stress in a non-clinical population. This study investigated general levels of dissociative symptomatology rather than dissociation occurring at the time life stress. It could be argued that the study would have found more consistent support for dissociation as a coping response had it focused on dissociative symptomatology occurring at the time of a stressful event.

As indicated in a study by Diskin and Hodgins (2001), general dissociative tendencies are not necessarily related to an individual's experience of dissociation during stressful events. Based on the premise that gambling behaviour may serve as an escape from unhappiness or distress, and that this may be the product of a dissociative process (Anderson & Brown, 1984; Dickerson, 1993; Jacobs, 1988; Walker, 1992), the study investigated dissociation and gambling behaviour. It was found that while problem gamblers reported greater levels of dissociation during gambling behaviour compared to occasional gamblers (specifically, loss of time and memory loss), the two groups did not differ in their scores on the DES indicating general dissociative symptomatology.

Therefore, general dissociative capacity was not related to or predictive of dissociation at the time of the stressful event.

As discussed previously, many researchers have proposed that peritraumatic dissociation serves a protective role during a trauma, allowing the trauma victim to dissociate from overwhelming events (Agargun et al., 2003; Griffin et al., 1997; Matsakis, 1994; Nijenhuis et al., 1998; Putnam, 1995; Williams et al., 2003). Although this is the stance of many researchers, other research has pointed towards dissociation as a maladaptive response to trauma which has been linked to the development of posttraumatic stress psychopathology such as PTSD (Birmes et al., 2001; Elkhit & Brink, 2004; Koopman et al., 1994; Marmar et al., 1994). In an attempt to clarify this issue, Panasetis and Bryant (2003) conducted a study of both peritraumatic and persistent dissociation following trauma, as indicated by the Peritraumatic Dissociative Experiences Questionnaire, (PDEQ; Marmar, Weiss, & Metzler, 1997). The relationship between peritraumatic and persisting dissociation with the later development of ASD was studied. It was found that persistent rather than peritraumatic dissociation was related to ASD severity and intrusive symptoms. This implies that it is not the dissociation that occurs during the course of a traumatic event, but dissociation that persists following the event that predicts the development of psychopathologies such as ASD and PTSD.

Therefore, findings of previous research indicating that peritraumatic dissociation is a maladaptive trauma response and leads to posttraumatic stress symptomatology (Birmes et al., 2001; Elkhit & Brink, 2004; Koopman et al., 1994; Marmar et al., 1994) may be misleading and is perhaps derived from a lack of distinction between peritraumatic dissociation and dissociation persisting after a traumatic event (Panasetis &

Bryant, 2003). This may change existing views on the role of peritraumatic dissociation and posttraumatic interventions. Others have also proposed that peritraumatic dissociation does not necessarily serve a maladaptive function (Horowitz, 1986).

Therefore, ongoing dissociation may be more important in the development of posttraumatic stress psychopathology as it impedes access to and resolution of traumatic memories (Foa & Herst-Okeda, 1996; Putnam, 1993). Given that in a trauma situation dissociation can be viewed as an adaptive coping response to allow individuals to continue normal functioning in the face of traumatising events and possibly life threatening danger, it is reasonable to assume that dissociation may serve a similar role in response to life stressors. Therefore, dissociation may allow individuals to cope with life stress so as to allow them to continue functioning as effectively as possible. It is then the overuse of the coping style that may become maladaptive. If dissociation can be viewed in this way, as a generalised coping strategy for dealing with high situational stress, and can be considered to be distinct from dissociative styles persisting beyond situational stress (i.e., persisting or generalised dissociation), the label of peri-*traumatic* dissociation may be somewhat misleading. Further empirical investigation of these issues may lead to the development of a reconceptualisation of peritraumatic dissociation as a more generalised response to high stress, rather than specifically as a trauma response.

In further support of the role of dissociation as a defence strategy during times of life stress, studies have implicated dissociation in the reduction of physical pain. One such study has suggested that individuals who do not experience pain during self injurious behaviours have significantly higher scores on dissociation questionnaires (Claes, Vandereyken, & Vertommen, 2001). Aberibigbe et al. (2001) also found that

individuals suffering from chronic pain were three times more likely to experience depersonalisation and twice as likely to experience derealisation. These findings indicated that dissociation may serve as a form of pain analgesia during a time of stress and physical pain.

In conclusion, although there is a widely held opinion that dissociation acts as a form of coping strategy, the experience of dissociation and its role as a defence strategy among the non-clinical populations is somewhat lacking in empirical research and support (Martinez-Taboas & Bernal, 2000). If dissociation can be viewed as a pathological coping mechanism for dealing with stress in dissociative disorders, it may be this same coping process is operating in the non-clinical population, with dissociation resulting in a significant reduction in both psychophysiological arousal and psychological distress occurring in response to not only traumatic but also stressful events. From previous empirical findings which have investigated the coping role of dissociation on the basis of the experience of dissociation during the traumatic event, it appears that dissociation used as distress management is occurring in those who experience peritraumatic dissociation or dissociation during traumatic events (Griffin et al., 1997; Williams et al., 2003) as compared to a more general capacity to dissociate as is implied in the auto-hypnotic theory of dissociation (Butler et al., 1996).

The current study aims to use a four stage guided imagery methodology to investigate these issues by replicating and extending the findings of Williams et al. (2003) using an experimental design within a non-clinical population. Guided imagery has been demonstrated by a number of studies to provide an accurate representation of responses that reproduce those occurring at the time of the event (Brain, Haines &

Williams, 1998; Haines, Josephs, Williams & Wells, 1999; Pitman et al., 2001; Shin et al., 2000). Imagery has been successfully used in previous trauma research, and has been found to provide instant access to a trauma situation and associated emotional states for the purposes of investigating responses to such events (Leviton & Leviton, 2004; Peace & Porter, 2004; Williams et al., 2003). Presenting the imagery of the event in stages allows investigation of the development of responses such as dissociation (Bain et al., 1998; Haines et al., 1999; Wells, Haines, Williams, & Brain, 1999) and can then be more specifically related to the responses observed. Observing dissociative responses during the event as a whole rather than the changes in dissociative experience throughout the event, as four stage guided imagery allows, may result in insignificant results as effects are overlooked.

The first analysis will divide groups on the basis of dissociative capacity (from scores on the Questionnaire of Experiences of Dissociation, Riley, 1988), and the second analysis will divide groups on the basis of reported levels of unreality (VAS rating) at the incident stage of the traumatic event. This will be the basis for classifying participants into high and low peritraumatic dissociation groups. The VAS unreality rating will be used to determine high and low peritraumatic dissociation rather than scores on the PDI (Griffin et al., 1997) because, although the PDI was designed to measure dissociative response to traumatic events, the questionnaire does not provide a definition of the length or nature of the event. Therefore, the nature of the dissociation the PDI describes is unclear. Peritraumatic dissociation is defined as the dissociation occurring at the time of the event, however it may be that peritraumatic dissociation serving a protective function occurs only at the time of the actual event. So, measurement of peritraumatic dissociation

using the PDI (Griffin et al., 1997) may result in unclear findings due to the fact that the scale is measuring dissociation occurring during and after the event (dealing with police, being treated by paramedics, etc.) and so any indication that dissociation provides a means of protection from the enormity of the event may be masked, as the scale may also be measuring, in part, a posttraumatic response. In fact, the Peritraumatic Dissociative Experiences Questionnaire, (PDEQ; Marmar, Weiss, & Metzler, 1997) later modified to create the PDI (Griffin et al., 1997) has been used to study persisting dissociation following trauma (Panasetis & Bryant, 2003). It could be argued that for a true measure of peritraumatic dissociation, it is necessary to use information about peritraumatic dissociation only at the time of the actual event and not the aftermath.

If dissociative capacity predicts responses to traumatic events, it would be expected that differences between individuals with high and low dissociative capacity would be evident, with those having high dissociative capacity experiencing greater dissociation during traumatic events. In addition to this it would be expected that differences in responses to traumatic and stressful events would be demonstrated, with dissociation occurring during traumatic versus stressful events. It would be expected that a corresponding decrease in psychological distress and psychophysiological arousal will be evident during dissociative experiences.

If dissociative capacity predicts a more generalised stress response, results will demonstrate differences between groups scoring high and low on measures of dissociative tendency in their pattern of response to events, but no significant differences within groups in responses to stressful and traumatic events. In the case that there are no significant differences between groups or responses to events, it could be concluded that

dissociative tendencies are unrelated to responses occurring at the time of stress and trauma. In this case it would be expected that similarities between neutral, traumatic and stressful events be seen.

With regard to peritraumatic dissociation, if this is specifically a trauma response, it would be expected that differences between groups of participants experiencing high and low levels of peritraumatic dissociation at the incident stage of the event are evident and, in addition, differences in responses to traumatic and stressful events. Individuals with high levels of peritraumatic dissociation would be expected to experience reduced arousal and distress during a traumatic incident as compared to those experiencing low levels of peritraumatic dissociation, and additionally, the pattern of response to stressful events would differ significantly. If peritraumatic dissociation can, in fact, be viewed as a more generalised stress response, it would be expected that results will demonstrate between group differences, but no significant differences between responses to stressful and traumatic events. Therefore, individuals experiencing high peritraumatic dissociation would demonstrate decrease distress and arousal to both trauma and stress events when compared to low peritraumatic dissociators. It would be expected that any reductions in distress due to dissociative detachment would be most evident at the incident stage of the trauma containing the most distressing imagery. If peritraumatic dissociation is unrelated to trauma and stress response, it would be expected that results would be insignificant, demonstrating no differences in responses between groups and events.

Method

Participants

Participants included a total of 27 University of Tasmania undergraduate

psychology students who participated to fulfilling a first year course requirement.

Participants were selected from 134 undergraduates on the basis of results of the QED

(Riley, 1988) (See Appendix A). A maximum dissociation score of 26 could be obtained.

On the basis of this screening, the participants were identified as belonging to one of two

groups, a high propensity to dissociate and a low propensity to dissociate group with

QED scores of >13 and <8 respectively. Participants with the top and bottom 25% of

scores on the QED were selected. There were 3 males and 9 females in the high

propensity to dissociate group and 3 males and 10 females in the low propensity to

dissociate group.

An information sheet was given to all participants and written informed consent

was obtained (See Appendix B). All data were stored under participant number at the

University of Tasmania.

Materials

Interviews and Questionnaires

The Structured Clinical Interview for DSMIV Dissociative Disorders (SCID-D;

Steinberg, 1995) describes symptoms relating to dissociative disorders and was used to

measure psychological states of participants prior to testing and as a screen for

dissociative disorders.

Visual Analogue Scales (VAS) (McCormack, de Horne, & Sheather, 1988) were

used for a subjective measure of psychological state. VASs represent a continuum of

subjective scores from adults diagnosed with some form of dissociative disorder1 to 100

on bipolar dimensions (eg, anxious/not anxious), with a higher score indicating a more

negative experience. Visual analogue scales included were real-unreal, anxious-not

anxious, distressed-not distressed, fearful-not fearful, and calm-not calm. The accuracy

of script content and vividness of imagery for each stage of each script were also assessed

using VASs (See Appendix C).

