

## Dissociation and traumatic memory in adolescents with physical disabilities

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### Abstract

Dissociation occurs during or after an event that has caused trauma. Generally, dissociation takes place when an individual reacts during or after a traumatic event in self-protection to avoid psychological harm. This may be presented as a distortion of thoughts in terms of space, time, consciousness or even personality. This study sought to understand whether the memory of trauma influenced dissociation. A dissociation events scale was used to explore the levels of dissociation within factors such as derealisation, amnesia and absorption. A correlation design was used to find out the relationship between memory with dissociation. The results indicated that there was a positive relationship between the memory of trauma and dissociation. Pearson's correlation was used to find the relationship between the impact of the memory of trauma and dissociation. The findings were inverse. The impact of trauma increased when dissociation decreased.

Keywords: Adolescence, amnesia, disability, dissociation, trauma;

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## 1. Introduction

Dissociation manifests as alterations in a sense of time, space or person, which affects consciousness after or during a traumatic event. Dissociation marks the discontinuity of normal integration in psychosocial systems of sensations and functions, which make one have a different sense of self and personality (Karpel & Jerram, 2015). The DSM-V describes dissociation as an interruption in normal integration of consciousness memory, altered ID, emotions, perception, body presentation, motor control and behaviour (APA, 2013). The following dissociation factors may occur during the memory of traumatic events: depersonalisation or derealisation, amnesia and absorption.

Studies indicate that 10% of the general population react to trauma with a strong tendency towards dissociation (Schmid, Petermann, & Fegert, 2013). Intrusions in dissociation include hearing voices, depersonalisation or derealisation, formulated thoughts, urges emotions and actions (Dell & O'Neil, 2009). During dissociative amnesia, individuals are unable to retrieve autobiographical and explicit memory, hence a lack of chronological account regarding the traumatic event. Body memories indicate that an event occurred; it is encoded and available in the memory (Uttl, Ohta, & Siegentharl, 2006). Among AWPDS, dissociation occurs because of the painful events preceding the onset of disability or during intrusive procedures, such as surgery.

Trauma may lead to psycho-form dissociative symptoms that translate into a physical manifestation of flashbacks and hyperarousal or numbness. Somatoform dissociative symptoms include conversion, physical pain, failure of body organs and motor functions (Davulcu & Tezer, 2020; Khouzam & Field, 1999; Simon & Gureje, 1999). Dissociation is a psychological learned reaction to stimuli that are informed by defensive operations which are characterised by compartmentalisation, shifting of identity and protection from unbearable pain (Huseyin & Gönül, 2020; Padhy, Jhanda, & Malhotra, 2016). Dissociation occurs in many forms in daily life. Dissociation interrupts the individual's concentration and interaction with the environment.

Dissociation has positive symptoms that remove the focus on the event, therefore protecting the victim from harm, such as flashbacks, hearing voices, re-experiencing the trauma, hyperamnesia, affective and cognitive components, sensory distortions, pain, tics panic and somatoform presentations. Negative symptoms do not allow the individual to process trauma and includes amnesia; loss of affective feelings; depersonalisation; emotional anaesthesia; and loss of sensory, perceptual and affective motor functions (Freyd, 2009; Levesque, 2017; Nijenhuis, 2007; Rosenthal & Freyd, 2015). Depersonalisation inhibits individuals from the actual effect of the event, thus failing to interact adequately with memories of trauma.

### 1.1. Literature review

A study in Sweden investigated dissociation as an outcome of childhood trauma. The snowball sampling method was employed to recruit participants to respond to the questionnaires. The results showed that the cause of dissociation is traumatic relationships in childhood (Richardson, Murray, & Bates, 2007). Dissociation may lead to frequent daydreaming, emotional numbness, forgetfulness and unawareness of surrounding events. Adolescents are reported to faint as a dissociative response inflicting their brain and body during trauma or when they remember trauma (Green & Myrick, 2014; Nurshat et al., 2021). While most studies focused on dissociation as an outcome of childhood trauma, there is a need to explore adolescents with disabilities and find out how they relate to a memory of trauma. Proneness to fantasy and negative resilience has been related to childhood trauma and dissociation. Dissociation most of the

time influences the ability to concentrate and therefore may influence memory, a fact that the current study has explored.