The Daily Hassle Scale (DeLongis et al., 1982) was used as a control measure for

the participant choices of minor stressors which could include, for example, a change in

employment. It has been demonstrated that the reliability measures for the Daily Hassles

Scale show high consistency, with Cronbach's alpha of 0.76 to 0.95 (Berit & Lennart,

1998). The Schedule of Recent Life Experiences (Davis, Eshelman, & McKay, 1988) was

used for the identification of major stressors. Major stressors could include, for example,

a serious illness or near death experience. A study of the validity of reporting stress

associated with life events and generalised experience of stress revealed that the

experience of distress was related to reported life events, therefore suggesting that

measures of life events show good face validity (Payne, 2000). The Peritraumatic

Dissociation Index (Griffin, Resick, & Mechanic, 1997; See Appendix D) was used for

the events chosen by participants to determine if dissociation occurred in response to the

traumatic event. This scale was modified from the published version of the Peritraumatic

Dissociative Experiences Questionnaire Rater Version (Marmar et al., 1994) and

assessment of reliability demonstrated Cronbach's alpha was 0.75 for all items

comprising the index indicating good internal consistency (Griffin et al., 1997).

Imagery Scripts

Imagery scripts were constructed according to information obtained in a prior interview with the participant. Imagery scripts described three events; a neutral event such as making a cup of coffee, a traumatic event, and a minor life stressor (daily life hassle). Participants were asked to describe a recent or vivid event, providing details of the environmental conditions, thoughts, emotions and behavioural responses. The information collected at interview was limited to the moments before the incident, the incident itself, and the moments following the incident. Only information collected in the interview was included in the scripts using the participants' own word patterns.

The scripts were divided into four stages: setting the scene (the environmental conditions), approach (the events leading up to the episode), the incident (description of the actual event), and the consequences (feelings and actions occurring after the event). Examples of scripts can be seen in Appendix E.

Apparatus and psychophysiological recording

Psychophysiological recordings were taken using Chart 4.1 software linked to a Powerlab Data Acquisition System. Recordings were made at a speed of 200 sample/s^1. Electrocardiograph was integrated to obtain a mean heart rate (HR). ECG was measured using two Ag/AgCl electrodes fitted to the second rib of each side of the torso. An electrode placed on the right mastoid process was used as an earth reference. Respiratory rate (RESP) was measured using a pneumotrace strain gauge fitted to the upper torso. Skin Conductance Level (SCL) was measured using two 10mm Ag/Ag electrodes to the first and third fingers of the non-dominant hand. A range of psychophysiological

measures were taken into account because of the idiosyncratic nature of the response to imagery (Fleming & Baum, 1987).

Procedure

After participants were classified into high and low capacity to dissociate groups, a preliminary interview was held in which information was collected for the construction of personalised imagery scripts. Participants were asked to describe stimulus information such as the setting, what they could see and hear, what they were thinking and feeling, and their behavioural responses to the situation. All interview sessions were recorded on audio tape. Participants were also administered the SCID-D (Steinberg, 1995) and completed the Daily Hassle Scale (DeLongis et al., 1982), The Schedule of Recent Life Experiences (Davis et al., 1988) and the Peritraumatic Dissociation Index (Griffin, Resick & Mechanic, 1997).

A second session was then conducted after the construction of the imagery scripts in which the scripts were administered and psychophysiological measurements recorded. The skin was prepared and the electrodes applied as the purpose of each of the electrodes was explained to the participant. The procedure for the imaging session was also explained, emphasising the importance of imagining each scene vividly as it is read out, and switching off the imagery after each scene. The participant was instructed to sit quietly with their eyes closed while a 60 second baseline was taken. The participant was then instructed to close their eyes while each script was read out in a continuous sequence. The length of each scene was 60 seconds and this was followed by a 10-second interval between each stage in which the participant was instructed to open their eyes and switch the current scene off. Psychophysiological recordings were taken

throughout the script including a baseline preceding each script. A second experimenter monitored the psychophysiological recording and labelled start and end points of each stage in an adjoining room.

After completion of each script, VASs were administered relating to each stage to assess the psychophysiological response to imagery and the accuracy and clarity of the imagery. To assist with the completion of the VASs, key elements from each stage were repeated before the rating of that stage. At the conclusion of the testing, participants were debriefed, and their psychophysiological recordings were explained. On the basis on VAS ratings of experiences of unreality (real-unreal), the participants were then divided into high and low peri-traumatic dissociation.

Design

Both analysis one and two of the study utilised a 2 x 3 x 4 mixed factorial design with repeated measures. Factor one (group) was between subjects with two levels (low and high propensity to dissociate, or low and high peri-traumatic dissociation). Factor 2 (script type) was within subjects and has three levels (neutral, minor stressor, and trauma). Factor 3 (script stage) was within subjects and has four levels (setting the scene, approach, incident, consequence). Dependent variables included HR, RESP, SCL, and subjective levels of distress (VASs).

Scoring of physiological data and data analysis

The extraction of scores was performed as in the method of Haines and colleagues (1995) with a thirty-second baseline, and 30 seconds recording from each stage of each script. The scoring period was based on script content; generally 15-20 seconds into each stage because of the way scripts were constructed. Mean scores were calculated for HR.

Number of breaths per minute was calculated for RESP. The data was analysed using repeated measures analysis of variance (ANOVA) with a significance level of 0.05. Post hoc analyses were one way ANOVAs and two tailed t-tests across stage script and group.

Results

Overview

Two analyses were performed. The first divided groups on the basis of dissociative capacity and repeated measures ANOVAs were performed. The second analysis divided the sample on the basis of whether they reported feelings of unreality at the incident stage of the trauma script. Unreality ratings above the mean were indicative of high peritraumatic dissociation and ratings of unreality below the mean were indicative of low peritraumatic dissociation. This was taken as an indicator of the experience of peritraumatic dissociation as dissociative symptomatology occurring only at the time of the actual event was taken into account rather than using the PDI which may also elicit information about dissociative experiences occurring during the aftermath of a traumatic event.

The mean scores and standard deviations for the control VAS measuring clarity of imagery and appropriateness of script content are presented in Appendix F. There were no significant interactions or main effects for script, stage, or dissociative capacity group. In addition, all ratings indicated good clarity of imagery and high levels of appropriateness of script content.

Analysis 1 – dissociative capacity

The mean scores and standard deviations for each stage of each script for the two dissociative capacity groups for the psychophysiological measures and psychological ratings are presented in Appendix G.

When the psychophysiological results were examined, there were no significant between group, between scripts, or across stage differences for heart rate or respiration. Although there was no significant group by script by stage interaction for skin conductance level, there was a script by group interaction, $F(2,50)=3.72$, MSE=5.97, $p<.04$. This interaction is presented in Figure 1.
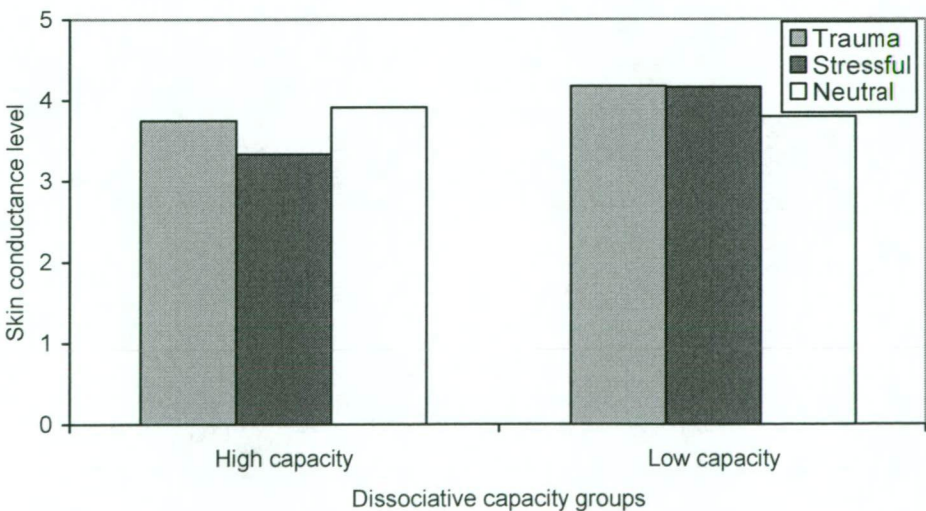
Figure 1.
The mean skin conductance level scores for the two dissociative capacity groups for each script.

Post hoc analyses indicated no significant differences between groups for each script type and there were no differences between scripts for the high dissociative capacity group. However, there was a trend for between script differences for the low dissociative capacity group, $F_{(2,26)}=3.00$, MSE=0.60, p=.06, with the trauma and stressful events eliciting higher skin conductance levels than the neutral event (Fisher LSD=0.40, p<.05).

When the psychological responses to imagery were considered, there were no significant group by script by stage interactions or group by script interactions for any of the VASs. However, there were significant script by stage interactions for unreality, $F_{(6,150)}=2.21$, MSE=287.22, p<.05, anxiety, $F_{(6,150)}=10.25$, MSE=2539.37, p<.0001, distress, $F_{(6,150)}=13.03$, MSE=2914.27, p<.0001, fear, $F_{(6,150)}=10.25$, MSE=2571.72, p<.0001, and calmness, $F_{(6,150)}=10.40$, MSE=2329.46, p<.0001. Figure 2 presents the mean ratings of distress at each stage of each script as an example of the pattern of response evident for the VASs measuring anxiety, distress, and calmness.
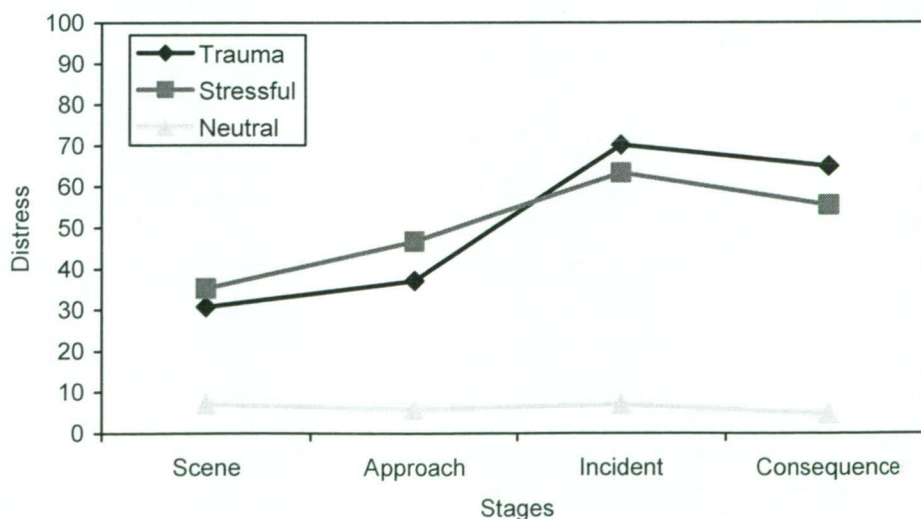
Figure 2.
The mean ratings for the VAS distress for each stage of each script.

Figure 3 presents the mean ratings for each stage of each script for the VAS measuring unreality.
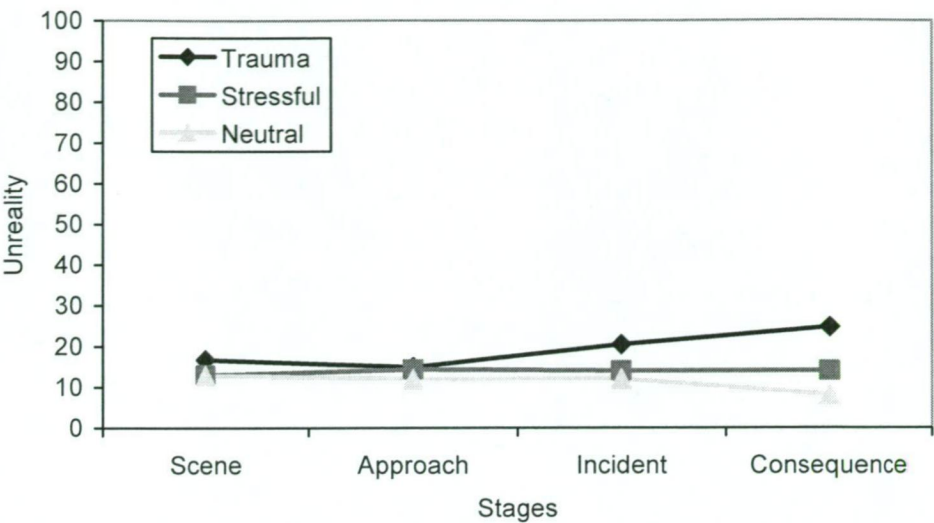
Figure 3.
The mean scores for the VAS unreality for each stage of each script.

Figure 4 presents the mean ratings for each stage of each script for the VAS measuring fear.
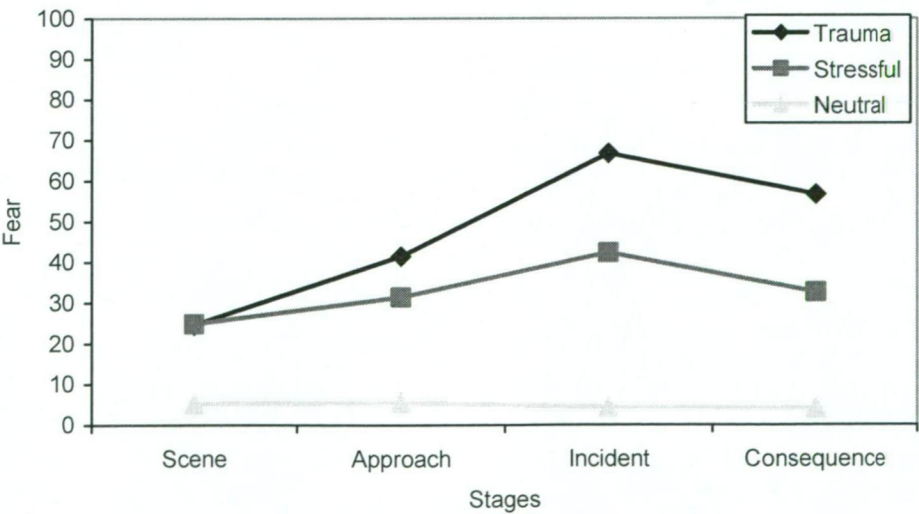
Figure 4. *The mean VAS fear ratings for each stage of each script.*

Consideration was given to the between script differences at each stage. Table 1 presents the post hoc analysis results. For the VASs measuring anxiety, distress and calmness, the trauma script and the stressful event script elicited more anxiety, distress and lack of calm than the neutral script and there was no significant difference in the ratings for the trauma and stressful event scripts at each stage.

The result for the VAS measuring unreality was different. The trauma script elicited stronger ratings of unreality than did the stressful and neutral scripts at the consequence stage only.

Finally, for the VAS measuring fear, the trauma script and the stressful event script elicited more fear than the neutral script at the scene and approach stages. At the incident and consequence stages, the trauma script elicited the greatest fear responses that were significantly more negative than the ratings elicited by the stressful event script and the neutral script. In addition, the stressful event script elicited stronger fear ratings at the incident and consequence stages than did the neutral script.

Table 1. *The post hoc analysis results for the between script differences at each stage for the VAS measures (df=2,52).*

VAS	Stage	F	MSE	p	Fisher	Difference
Unreality	Scene	0.6	132.3	ns		
	Approach	0.4	64.6	ns		
	Incident	2.2	517.4	ns		
	Conseq.	8.4	1873.5	.0007	8.2	T>S,N
Anxiety	Scene	6.7	4870.3	.003	14.7	T,S>N
	Approach	27.9	13458.9	.0001	12.0	T,S>N
	Incident	77.1	31357.4	.0001	11.0	T,S>N
	Conseq.	46.4	24250.5	.0001	12.5	T,S>N

Distress	Scene	10.4	6215.4	.0002	13.3	T,S>N
	Approach	19.2	12280.3	.0001	13.8	T,S>N
	Incident	80.1	32513.8	.0001	11.0	T,S>N
	Conseq.	55.4	28375.1	.0001	12.4	T,S>N
Fear	Scene	7.5	3364.6	.002	11.6	T,S>N
	Approach	13.6	9266.9	.0001	14.3	T,S>N
	Incident	46.9	26805.3	.0001	13.1	T>S,N;S>N
	Conseq.	31.5	18609.8	.0001	13.3	T>S,N;S>N
Calmness	Scene	11.6	5494.3	.0001	11.9	T,S>N
	Approach	20.7	11839.6	.0001	13.1	T,S>N
	Incident	80.1	31443.2	.0001	10.8	T,S>N
	Conseq.	57.0	25909.9	.0001	11.6	T,S>N

Across stage changes were investigated. Table 2 presents the post hoc analysis results examining across stage changes for each script type. There were no significant changes across stages for the VAS measuring unreality for any of the scripts or in relation to the neutral script for any of the other VAS measures.

When consecutive stage changes were considered for the trauma script, there were increases in negative ratings from the scene stage to the approach stage of the trauma script for anxiety, fear and lack of calmness with further increases from the approach stage to the incident stage for anxiety, distress, fear and lack of calmness. There was no resolution of the negative responses from the incident stage to the consequence stage of the trauma script for any of the VAS measures.

With regard to the stressful event script, there were significant increases in negative ratings from the scene stage to the approach stage for distress and lack of calmness and from the approach stage to the incident stage for anxiety, distress, fear and lack of calmness. Further, there was a reduction in the rating of fear from the incident stage to the consequence stage.

Table 2.

The post hoc analysis results examining across stage changes for each script (df=3,78).

VAS	Stage	F	MSE	p	Fisher	Difference
Unreality	Trauma	1.8	503.8	ns		
	Stressful	0.7	20.6	ns		
	Neutral	1.3	120.0	ns		
Anxiety	Trauma	21.3	8214.9	.0001	10.7	1<2,3,4;2<3,4
	Stressful	9.2	3638.7	.0001	10.8	1<3,4;2<3,4
	Neutral	1.6	154.0	ns		
Distress	Trauma	22.1	10530.9	.0001	11.8	1<3,4;2<3,4
	Stressful	12.6	3953.0	.0001	9.6	1<2,3,4;2<3
	Neutral	0.9	31.5	ns		
Fear	Trauma	18.7	9173.4	.0001	12.0	1<2,3,4;2<3,4
	Stressful	4.6	1416.9	.006	9.5	1<3;2<3;3>4
	Neutral	1.2	13.7	ns		
Calmness	Trauma	16.4	7338.3	.0001	11.5	1<2,3,4;2<3,4
	Stressful	15.5	5152.9	.0001	9.9	1<2,3,4;2<3,4
	Neutral	1.4	16.5	ns		

Analysis 2 – peritraumatic dissociation

The mean scores and standard deviations for each stage of each script for the two peritraumatic dissociation groups for the psychophysiological measures and psychological ratings are presented in Appendix H.

When psychophysiological responses were considered, there was a trend for a group by script by stage interaction for heart rate, $F(6,150)=2.14$, MSE=17.78, p=.052. Figure 5 presents this interaction.
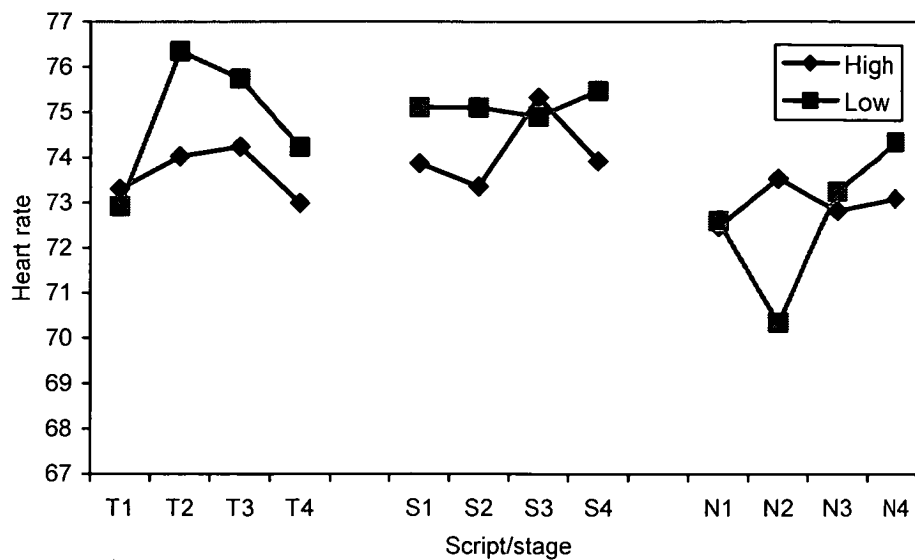
Figure 5.
The mean heart rate for each stage of each script for the high and low peri-traumatic dissociation groups.

When comparisons were made between groups at each stage of each script, there were no significant differences. Consideration then was given to each group separately, comparing the different scripts at each stage. These post hoc analysis results are presented in Table 3. For the low peri-traumatic dissociation group, there was a trend for the stressful event script to elicit a higher heart rate than the neutral script at the scene stage and a trend for the trauma script to elicit a higher heart rate than the neutral script at the approach stage. No other noteworthy differences were evident.

Table 3.

The post hoc analysis results for the differences between scripts at each stage for the two peri-traumatic dissociation groups for heart rate (df=2,28).

Group	Stage	F	MSE	p	Fisher	Difference
High	Scene	0.4	7.5	ns		
	Approach	0.1	1.8	ns		
	Incident	1.2	23.8	ns		
	Conseq.	0.2	3.9	ns		
Low	Scene	3.0	22.3	.07		S>N
	Approach	2.9	120.8	.07		T>N
	Incident	1.2	19.6	ns		
	Conseq.	0.6	5.6	ns		

Across stage changes were examined. Table 4 presents the post hoc analysis results for the changes in heart rate across the stages of the scripts for the high and low peri-traumatic dissociation groups. When consecutive stage changes were considered, there was a trend only for an increase in heart rate from the approach to incident stage for the stressful event script for the high peri-traumatic dissociation group.