A study among undergraduate students in Oregon indicated that traumatised individuals use dual-tasking dissociation to keep information that is contrary to survival goals away from consciousness (DePrince & Freyd, 1999). This study has similar results to a study that was carried out in the Northwest Territory in Canada among 143 participants, who are survivors of childhood sexual abuse. Quantitative data for symptoms and qualitative data for an in-depth examination of the emergence of traumatic memory were carried out. The findings showed that dissociative survivors had more symptoms since the trauma was re-associated with the memory which triggered an emotional crisis (Malmo & Laidlaw, 2010). While these studies identified the relationship between dissociation on cognition, they did not explore the relationship between the memory of trauma on psychosocial constructs among adolescents with disabilities.

Dissociation manifests as alterations in a sense of time, space or person that affect consciousness following or during a traumatic event. Dissociation marks the discontinuity of normal integration in psychobiosocial systems of sensations and functions, which make one have a feeling of a different sense of self and personality (Karpel & Jerram, 2015). The DSM-V described dissociation as an interruption in normal integration of consciousness memory, altered ID, emotions, perception, body presentation, motor control and behaviour (APA, 2013). The following dissociation factors may occur during the memory of traumatic events: depersonalisation or derealisation, amnesia and absorption. Studies indicate that 10% of the general population reacts to trauma with a strong tendency towards dissociation (Schmid et al., 2013). Intrusions in dissociation include hearing voices, depersonalisation or derealisation, formulated thoughts, urges emotions and actions (Dell & O'Neil, 2009). During dissociative amnesia, individuals are not able to retrieve autobiographical and explicit memory, hence a lack of chronological account regarding the traumatic event. Body memories indicate that an event occurred; it is encoded and available in the memory (Uttl et al., 2006). Among AWPDs, dissociation occurs because of the painful events preceding the onset of disability or during intrusive procedures. such as surgery.

### *1.2. Related studies*

In a study on dissociation, among survivors of the Hyatt Regency Hotel skywalk collapse, the survivors reported derealisation and depersonalisation at the time of the event. Dissociation made participants not experience the whole extent of the event in a bid to protect the individual from experiencing the trauma pain. It, therefore, influenced the memory of the event. Another study reported that 10% of the patients attending general psychiatry clinics presented dissociative disorders (Nijenhuis, 2007). These studies, however, were not specific to persons or adolescents with disabilities. The current study sought to fill the gap by addressing the developmental stage, dissociation and memory of trauma among AWPDs.

A study carried out in a hospital among patients who had experienced trauma showed that 38% failed to report any trauma, 68% acknowledged other forms of abuse and 12% reported some form of abuse (Williams, 1994). It is not clear whether failure to report trauma was related to dissociation. A literature study on 'Dissociation a major feature of complex PTSD' indicated that traumatised individuals are characterised by the structural dissociation of personality which causes the action systems of daily life to be inhibited during threatening situations. This explains the inability to remember some events following trauma experiences, the inability to take action and at times remembering events in bits. The current study enquired about the relationship of the extent of memory with dissociation.

Adolescence increases the chances of experiencing dissociation due to adaptive risk-taking behaviours that are trauma-oriented. Dissociation is formed by reduced production of specific memories that help the brain avoid painful emotions related to trauma (Moore & Zoellener, 2007; Ninjehuis & Vanderhart, 2011), especially in childhood.

### 1.3. Purpose of the study

Dissociation occurs during or after an event that has caused trauma. Generally, dissociation takes place when an individual reacts during or after a traumatic event in self-protection to avoid psychological harm. This may be presented as a distortion of thoughts in terms of space, time, consciousness or even personality. This study sought to understand whether the memory of trauma influenced dissociation.

## 2. Materials and method

### 2.1. Participants

The study was qualitative and a correlation research design was applied among learners who had a physical disability ( $n = 129$ ).

### 2.2. Data collection tool

A dissociation events scale was administered to the participants to establish their levels of dissociation. Memory was measured using a scale that enquired how much of the event could be recalled.

### 2.3. Analysis

Pearson's correlation was used to find out the relationship between the memory of trauma and dissociation. Triggers of the memory of trauma included a list of events that could evoke memory. Analysis was carried out using Statistical Package for the Social Sciences 21.

## 3. Results

The findings from the Dissociation Event Scale were correlated with triggers of the memory of trauma and extent of memory to find out the relationship. Table 1 shows the findings.