Table 4.

The post hoc analysis results for the differences across the stages of each script for the two peri-traumatic dissociation groups for heart rate (df=3,42).

Group	Script	F	MSE	p	Fisher	Difference
High	Trauma	1.6	5.3	ns		
	Stressful	2.8	10.7	.054	1.5	1<3;2<3
	Neutral	1.0	3.0	ns		
Low	Trauma	2.4	2.4	ns		
	Stressful	0.1	0.6	ns		
	Neutral	1.3	34.1	ns		

When psychological responses to imagery were considered, there were significant group by script by stage interactions for unreality, $F_{(6,150)}=3.25$, MSE=394.81, p<.005, anxiety, $F_{(6,150)}=5.49$, MSE=1153.93, p<.0001, and distress, $F_{(6,150)}=3.41$, MSE=697.60, p<.004. Figure 6 presents the interaction for unreality.
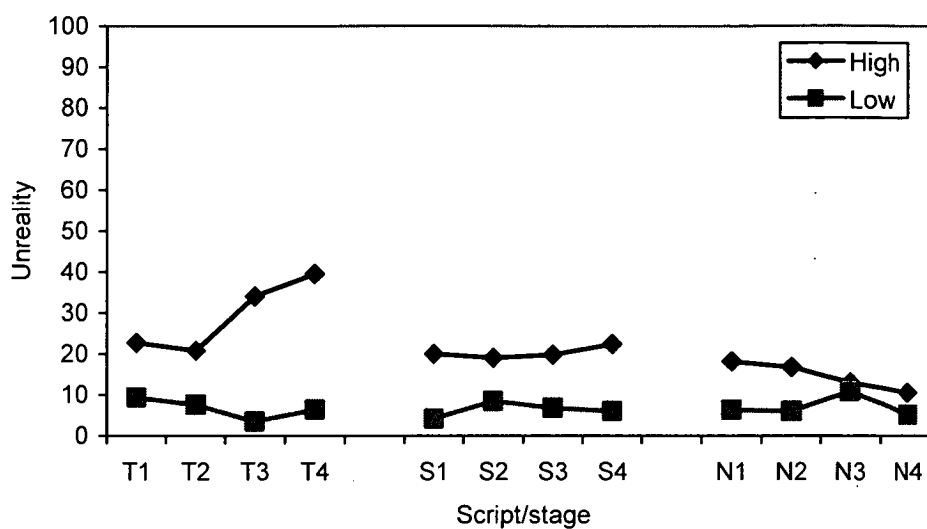
Figure 6. *The mean ratings for the VAS measuring unreality for each stage of each script for the high and low peri-traumatic dissociation groups.*

Figure 7 presents the mean ratings for each stage of each script for the two peri-traumatic dissociation groups for the VAS measuring anxiety.
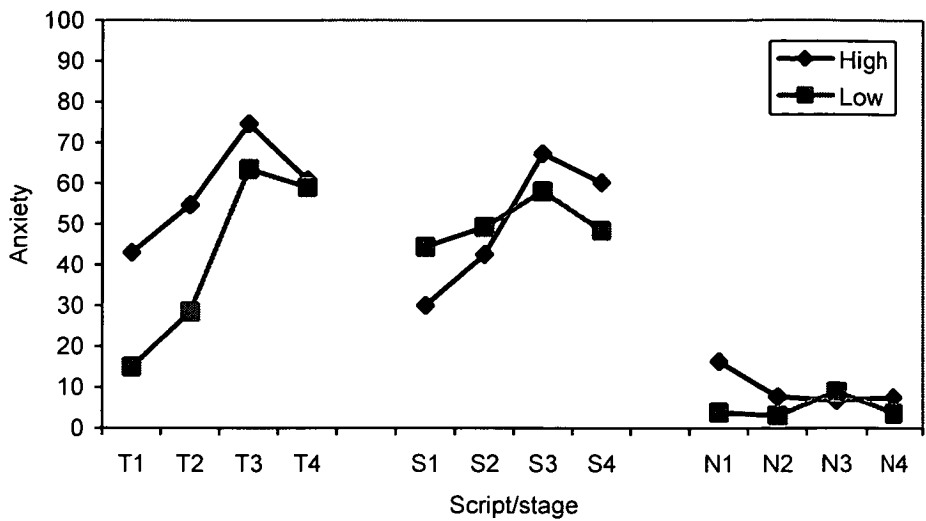
Figure 7.

The mean ratings for the VAS anxiety for each stage of each script for the high and low peri-traumatic dissociation groups.

Figure 8 presents the mean ratings for each stage of each script for the two peri-traumatic dissociation groups for the VAS measuring distress.
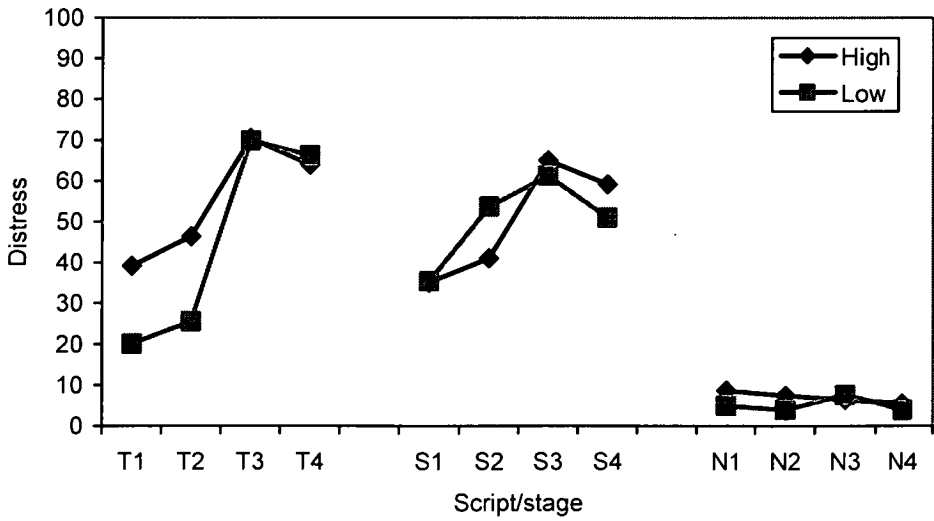
Figure 8. *The mean ratings for the VAS distress for each stage of each script for the high and low peri-traumatic dissociation groups.*

Examination was made of the group differences at each stage of each script. The results of these post hoc analyses are presented in Table 4. In response to the trauma script, the high peri-traumatic dissociation group reported greater feelings of unreality at the approach, incident and consequence stages and more anxiety at the scene and approach stages than did the low peri-traumatic dissociation group. With reference to the stressful event script, the high peri-traumatic group reported stronger feelings of unreality at the scene and consequence stages in comparison with the low peri-traumatic dissociation group. Finally, the high peri-traumatic dissociation group in comparison with the low peri-traumatic dissociation group reported greater unreality and anxiety at the scene and approach stages for the neutral script, although the overall level of experience were in the very positive range.

Table 5.

The post hoc analysis results assessing between group differences at each stage of each script for the high and low peri-traumatic dissociation groups (df=25).

VAS	Script	Stage	t	p	Difference
Unreality	Trauma	Scene	2.0	ns	
		Approach	2.7	.02	Hi>Lo
		Incident	4.2	.0003	Hi>Lo
		Conseq	3.9	.0006	Hi>Lo
	Stressful	Scene	2.4	.03	Hi>Lo
		Approach	1.4	ns	
		Incident	2.0	ns	
		Conseq	2.3	.04	Hi>Lo
	Neutral	Scene	2.2	.04	Hi>Lo
		Approach	2.2	.04	Hi>Lo
		Incident	0.4	ns	
		Conseq	1.3	ns	

Anxiety	Trauma	Scene	2.8	.01	Hi>Lo
		Approach	2.6	.02	Hi>Lo
		Incident	1.3	ns	
		Conseq	0.2	ns	
	Stressful	Scene	1.2	ns	
		Approach	0.6	ns	
		Incident	0.9	ns	
		Conseq	1.0	ns	
	Neutral	Scene	2.1	.05	Hi>Lo
		Approach	2.4	.03	Hi>Lo
		Incident	0.6	ns	
		Conseq	1.3	ns	
Distress	Trauma	Scene	1.7	ns	
		Approach	1.8	ns	
		Incident	0.1	ns	
		Conseq	0.2	ns	
	Stressful	Scene	0.1	ns	
		Approach	1.1	ns	
		Incident	0.4	ns	
		Conseq	0.6	ns	
	Neutral	Scene	1.9	ns	
		Approach	1.8	ns	
		Incident	0.3	ns	
		Conseq	1.0	ns	

Consideration was given to between script differences at each stage for each peri-traumatic dissociation group separately. Table 5 presents the post hoc analysis results. When the high peri-traumatic dissociation group responses were examined, the trauma script elicited greater ratings of unreality at the incident and consequence stages than were elicited by the stressful event and neutral scripts. Both the trauma and stressful events scripts were associated with higher ratings of anxiety and distress at the scene, approach and incident stages and the consequence stage only for distress than were

associated with the neutral script. In addition, the trauma script was associated with higher ratings of anxiety than the neutral script at the scene stage.

When the low peri-traumatic dissociation group responses were considered, there were no differences in the ratings of unreality at any stage. The stressful event script produced stronger ratings of anxiety than did the trauma and neutral scripts at the scene and approach stages with the trauma script also eliciting stronger anxiety ratings than the neutral script at the approach stage. Both the trauma and stressful events scripts were associated with greater ratings of anxiety than the neutral script at the incident and consequence stages, and greater ratings of distress than the neutral script at the approach, incident and consequence stages. Further, the stressful event script was associated with stronger ratings of distress than the neutral script at the scene stage. The traumatic script was also associated with stronger ratings of distress than the stressful script at the approach stage.

Table 6.

The post hoc analysis results examining between script differences at each stage for the two peri-traumatic dissociation groups separately (df=2,28).

VAS	Group	Stage	F	MSE	p	Fisher	Difference
Unreal	High	Scene	0.2	80.0	ns		
		Approach	0.2	60.2	ns		
		Incident	6.0	1724.7	.007	12.7	T>S,N
		Conseq	10.4	3142.5	.0004	13.0	T>S,N
	Low	Scene	1.2	80.8	ns		
		Approach	0.3	19.2	ns		
		Incident	2.5	165.4	ns		
		Conseq	0.2	5.6	ns		

Anxiety	High	Scene	4.7	2667.2	.02	17.7	T>N
		Approach	26.9	8902.5	.0001	13.6	T,S>N
		Incident	59.4	20809.9	.0001	14.0	T,S>N
		Conseq	31.2	14028.7	.0001	15.9	T,S>N
	Low	Scene	7.2	5274.1	.004	22.8	S>T,N
		Approach	11.6	6415.9	.0004	19.9	S>T,N;T>N
		Incident	22.5	10886.7	.0001	18.6	T,S>N
		Conseq	16.1	10408.1	.0001	21.5	T,S>N
Distress	High	Scene	7.3	4123.3	.003	17.7	T,S>N
		Approach	12.0	6683.0	.0002	17.7	T,S>N
		Incident	43.5	18897.8	.0001	15.6	T,S>N
		Conseq	35.9	15857.5	.0001	15.7	T,S>N
	Low	Scene	4.4	2790.8	.03	21.3	S>N
		Approach	11.8	7468.5	.0003	21.3	T,S>N;T>S
		Incident	34.0	13657.7	.0001	17.0	T,S>N
		Conseq	20.2	12706.2	.0001	21.3	T,S>N

Consideration then was given to the changes in response over the stages of each script for the two peri-traumatic dissociation groups separately. Table 6 presents the post hoc analysis results for the across stage comparisons. When consecutive stage changes were examined for the trauma script, there were greater reports in unreality at the consequence stage than the scene and approach for the high peri-traumatic group. There were also increases in anxiety and distress ratings from the approach to the incident stages for the trauma and stressful event scripts for this group. Increases in ratings of distress from the scene to the approach stages for the trauma and stressful event were also demonstrated in the high peri-traumatic dissociation group.

For the low peri-traumatic dissociation group, there were increases in ratings of anxiety and distress from the approach to the incident stages for the trauma script.

Increased ratings of distress from the scene stage to the approach stage were also noted in response to both the trauma and the stressful event scripts.

Table 7.

The post hoc analysis results examining across stage differences at each script for the two peri-traumatic dissociation groups separately (df=2,28).

VAS	Group	Stage	F	MSE	p	Fisher	Difference
Unreal	High	Trauma	2.9	1193.7	.05	14.9	4>1,2
		Stressful	0.9	32.0	ns		
		Neutral	1.4	181.0	ns		
	Low	Trauma	1.1	74.3	ns		
		Stressful	1.5	39.0	· ns		
		Neutral	1.5	79.2	ns		
Anxiety	High	Trauma	6.6	2607.0	.0009	14.6	1<3,4;2<3
		Stressful	12.0	4301.2	.0001	14.0	1<3,4;2<3,4
		Neutral	2.4	304.7	ns		
	Low	Trauma	21.0	6657.7	.0001	14.8	1<3,4;2<3,4
		Stressful	1.1	398.3	ns		
		Neutral	1.8	86.5	ns		
Distress	High	Trauma	7.4	3229.4	.0004	15.4	1<2,3;2<3,4
		Stressful	10.3	3078.1	.0001	12.7	1<2,3;2<3,4
		Neutral					
	Low	Trauma	17.0	8274.6	.0001	18.3	1<2,3;2<3,4
		Stressful	4.5	1412.9	.01	14.7	1<2,3,4
		Neutral	0.9	36.8	ns		

Discussion

The purpose of analysis one was to investigate the effect of general dissociative capacity on both the psychophysiological and psychological responses to traumatic events. As demonstrated in the results, when groups were divided on the basis of general

dissociative symptomatology (derived from QED scores; Riley, 1988), there were no significant psychophysiological effects seen, apart from a trend for SC to be greater during the trauma and stressful scripts for the low dissociation group compared to the neutral script. It would be expected that this would be the case, and reflects generally heightened arousal during times of stress.

When examining the psychological responses to the imagery, no significant group effects were demonstrated, indicating that the high and low dissociation groups did not differ significantly in their response to the imagery. This includes the rating of unreality designed to indicate dissociation. Therefore, a tendency or general capacity to dissociate does not appear to be related to a tendency to use a situational dissociative coping style or dissociative detachment. These findings suggest that general dissociative capacity is unrelated to trauma and stress reactions. The finding is inconsistent with theorists who have proposed the diathesis stress model of dissociation, suggesting that individuals with a greater capacity to dissociate have a greater propensity to experience dissociation or enter a state of 'autohypnosis' when faced with stress or trauma (Butler et al., 1996; Bryant, Guthrie, & Moulds, 2001).

Although there were no significant differences found in psychological responding of the high and low dissociative capacity groups, there were several other interesting effects. It was found that only at the consequence stage of the imagery was the experience of unreality greater for the traumatic event when compared to the stressful and neutral events for all participants. This suggests that overall the participants did not experience a great deal of dissociation, i.e. there was not significantly more dissociative experience in response to the traumatic and stressful scripts compared to the neutral event, apart from at

the consequence stage, where the trauma elicited significantly greater unreality than stress and neutral events. The continuation of dissociation into the consequence stage may be due to a failure in the resolution of the dissociative state following the trauma. Therefore, it is this failure in resolution of dissociation that distinguishes between a traumatic rather than a merely stressful event. Evidence suggests that dissociation that persists beyond the traumatic event may lead to the development of subsequent posttraumatic symptomatology (Panasetis & Bryant, 2003). This is consistent with the suggestion that persistent dissociation impedes access to, and resolution of, memories and associated emotions, thus contributing to ongoing posttraumatic psychopathology (Foa & Hearst-Ikeda, 1996). In line with this argument, the Panasetis and Bryant (2003) study found that ASD severity and impact of event scores where more strongly related to persistent rather than peritraumatic dissociation in a group of trauma survivors. In summary, peritraumatic dissociation may not serve a maladaptive function (Horowitz, 1986; Panasetis & Bryant, 2003), being common place but not associated with any psychopathology (Bryant & Harvey, 2000).

When comparing differences between events, the results demonstrate that anxiety, distress, and lack of calm were greater for the traumatic and stressful scripts compared to the neutral script across all stages of the imagery. This indicates that there is no significant difference in psychological response to stressful and traumatic events for both the high and low dissociation groups, an interesting finding given that it would be expected that the experience of psychological distress would be greater during the traumatic event. This only occurred for self reports of fear in which the traumatic event was reported to elicit significantly more fear than the stressful and neutral events at both

the incident and consequence stages. This suggests that individuals were responding similarly to a highly traumatic event as to a life stressor. The response observed seems incongruent with the comparative magnitude of the events. However, these results do demonstrate that the experience of fear is integral to the experience of trauma. As stated previously, traumatic events are defined as events which not only involve a threat to physical safety, but in which the response includes intense fear, hopelessness and horror (APA, 2000), so by definition, fear is a major component of the trauma response. Therefore, other negative emotional responses are evident for both stressful and traumatic events, but the presence of fear is what characterises a traumatic experience.

The psychological ratings across stages indicated that, for the traumatic script, there was an increase across stages in the negativity of reported experience from the scene to the approach stages for anxiety, fear and lack of calm. Likewise, for both the trauma and stressful events, there was an increase in negativity of experience from the approach to the incident stages for anxiety, lack of calm, fear and distress. There were no significant differences in unreality across stages reported. The subjective levels of psychological distress consistently demonstrated significantly higher levels of subjective psychological arousal at the incident stage of the trauma containing the most distressing imagery, with no resolution of this negative psychological experience at the consequence stage as indicated by subjective ratings on a variety of scales. Therefore, all consistently reported peak levels of anxiety, distress, fear, and not feeling calm at the incident stage of the traumatic and stressful events, indicating greatest psychological response at the time of the actual incident. This is as expected given that the incident stage contains the most distressing imagery, and there is no significant increase in feelings of unreality, therefore

no significant dissociation occurring at the time of the events. A reduction in negative emotional experience may have occurred if dissociation was high (Noyes & Kletti, 1977; Williams et al., 2003), however, dissociative capacity did not seem to be related.

As mentioned previously, the high and low propensity to dissociate groups did not differ significantly in their experience of peritraumatic dissociation. It has previously been suggested that general propensity to dissociate, in fact, is not highly correlated with the tendency to dissociate at the time of a traumatic event (unpublished data; Diskin & Hodgins, 2001). That is, that some individuals, in general, may have a great propensity to dissociate, but this is not predictive of dissociative response to a traumatic event. The current study also found that groups divided on the basis of dissociative capacity did not differ significantly in their scores on the Peritraumatic Dissociation Index, suggesting that despite having significantly different general levels of dissociation, or dissociative capacity, this was not related to higher levels of peritraumatic dissociation. These findings support the notion that rather than general dissociativity being the predictor of tendency to use dissociative coping during a traumatic event, it may be that, more specifically, peritraumatic dissociation mediates stress management in situational crisis. In the Griffin and colleagues (1997) study, participants were divided on the basis of experience of peritraumatic dissociation at the time of the event and it was this factor which determined arousal reduction. Likewise, in the Williams et al. (2003) study, the participant demonstrated a high degree of dissociation at the time of traumatic and stressful events resulting in reduced arousal and distress.

Analysis two of the study was designed to investigate this proposition, that the experience of peritraumatic dissociation determines stress management during situational

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crisis rather than a more general dissociative capacity. In terms of psychophysiological response, no significant effects were observed in the current study, other than a trend for the low peri-traumatic group to experience higher HR in response to the stressful script compared to the neutral script at the scene stage, and the trauma script to elicit higherHR than the neutral event at the approach stage. These findings are unremarkable, as higher physiological arousal would be expected during stress and trauma as compared to neutral events. Therefore, as there were no between group differences, the current findings are unlike the previous findings (Griffin et al., 1996; Williams et al., 2003), as no reduction in psychophysiological arousal was demonstrated in response to trauma for those experiencing higher levels of peritraumatic dissociation. This may be due to the fact that the current sample did not experience clinically significant levels of peritraumatic dissociation.

The psychological response to the trauma imagery indicated that, although the high peritraumatic dissociation group experienced greater unreality (giving an indication of dissociative symptoms) at the approach, incident and consequence stages, there was no evidence that this was associated with corresponding decreases in negative psychological experience. In fact, the levels of anxiety reported by the high peritraumatic dissociation group were greater at the scene and approach stages, with no significant differences between the two groups for all other scales. Likewise, the high peritraumatic group experienced greater levels of unreality in response to the stressful events at the scene and consequence stages compared to the low peritraumatic dissociation groups, however, there are no other significant differences demonstrated in psychological response to the stressful event between the two groups. Therefore, for the majority of psychological

ratings, the level of negativity of experience for the high and low peritraumatic dissociation groups is equivalent even given higher unreality reported in the high peritraumatic dissociation group. This is true for both the trauma and stressful events. This result is inconsistent with previous findings of distress reduction at times of dissociation (Noyes & Kletti, 1977; Williams et al., 2003), although does suggest that those experiencing high peritraumatic dissociation at the incident stage of a traumatic event were more likely to experience higher levels of dissociation throughout the trauma event, as well as in response to stressful events compared to individuals who do not experience high levels of dissociation at the incident stage of a trauma. Of course, this did not correspond with any distress reduction. Although the high peritraumatic dissociation group experienced significantly higher levels of dissociation throughout the traumatic and stressful events, the lack of a corresponding reduction of distress could be attributed to the fact that the group may not have been experiencing clinically significant levels of dissociation. Mean VAS unreality scores for the high peritraumatic group were 34 and 39 at the incident and consequence stages of the trauma script respectively, out of possible ratings of up to 100, therefore it could be argued that levels of dissociation were not high enough to result in any noticeable differences in response between groups.