Table 1. Pearson's correlation between memory of trauma and dissociation

		ELMT	EM	ILMT
Absorption factors	Pearson's correlation	0.169	0.059	0.248 <sup>b</sup>
	Sig. (2-tailed)	0.055	0.507	0.005
	<i>N</i>	129	129	129
Derealisation factor	Pearson's correlation	0.128	0.052	0.064
	Sig. (2-tailed)	0.148	0.555	0.474
	<i>N</i>	129	129	129
Amnesia factors	Pearson's correlation	0.177 <sup>a</sup>	0.129	0.235 <sup>b</sup>
	Sig. (2-tailed)	0.045	0.145	0.007
	<i>N</i>	129	129	129
Dissociation	Pearson's correlation	0.171	0.036	0.256 <sup>b</sup>
	Sig. (2-tailed)	0.052	0.686	0.003
	<i>N</i>	129	129	129

There was a weak positive relationship between dissociation and external memory of triggers [ $r(129) = 0.171, p = 0.052$ ], a relationship that was not statistically significant ( $p > 0.05$ ). An increase in recall from external loci memory triggers correlated with an increase in dissociation. A weak statistically significant positive relationship was established between internal loci triggers and dissociation [ $r(129) = 0.256, p = 0.003, p < 0.05$ ]. There was a weak positive relationship between the extent of memory and dissociation [ $r(129) = 0.036, p = 0.686$ ]. There was a weak positive relationship between the derealisation factor in dissociation and memory of trauma [ $r(129) = 0.052, p = 0.555$ ], a relationship that was not statistically significant. There was statistically significant positive relationship between dissociative amnesia and external loci of memory triggers [ $r(129) = 0.177, p = 0.045$ ] and internal loci of memory triggers [ $r(129) = 0.235, p = 0.007$ ] and extent of memory [ $r(129) = 0.129, p = 0.145$ ], respectively. There was a positive relationship between dissociative absorption ELMT [ $r(129) = 0.169, p = 0.055$ ] and extent of memory [ $r(129) = 0.059, p = 0.507$ ]. ILMT [ $r(129) = 0.248, p = 0.005, p < 0.05$ ] had a positive statistically significant relationship between dissociative absorption and internal memory of trauma. The correlation of the impact of the memory of trauma with dissociation is  $r(129) = -0.530, p = 0.000$ .

#### 4. Discussion

The triggers increase the content of memory and contribute to awareness of the trauma event, feelings and thoughts of the trauma; therefore, the defence mechanism to block the memories activates. Memories of trauma enable the individual to encode and make meaning of the event. External triggers did not highly influence dissociation as indicated by the significance levels. Dissociation affects the integration of the whole system, physically, psychologically and biologically. Due to the ability of children and adolescents to recall trauma (van Wesel, Boeifje, Alistic, & Drost, 2011), the effect of dissociation is minimal. These findings are similar to a study that reported that the dissociation mean scores for newly arrived participants from combat and the settled participants from trauma did not differ significantly (Hebert, Langevin, & Oussaid, 2017). This means that, whether trauma is old or recently experienced, dissociation would occur as long as the memories are experienced.

A weak statistically significant positive relationship was established between internal loci triggers and dissociation, meaning that an increase in internal loci memory triggers was correlated with an increase in dissociation. This was because the awareness of a painful memory caused the unconscious status of the mind to protect itself from the harm that could be caused by the trauma. While one can control the external triggers by deliberate distraction, internal triggers may be difficult to control. Since the relationship was significant, it means the two variables strongly influence each other. The findings agree with a study that reported that dissociation is present in everyday life (Padhy et al., 2016) because of internal triggers of memory of trauma. In dissociation, the memory of trauma is prevented from consciousness causing trauma-related memory decay hence the significant relationship. Dissociation interferes with the performance of working memory (Frewen, Kleindienst, Lanius, & Schmahl, 2014). The internal loci memory triggers mainly influence the operation of implicit memory.