Although little difference in psychological response between groups was demonstrated, it is interesting to note that when considering the differences in psychological responses between events, the high peritraumatic dissociation group experienced significantly greater levels of unreality in response to the trauma event at the incident and consequence stages compared to stressful and neutral events. The traumatic and stressful event ratings of both anxiety and distress were greater than ratings for the

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neutral event for this group across the scene, approach and incident stages, indicting no significant difference between the experience of anxiety and distress during stressful and traumatic events. Even though it would be expected that the traumatic event would elicit greater psychological response compared to the stressful event, the responses appear equivalent.

It could be argued that the greater unreality at the incident and consequence stages in response to the trauma event results in reduced psychological response such that the event is experienced with the same degree of psychological arousal as a stressful event, or the levels of dissociation at the incident stage may not have been clinically significant. When considering the low peritraumatic dissociation group, no differences in unreality in response to events were demonstrated. Even so, there were also no significant differences between ratings given in response to traumatic and stressful events for anxiety at the incident and consequence stages, and distress at the approach, incident and consequence stages, with the traumatic event eliciting greater distress ratings only at the approach stage for this group. In fact, the stressful event actually elicited greater anxiety than the trauma event for the scene and approach stages.

This effect is clearly not attributable to a dissociative response as there were no differences in unreality levels in this group. Possibly, the low peritraumatic dissociation group represent a group of individuals who not only are less likely to engage in dissociative detachment during stress, but are also better equipped to deal with traumatic events without engaging in dissociation. This could be due to a number of factors which differ between groups, including previous trauma history which has been argued to predispose individuals to dissociative coping styles and ability to deal effectively with

trauma (Griffin et al., 1997). Other factors may contribute to these unexpected results such as the impact of the event on participants (Blizard, 1997; Silberg, 2000), and perhaps this could be addressed in further investigation of these findings, which is clearly warranted.

It may also be that the classification of participants into high and low peritraumatic dissociation groups based on the experience of unreality at the incident stage of the trauma was insufficient as an indication of dissociative experiences at the time of the event. Results may have been clearer had the classification of dissociation groups be based on a broader definition of dissociation, for example, including elements such as changes in perception (depersonalisation and de-realisation), behaviour and will (awareness of own behaviour and feeling of lack of control), affect (numbing and detachment), and memory and identity (amnesia and identity alteration).

In terms of the changes in psychological ratings across the stages of each script, for the high peri-traumatic group, anxiety and distress increased from the approach through to the incident stages in response to both stressful and traumatic imagery. Distress was also demonstrated to increase from the scene through to the approach stages. Levels of unreality were greater at the consequence stage when compared to the scene and approach stages. Therefore, the results are suggesting that there was an increase in psychological arousal levels through to the incident stage of both trauma and stressful events for both groups rather than a decrease in negative experience at times of greatest dissociation.

Conclusion

The results of the study suggest that dissociative capacity as indicated by general levels of dissociative symptomatology do not appear to be related to, or predictive of dissociative response styles in the face of high stress or trauma. It appears that individuals who have a high capacity to dissociate may not necessarily experience trauma or stress induced dissociation. This is consistent with the finding of Diskin and Hodgins (2001) who found a similar lack of relationship between dissociative tendencies and dissociative experiences at times of stress. When participants were categorised on the basis of experiences of unreality at the time of the actual occurrence of a traumatic event these participants represented a group of individuals more likely to experience dissociation not only throughout the duration of the traumatic event, but also in response to a stressful life event. This suggests that these individuals may be predisposed to experiencing situational dissociation in response to stress. Therefore, it could be suggested that these individuals are more likely to utilise dissociative coping styles at times of stress, and what in the past has been conceptualised as peritraumatic dissociation, that is, a dissociative response to traumatic events, can be viewed more broadly as a generalised stress response.

The other findings of the study are somewhat more inconclusive. Differences in physiological and psychological responses to trauma and stressful events between the high and low peri-traumatic dissociation groups are lacking, indicating that although the high peritraumatic group experiences more stress induced dissociation, this did not correspond to reduced arousal and distressed as suggested by previous research (Griffin et al., 1997; Noyes & Kletti, 1977; Williams et al., 2003). Although the psychophysiological and psychological data contradict the hypothesis that a reduction in

arousal and distress would be seen in response to situational dissociation, it is noteworthy that there were no observable significant group differences between the physiological and psychological responses to stressful and traumatic experiences. This implies that both groups are responding in a not significantly different way to stressful and traumatic events. As noted earlier, the difference in magnitude of these events in terms of impact on life and threat to safety would be predictive of a significantly greater level of arousal in response to traumatic events as opposed to stressful events. This was not the case. So, although there is not the predicted decrease in negativity of experience at the incident stage of traumatic imagery, the response to traumatic imagery at this stage is comparable to that of a life stressor.

It may be that the greater dissociation reflected by higher self reported unreality during the trauma event for the high peri-traumatic dissociation group resulted in decreased arousal and distress which occurred not to the extent as to result in decreased arousal and psychological distress to be evident, but responses are reduced to the levels equivalent to responses life or stressful events. However, as there were no differences in unreality ratings for the low peri-traumatic group, the same explanation cannot be given, and perhaps other factors such as the impact of events, trauma history, and coping styles need to be considered in further investigation and clarification of these unexpected results.

It was noted by Williams et al. (2003) in their case study that the participant experienced a reduction in psychophysiological arousal and that her psychological response was consistent with this indicating a degree of calm and detachment. This finding was dissimilar to the findings of Griffin, et al. (1997) who found a decrease in

psychophysiological arousal, but continued to reports of high levels of psychological distress. In explanation of this incongruity, Williams and colleagues (2003) concluded that due to her experience with dissociation the individual had been able to associate dissociative experiences with feelings of calm and detachment. It may be in the current study that participants tended to be unable to identify with dissociation as a calming experience. It is also possible that the participants, due to the nature and content of the imagery, tended to respond in a manner they felt was expected, that is, reporting high levels of distress and anxiety.

As discussed earlier, Griffin et al. (1997) demonstrated that individuals experiencing high peri-traumatic dissociation had greater perception of threat to life and levels of distress than the low peritraumatic dissociation group, and this may be a further predictor of tendency to use a dissociative style of coping with the trauma and intense anxiety of the event. Future research exploring the predictive factors for peritraumatic dissociative coping may incorporate an investigation of the impact of the event to clarify this issue further. The lack of significant findings may be due to the fact that some individuals, although may have been experiencing high levels of peritraumatic dissociation, described events that in comparison to others did not carry the same magnitude in terms of impact on life, perceived threat to life and perceived severity of event. For example, one participant described an event in which response included significant fear that her own and members of her family's lives were in serious threat, whereas another participant described an event in which she witnessed a car crash of a stranger. These events would presumably be significantly different in terms of significance and impact of the event. It would be interesting to screen participants on this

basis, for example using an impact of events scale. Further factors such as trauma history may influence the use of dissociative coping under the assumption that it is to some degree a learned response (Blizzard, 1997; Silberg, 2000). It may be that factors such as the impact of the event and past trauma influence arousal and distress reduction as a result of dissociation.

Having a clear understanding of the mechanisms of dissociation and its role in the context of a traumatic experience is important for developing a full conceptualisation of the dissociative disorders and other psychopathology incorporating dissociative symptomatology. There are also important implications for developing treatment approaches for all psychopathology where dissociative symptoms are an element, as well as developing a clear understanding of trauma response and best post trauma interventions. Although the current study provides inconclusive empirical evidence regarding the role of dissociation, it does present some interesting findings on stress responses deserving of further investigation. Further, it is worth noting the limitations of the current study. The lack of clear findings may be due to the fact that, as noted previously, there were no clinically significant dissociative responses observed. Increasing participant numbers and including greater numbers of individuals with very high levels of peritraumatic dissociation may have resulted in more significant findings. It may be valuable for future studies to clarify the clinical significance of dissociation experienced by the high peritraumatic dissociation group by investigating the Peritraumatic Dissociation Index scores, ensuring they fall within the 'high' category (21-32 or 1 SD above the mean) as defined by Griffin and colleagues (1997). Valuable directions for future dissociation research would be to investigate the physiological and

psychological processes involved in dissociative states of individuals meeting dissociative disorder diagnostic criteria and comparing the pattern of trauma response to the more general population.

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Appendix A

Questionnaire of Experiences of Dissociation (QED; Riley, 1988)

Name of Student: _____

Contact telephone number: _____

1.   I often feel as if things were not real.   True/False

2.   Occasionally, I feel like someone else.   True/False

3.   Sometimes my mind blocks, goes totally empty.   True/False

4.   I often wonder who I really am.   True/False

5.   At one or more times, I have found myself staring intently

at myself in the mirror as though looking at a stranger.   True/False

6.   I often feel that I am removed from my thoughts and

actions.   True/False

7.   I rarely feel confused, like in a daze.   True/False

8.   I have had periods where I could not remember where I

had been the day (or days) before.   True/False

9.   When I try to speak words, they don't come out right.   True/False

10.   I have never come to without knowing where I was or

how I got there.   True/False

11.   As I was growing up, people often said that I seemed to

be off in a world of my own.   True/False

12.   Sometimes I feel like my body is undergoing a

transformation.   True/False

13.   Sometimes I feel as if there is someone inside of me

	directing my actions.	True/False
14.	Sometimes my limbs move on their own.	True/False
15.	When I was a child, I rarely sat and day dreamed in school.	True/False
16.	Sometimes I have problems understanding others' speech.	True/False
17.	I am rarely bothered by forgetting where I put things.	True/False
18.	My mind has never gone blank.	True/False
19.	I have a rich fantasy life.	True/False
20.	I never find myself staring off into space without thinking of anything.	True/False
21.	I daydream very little.	True/False
22.	My soul sometimes leaves my body.	True/False
23.	I do not think I would be able to hypnotise myself.	True/False
24.	When I was a child I never had imaginary companions.	True/False
25.	I have never gone into a trance, like hypnosis.	True/False
26.	I have never had periods of déjà vu, that is, found myself in a new place with a distinct sense that I had been there or experienced it before.	True/False

Appendix B

Information sheet

Consent From

UNIVERSITY OF TASMANIA

Dissociation: The process of distress management in situational crisis.

The above project is being conducted by Dr Janet Haines, Dr Christopher Williams and Mrs Caroline Davis of the School of Psychology at the University of Tasmania. The purpose of this study is to examine whether dissociative coping strategies affect the way in which a person deals with both major and minor life stressors, both at the time of the event and after. The results of this project may contribute to the understanding of the way in which people respond to stressful events and may be used in the development of appropriate management strategies for people who have experienced stressful life events. This project is being undertaken as part of a Master of Psychology (Clinical) degree.

We are interested in comparing the reactions of people to stressful events. In particular, we are interesting in comparing the psychological and psychophysiological reactions of people who have a high and low propensity to dissociate at the time of a crisis. Dissociation is a feeling of detachment from the events as they unfold.