There was a weak positive relationship between the extent of memory and dissociation. The correlations indicate that the increase in the content of the memory of trauma is associated with an increase in dissociation episodes. However, the relationship was not statistically significant ( $p > 0.05$ ). Previously, in the current study, the extent of memory findings showed that 23% of the participants had full recall of the trauma event; therefore, the rest of the AWPDs had a fragmented memory of the event. These findings are similar to the study that reported that insufficient encoding of trauma memory leads to fragmentation of memory (Bedard-Gilligan & Zoellnern, 2012) causing one not to remember the whole event. The findings are in tandem with research that explained that young people are capable of obtaining and recalling memories of past experiences (Bauer & Larkina, 2014; Cordon, Pipe, Sayfan,

Melinder, & Goodman, 2004; Peterson, Grant, & Boland, 2005). Children maintain vivid and comprehensive memories of trauma (van Wesel et al., 2011). The extent of memory does not provide an environment for dissociation because, with the increase in the vividness of the memory, the recalled content is processed hence reducing the chances of the occurrence of dissociation. The internal loci memory triggers relate to the extent of memory; therefore, resulting in dissociation. This finding is in agreement with a study that confirmed that there is a relationship between trauma and dissociation (Armour, Karstoft, & Richardson, 2014; Yanartos et al., 2015). Dissociation would therefore affect the individual's productivity since it interferes with alertness, concentration and interactions.

There was a weak positive relationship between the derealisation factor in dissociation and memory of trauma, a relationship that was not statistically significant. The memory of trauma leads to continuous dissociation as the individual resists the painful feelings evoked by the memories. Derealisation occurs during dissociation whereby one feels that they are not the ones experiencing the painful event, and it interferes with memory. The environment, sense of self and identity, perception and mobility (Karpel & Jerram, 2015) is therefore distorted from the reality of the victim of trauma. The process of dissociation interferes with the way the individual responds to their environment and the people around them because during the episode, the individual is not in touch and not himself.

There was a statistically significant positive relationship between dissociative amnesia and external loci of memory triggers, internal loci of memory triggers and extent of memory. Amnesia influences the recall of personal information regarding trauma (Soffer-Dudek, Lassri, Soffer-Dudek, & Shahar, 2015). It is also reversible as the person continues to heal from the effect of trauma. The findings show a significant correlation between internal and external triggers of memory, which agrees with a study that reported that internal triggers caused the memory of trauma more than external triggers (Malmo & Laidlaw, 2010), implying that if the AWPD experienced more of internal loci triggers of memory of trauma, then the levels of dissociation would increase because more of the event is recalled. When amnesia occurs, then dissociation is a sign of increase since the memory of the event is blocked off completely.

There was a positive relationship between dissociative absorption and the extent of memory, which also had a positive relationship statistically significant between dissociative absorption and internal memory of trauma. Absorption engages the individual beyond consciousness as they concentrate on their activity (Carleton, Peluso, Abrams, & Asmudson, 2012) causing experiential avoidance. Increased memory may lead to more absorption into the activity one is involved in to reduce the effects of the memory. Generally, dissociation episodes may result in interference with self-competence, self-esteem and the presentation of somatic symptoms. The findings indicated that internal memory triggers had a greater effect on dissociation compared to external memory triggers and the extent of the memory of trauma.

#### *4.1. Relationship between the impact of the memory of trauma and dissociation*

The correlation of the impact of the memory of trauma with dissociation had a strong negative statistically significant relationship. When the memory of trauma increases, the levels of dissociation among the participants decreases. These findings are in agreement with reports from the Centre of Substance Abuse in the US, in 2014, which emphasised that dissociation takes place after the trauma event. Dissociation shields the individual from experiencing the full impact of trauma and keeps them away from the distress caused by the trauma. The findings are also in agreement with a literature studies that reported that dissociation is a product of a history of trauma and a coping strategy (Dinehart, Panahi, & Kamimura, 2021; Malmo & Laidlaw, 2010). In this case, the impact of trauma is less experienced with an increase in dissociation.

## 5. Conclusion

Correlations results showed that external and internal loci triggers of memory and extent of memory with dissociation had a positive relationship. The internal loci memory triggers had a stronger positive relationship with dissociation indicating that as the trauma memory triggers increased, dissociation increased because the suppressed memory is brought from the subconscious memory to the conscious one.

The relationship between the impact of trauma memory and dissociation indicated a significant relationship; therefore, the impact of the memory of trauma highly influences the participant's quality of life. The researcher, therefore, recommends that individuals who have experienced trauma need to be assessed for dissociation to enable them to come to terms with their experiences, hence facilitating psychological healing. Further comparative studies need to be carried out among the general population on dissociation.

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