If you agree to participate, your reactions to the stressful events will be discussed with you. In addition, you will be interviewed about an emotionally neutral event such as making a cup of coffee that will be used for comparison purposes. This interview will be recorded on audio cassette. The information from the interview will be used to devise imagery scripts that will be used to guide you through the memory of the events. An imagery script is a structured, written account of the story provided by you during interview. You will be required to attend the laboratory and have electrodes and measurement instruments applied to your torso and finger tips so that measures of heart rate, respiration, skin conductance and muscle tension can be taken. The administration of these electrodes and measurements instruments do not cause discomfort. These measurements will be taken while you are guided through imagery of the stressful events and the emotionally neutral event of your choosing. You will be asked to rate your psychological response to the content of the imagery scripts. In addition, you will be interviewed about your reactions to the stressful events and you will be asked to complete a range of questionnaires and rating scales that are designed to elicit information about stressful experiences and the psychological symptoms that may development as a consequence of experiencing a stressful event. The interview will take approximately one hour of your time and the laboratory session will also take one hour.

We wish to emphasise that the information you share with us will be treated in a confidential manner. All written information, computer data files and audio cassettes will be stored with a participation number rather than your name. The data will be secured in a locked cabinet.

Participation in this study is completely voluntary. If you agree to participate in the study but then change your mind and wish to withdraw, you may do so at any time without prejudice.

If you wish to discuss the project, before, during or after participation, please contact Dr Janet Haines on (03) 6226 7124 or at J.Haines@utas.edu.au or Dr Christopher Williams on (03) 6226 2245 or at Chris.Williams@utas.edu.au. This project has been approved by the Southern Tasmania Social Sciences Human Research Ethics Committee. If you have any concerns or complaints regarding the ethical nature of the project, you may contact the Chair or Executive Officer of the Southern Tasmania Social Sciences Human Research Ethics Committee. The contact numbers are as follows: A/Prof Gino DalPont, Chair, (03) 6226 2078; Ms Amanda McAully, Executive Officer, (03) 6226 2763.

If you would like to discuss your psychological reactions to the stressful event, we would suggest that students contact Student Counselling at the University (telephone 6226 2697). You may also wish to discuss your reaction with your general practitioner. You may also consider seeking assistance from the University Clinic at the University of Tasmania (telephone 6226 2805). Both the Student Counselling and the University Clinic services are free of charge.

We would be happy to discuss your individual results with you. Overall results will be available in hard copy or electronic form on the School of Psychology website at the completion of the project if you are interested (www.scieng.utas.edu.au/psychol/). If you decide to withdraw from the project, we would welcome the opportunity to discuss with you any concerns you have about the project and your participation in it.

Please keep this information sheet and, if necessary, refer to the information it contains. In addition, if you agree to participate, you will be asked to sign a statement of informed consent. A copy of this statement will be supplied to you.

Thank you.

STATEMENT OF INFORMED CONSENT

I have read and understood the 'Information Sheet' for this study. The nature and possible effects of the study have been explained to me.

I understand that the study involves:
- Discussing a major stressful event and a minor stressful event I have experienced;
- Discussing an emotionally neutral event of my choosing;
- These discussions will be recorded on audiotape to facilitate the preparation of imagery scripts;
- Attending a recording session and having electrodes and measurement instruments fitted so that recordings of my heart rate, respiration, skin conductance level and muscle tension can be taken while I am being asked to image aspects of the events;
- Rating my psychological responses to each of these events;
- Completing an interview about the presence of dissociative symptoms;
- Completing questionnaires about the nature of my psychological responses to the events and my tendency to dissociate.
- The duration of the interview and the laboratory session is one hour each.

I understand the data collected from this study will be kept in the School of Psychology for at least 5 years.

I understand that all research data will be treated as confidential and that my name will not be attached to the data that are collected. Any questions that I have asked have been answered to my satisfaction. I agree to participate in this study and understand that I may withdraw at any time without prejudice. I agree that research data gathered for the study may be published. I am aware that I will not be able to be identified in published material.

Name of participant: ....

Signature of participant: ....   Date: ....

I have explained this project and the implications for participation in it to this volunteer and I believe that the consent is informed and that s/he understands the implications of participation.

Name of investigator: ....

Signature of investigator: ....   Date: ....

Appendix C

Visual Analogue Scales

How were you feeling during that scene?

Real _____ Unreal

Not anxious _____ Anxious

Not distressed _____ Distressed

Not fearful _____ Fearful

Calm _____ Not calm

How close to real life was that scene?

Not Close _____ Close

How clear was the image of yourself in that scene?

Not Clear _____ Clear

Appendix D

The Peri-Traumatic Dissociation Index (Griffin et al., 1997)

PERITRAUMATIC DISSOCIATION INDEX

During the Event:

1. Did you feel confused or disoriented?

None of the time   *0*   *1*   *2*   *3*   *4*   *All of the time*

2. Did you feel numb?

None of the time   *0*   *1*   *2*   *3*   *4*   *All of the time*

3. Did you have moments of losing track of what was going on-that is, did you "blank out" or in some other way not feel you were part of the experience?

None of the time   *0*   *1*   *2*   *3*   *4*   *All of the time*

4. Did you find yourself going on "automatic pilot"- that is, doing something that you later realised you had done but had not actively decided to?

None of the time   *0*   *1*   *2*   *3*   *4*   *All of the time*

5. Did your sense of time change during the event- that is did things seem unusually speeded up or slowed down?

None of the time   *0*   *1*   *2*   *3*   *4*   *All of the time*

6. Did what was happening seem unreal to you, as though you were in a dream or watching a movie or play?

None of the time   *0*   *1*   *2*   *3*   *4*   *All of the time*

7. Were there moments when you felt like you were a spectator, watching what was happening to you- that is , did you feel as if you were floating above the scene or observing it as an outsider?

None of the time   *0*   *1*   *2*   *3*   *4*   *All of the time*

8. Were there moments when your sense of your own body seemed distorted or changed- that is, did you feel yourself to be unusually large or small, or did you feel disconnected from your body?

None of the time   *0*   *1*   *2*   *3*   *4*   *All of the time*

Appendix E

Guided Imagery Script

Setting the scene
Right, you are in the car. You are sitting in the back seat on the left. It is the beginning of the holidays so you are feeling quite relaxed. Your brother, your mum and you had decided to relax and go see a movie. You are going to see Lord of the Rings. You are feeling good. **Concentrate on that feeling right now (pause).** Your brother is driving, and your mum is in the front passenger seat next to him. You are going to pick up his girlfriend from her house before the movie. You are driving along the familiar dirt road leading away from your house. You are going the back way and it is pretty quite on the road, not many cars around. **Concentrate on that feeling right now (pause).** Now open your eyes and switch that scene off.

Approach
Right, you are in the car on the way to the movies. Really see out your window. You can see the dry grass in the paddock and a few sheep around. You are thinking about a conversation you had on the phone with a friend before you left the house. You are absorbed in your own thoughts the back seat. **Concentrate on that feeling right now (pause).** You don't notice what is going on in the front seat. Hear your mum and brother talking and planning the day. You are looking forward to the movie. You are wearing a seat belt, but it is not done up tightly, it is not a pull in seat belt, it is just one you have to adjust yourself. **Concentrate on that feeling right now (pause).** Now open your eyes and switch that scene off.

Incident
Right, you are in the car driving along the road. You are not going fast at all, just normal, maybe 50 K's. Now feel the car going over a pot hole in the road. Really feel the car starting to spin out with the tail swerving to the edge of the road. See your mum reacting, she jumps. Notice that your brother has over steered to correct it. You can feel the car do a full 180 and flip down a hill. You are feeling really scared. **Concentrate on that feeling right now (pause).** You are not sure what is happening-all of a sudden you are spinning out of control. Hear yourself screaming. See the brush of trees past the windows. You are acting automatically, grabbing your seat belt Notice the car has landed on its roof. There is a stump which landed near the motor and stopped you rolling down the hill. **Concentrate on that feeling right now (pause).** Now open your eyes and switch that scene off.

Consequence
Right, you are in the car after spinning out and landing on the roof. There is broken glass everywhere. No one has any cuts. Everyone is shaking. You are feeling really helpless. You have fallen to the roof because your seat belt was not on properly. Your mum and your brother are stationary hanging upside-down. You are feeling really shaky. **Concentrate on that feeling right now (pause).** You have grabbed your seat belt See that there is glass all around you. You are all anxiously checking if everyone is okay. Your mum and your brother are undoing their seat belts. See that your window is blocked. Really feel yourself moving over to climb out another window. You are feeling very shocked and shaky. **Concentrate on that feeling right now (pause).** Now open your eyes and switch that scene off.

Appendix F

Mean scores and standard deviations for the VASs measuring
clarity of imagery and appropriateness of script content
for the two dissociative capacity groups

Table 7.

The mean scores of standard deviations for the VASs measuring imagery clarity and appropriateness of script content for the two dissociative capacity groups.

VAS	Script	Stage	High capacity		Low capacity	
			M	SD	M	SD
Close	Trauma	Scene	83.0	12.3	80.8	26.2
		Approach	85.7	10.3	82.9	20.3
		Incident	86.8	13.2	82.4	23.6
		Conseq.	82.0	19.0	82.8	19.2
	Stressful	Scene	84.4	12.8	89.1	8.4
		Approach	80.9	13.3	92.9	4.8
		Incident	88.6	9.3	92.7	6.4
		Conseq.	84.8	14.8	90.6	10.1
	Neutral	Scene	84.1	12.3	91.6	7.0
		Approach	85.3	15.8	93.4	5.5
		Incident	85.5	18.6	94.4	4.6
		Conseq.	86.4	12.5	92.9	14.0
Clear	Trauma	Scene	82.4	14.0	82.6	19.0
		Approach	86.0	10.7	86.5	14.4
		Incident	84.8	13.8	86.1	19.5
		Conseq.	87.5	11.2	84.6	20.8
	Stressful	Scene	83.4	13.7	90.1	8.4
		Approach	81.7	13.7	91.3	8.7
		Incident	88.0	8.7	89.0	12.4
		Conseq.	86.1	15.8	91.4	11.9
	Neutral	Scene	86.0	12.4	91.9	6.0
		Approach	87.4	16.6	93.1	5.3
		Incident	87.5	13.4	94.5	7.2
		Conseq.	89.3	12.5	92.5	14.1

Appendix G

The mean scores and standard deviations for each of the
psychophysiology measures for each stage of each script for the
two dissociative capacity groups.

Table 8.

The mean scores of standard deviations for the psychophysiological measures for each stage of each script for the two dissociative capacity groups.

VAS	Script	Stage	High capacity		Low capacity	
			M	SD	M	SD
Heart rate	Trauma	Scene	72.3	12.8	73.9	10.0
		Approach	75.4	12.4	74.8	9.4
		Incident	74.4	13.0	75.4	9.5
		Conseq.	72.0	11.8	75.0	9.3
	Stressful	Scene	72.6	11.5	76.1	12.0
		Approach	73.4	12.5	74.8	11.4
		Incident	74.4	12.4	75.8	11.8
		Conseq.	73.6	12.0	75.5	11.4
	Neutral	Scene	71.2	11.8	73.7	12.9
		Approach	71.8	11.4	72.4	14.6
		Incident	71.3	10.8	74.6	13.1
		Conseq.	72.5	12.3	74.7	13.3
Respirat.	Trauma	Scene	12.9	3.8	15.3	2.8
		Approach	14.5	3.2	15.4	3.0
		Incident	15.2	4.1	15.4	3.2
		Conseq.	16.0	4.0	15.3	3.4
	Stressful	Scene	13.7	4.1	14.9	2.0
		Approach	14.1	2.9	15.3	2.4
		Incident	14.5	3.9	14.1	2.4
		Conseq.	14.8	3.8	14.6	2.8
	Neutral	Scene	14.1	3.1	14.3	2.7
		Approach	14.1	3.0	14.9	3.1
		Incident	14.5	3.3	14.9	3.3
		Conseq.	14.3	3.3	14.9	2.8
Skin conduct. level	Trauma	Scene	3.7	6.7	4.1	9.0
		Approach	3.8	6.9	4.1	9.1
		Incident	3.7	6.8	4.2	9.1
		Conseq.	3.8	7.0	4.2	9.1
	Stressful	Scene	3.4	6.6	4.1	9.1
		Approach	3.2	6.6	4.1	9.1
		Incident	3.4	6.9	4.2	9.2
		Conseq.	3.3	6.8	4.2	9.2

Neutral	Scene	3.9	6.8	3.9	9.0
	Approach	3.7	6.7	3.8	9.0
	Incident	3.9	6.9	3.8	9.0
	Conseq.	4.2	7.4	3.7	9.0

Table 9.
The mean scores of standard deviations for the VAS measures for each stage of each script for the two dissociative capacity groups.

VAS	Script	Stage	High capacity		Low capacity	
			M	SD	M	SD
Unreality	Trauma	Scene	20.5	21.2	13.2	14.8
		Approach	13.7	11.8	16.0	16.5
		Incident	16.1	17.8	24.4	28.8
		Conseq.	29.1	27.5	20.5	26.5
	Stressful	Scene	12.8	12.6	13.1	23.8
		Approach	15.2	15.5	13.4	23.5
		Incident	16.0	15.8	12.1	19.3
		Conseq.	16.6	14.4	13.6	24.5
	Neutral	Scene	18.1	16.1	7.9	12.3
		Approach	16.8	15.3	7.5	10.8
		Incident	15.5	14.3	8.6	12.5
		Conseq.	10.6	10.5	5.7	11.2
Anxiety	Trauma	Scene	23.5	25.8	37.1	31.0
		Approach	41.1	31.3	44.8	26.7
		Incident	72.7	22.6	66.9	23.3
		Conseq.	68.0	21.4	52.6	23.7
	Stressful	Scene	34.8	34.4	37.9	31.6
		Approach	47.3	24.5	43.9	32.2
		Incident	69.9	21.3	57.0	28.8
		Conseq.	63.9	26.9	46.6	32.9
	Neutral	Scene	8.0	7.8	13.4	21.2
		Approach	6.6	6.9	4.8	3.7
		Incident	9.5	12.4	6.0	4.9
		Conseq.	5.3	6.4	6.2	9.3
Distress	Trauma	Scene	20.2	23.3	40.4	34.0
		Approach	34.3	32.2	39.6	31.5
		Incident	70.3	27.8	70.1	24.2
		Conseq.	65.4	25.0	64.6	28.2

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	Stressful	Scene	29.1	24.9	40.9	34.4
		Approach	47.2	26.1	46.1	33.2
		Incident	65.1	25.7	61.8	28.2
		Conseq.	58.9	32.8	52.4	35.0
	Neutral	Scene	7.5	5.3	6.5	5.1
		Approach	6.8	6.4	4.9	3.9
		Incident	7.5	12.2	6.4	5.7
		Conseq.	3.8	4.5	5.5	3.9
Fear	Trauma	Scene	18.8	23.8	29.7	30.7
		Approach	39.1	36.1	43.6	31.4
		Incident	65.1	32.7	68.3	26.2
		Conseq.	64.4	27.6	49.4	31.4
	Stressful	Scene	23.1	23.6	26.4	25.7
		Approach	33.0	26.1	29.8	32.3
		Incident	46.7	33.2	38.3	33.5
		Conseq.	38.0	34.5	27.6	33.3
	Neutral	Scene	5.5	4.8	5.1	3.3
		Approach	6.5	6.1	4.6	4.3
		Incident	3.7	2.4	4.7	3.9
		Conseq.	3.0	2.5	5.2	4.8
Not calm	Trauma	Scene	27.4	27.5	33.4	28.9
		Approach	49.1	32.3	38.4	29.1
		Incident	67.1	23.7	68.4	25.6
		Conseq.	61.1	25.5	56.6	31.1
	Stressful	Scene	30.5	29.2	29.4	29.0
		Approach	48.8	31.3	34.4	30.6
		Incident	66.4	22.4	51.4	31.6
		Conseq.	66.7	20.6	49.4	31.0
	Neutral	Scene	5.4	4.2	5.6	4.6
		Approach	7.5	7.7	5.1	4.2
		Incident	5.2	5.6	4.1	3.2
		Conseq.	4.8	5.6	4.4	4.6

Appendix H

The mean scores and standard deviations for each of the
psychophysiology measures for each stage of each script for the
two peritraumatic dissociation groups.

Table 10.

The mean scores of standard deviations for the psychophysiological measures for each stage of each script for the two peritraumatic dissociation groups.

VAS	Script	Stage	High capacity		Low capacity	
			M	SD	M	SD
Heart rate	Trauma	Scene	73.3	9.9	72.9	13.1
		Approach	74.0	8.5	76.3	13.2
		Incident	74.2	9.5	75.7	13.2
		Conseq.	73.0	8.9	74.2	12.5
	Stressful	Scene	73.9	8.9	75.1	14.9
		Approach	73.3	9.0	75.1	14.9
		Incident	75.3	9.4	74.9	14.9
		Conseq.	73.9	8.6	75.5	14.7
	Neutral	Scene	72.5	11.5	72.6	13.5
		Approach	73.5	11.2	70.3	15.0
		Incident	72.8	10.9	73.2	13.6
		Conseq.	73.1	12.3	74.3	13.6
Respirat.	Trauma	Scene	14.8	3.7	13.3	3.1
		Approach	15.2	2.8	14.7	3.4
		Incident	16.1	3.7	14.3	3.4
		Conseq.	16.8	3.1	14.2	3.9
	Stressful	Scene	14.8	2.9	13.7	3.5
		Approach	15.3	2.1	14.0	3.2
		Incident	14.7	2.6	15.0	3.9
		Conseq.	15.7	2.4	13.3	3.7
	Neutral	Scene	14.9	2.7	13.3	2.9
		Approach	14.8	2.6	14.2	3.6
		Incident	15.2	2.7	14.0	3.3
		Conseq.	15.5	2.6	13.5	3.3
Skin conduct. level	Trauma	Scene	5.7	8.2	1.7	7.0
		Approach	5.7	8.4	1.8	7.1
		Incident	5.6	8.3	2.0	7.3
		Conseq.	5.6	8.4	2.0	7.3

Stressful	Scene	5.4	8.3	1.8	7.1
	Approach	5.2	8.4	1.8	7.1
	Incident	5.3	8.5	2.0	7.3
	Conseq.	5.2	8.5	1.9	7.2
Neutral	Scene	5.6	8.3	1.7	7.0
	Approach	5.4	8.4	1.7	6.9
	Incident	5.5	8.5	1.7	7.0
	Conseq.	5.7	8.8	1.7	7.0

Table 11.

The mean scores of standard deviations for the VAS measures for each stage of each script for the two peritraumatic dissociation groups.

VAS	Script	Stage	High capacity		Low capacity	
			M	SD	M	SD
Unreality	Trauma	Scene	22.7	16.8	9.3	17.7
		Approach	20.7	14.7	7.6	9.9
		Incident	34.0	25.0	3.4	2.6
		Conseq.	39.3	27.7	6.4	8.3
	Stressful	Scene	20.0	22.9	4.2	4.6
		Approach	18.9	22.5	8.5	14.4
		Incident	19.7	20.3	6.8	9.6
		Conseq.	22.3	22.9	6.0	10.4
	Neutral	Scene	18.1	16.5	6.3	9.6
		Approach	16.7	16.0	6.0	7.2
		Incident	13.0	12.7	10.8	14.0
		Conseq.	10.5	13.2	5.1	6.6
Anxiety	Trauma	Scene	43.0	28.1	15.0	22.2
		Approach	54.7	23.4	28.5	28.3
		Incident	74.7	20.5	63.5	24.7
		Conseq.	60.8	22.8	59.1	25.5
	Stressful	Scene	30.0	27.3	44.4	37.5
		Approach	42.5	28.6	49.2	28.6
		Incident	67.3	24.5	58.1	27.6
		Conseq.	60.2	28.5	48.4	33.7
	Neutral	Scene	16.3	3.5	3.8	3.5
		Approach	7.7	6.4	3.1	2.0
		Incident	6.8	5.1	8.8	13.0
		Conseq.	7.5	9.7	3.6	4.3
Distress	Trauma	Scene	39.1	30.2	20.1	28.7
		Approach	46.3	30.5	25.5	29.6
		Incident	70.5	26.7	69.8	25.0
		Conseq.	63.9	25.9	66.2	27.6

	Stressful	Scene	35.1	31.3	35.4	30.3
		Approach	41.0	28.7	53.7	30.0
		Incident	65.1	28.3	61.2	25.3
		Conseq.	59.2	33.4	51.0	34.5
	Neutral	Scene	8.6	6.1	4.9	2.5
		Approach	7.4	6.4	3.9	2.6
		Incident	6.5	5.2	7.6	12.9
		Conseq.	5.4	4.4	3.8	3.9
Fear	Trauma	Scene	28.9	26.4	19.0	29.2
		Approach	48.1	33.8	33.2	31.8
		Incident	65.9	34.7	67.7	21.3
		Conseq.	53.6	33.6	60.3	25.8
	Stressful	Scene	21.3	22.4	29.2	26.7
		Approach	23.1	26.5	41.6	29.8
		Incident	36.4	35.2	49.7	29.8
		Conseq.	32.5	34.9	32.7	33.6
	Neutral	Scene	6.7	4.5	3.6	2.6
		Approach	7.0	6.2	3.7	3.0
		Incident	4.7	3.2	3.6	3.4
		Conseq.	5.0	4.1	3.1	3.7
Not calm	Trauma	Scene	33.0	24.2	27.3	32.8
		Approach	46.2	31.5	40.2	30.4
		Incident	69.8	25.8	65.2	23.0
		Conseq.	55.7	29.7	62.5	26.7
	Stressful	Scene	26.5	25.2	34.3	32.9
		Approach	35.2	29.7	49.1	32.6
		Incident	58.7	29.8	58.5	27.1
		Conseq.	60.4	27.8	54.4	27.9
	Neutral	Scene	6.9	4.7	3.8	3.2
		Approach	7.9	7.5	4.1	3.1
		Incident	4.9	4.7	4.2	4.2
		Conseq.	5.3	5.8	36.7	4.0