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### ► To cite this version:

Alexis Vancappel, L. Suzan, S. Bailly, M. Fraigneau, Christian Réveillère, et al.. Exploring strategies to cope with dissociation and its determinants through functional analysis in patients suffering from PTSD: A qualitative study. European Journal of Trauma and Dissociation, 2022, 6 (2), pp.100235. 10.1016/j.ejtd.2021.100235 . hal-03590404

**HAL Id: hal-03590404**

**<https://hal.science/hal-03590404>**

Submitted on 16 Oct 2023

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## Exploring strategies to cope with dissociation and its determinants through functional analysis in patients suffering from PTSD: a qualitative study

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**Ethical approval:** The experiment and consent procedures were approved by the ethics committee of the University (Comité d'Ethique de la Recherche Tours-Poitiers).

**Availability of data and materials:** The datasets gathered and/or analyzed during the current study are available from the corresponding author on reasonable request.

**Competing interests:** There is no competing interest.

**Authors' contributions:** All authors took part in developing the methodology. The first three authors performed the semi-structured interviews. The first two authors performed the qualitative analysis. The first author wrote the first version of the manuscript. All authors added modifications and approved the final version.

**Acknowledgements:** We would like to thank all the participants and the colleagues who helped us to gather the data.

**Funding:** This work did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## **Abstract**

**Introduction:** Dissociation is a contraindication for cognitive behavior therapy (CBT) for PTSD and has been observed to impair CBT efficacy. Therefore, there is a need to identify the determinants of dissociation through functional analysis, as well as strategies to cope with dissociation. Identifying such determinants would allow clinicians to treat dissociation and would therefore increase CBT efficacy for patients suffering from dissociation and PTSD.

**Method:** We recruited 15 patients suffering from dissociative subtype of PTSD. We used self-report scales to measure post-traumatic symptoms, dissociative symptoms and emotion regulation abilities. We used a visual analog scale to measure the ability to control dissociation. A trained clinician then carried out semi-structured interviews to explore the determinants of dissociation.

**Results:** We identified different manifestations, positive and negative beliefs, and triggers of dissociation, and strategies to block it. A functional analysis of dissociation was developed based on these data.

**Conclusion:** Cognitive restructuring techniques could be used to change beliefs about dissociation. Different strategies to block dissociation has been identified in this study, such as concentration, emotion regulation, and reality anchor techniques.

**Key-words:** dissociation; beliefs; CBT; PTSD, emotion regulation, determinants, functional analysis

## **1. Introduction**

A range of psychotherapies are currently available to treat post-traumatic stress disorder (Bilodeau & El-Hage, 2018). Cognitive behavior therapy (CBT) for PTSD and Prolonged Exposure Therapy (Foa et al., 2007) are the most widely recommended and scientifically validated forms of treatment (Foa et al., 2010; National Collaborating Centre for Mental Health (UK), 2005; World Health Organization, 2013). A meta-analysis suggests that more than 86% of patients suffering from PTSD recover after Prolonged Exposure Therapy (Powers et al., 2010).

More recently, there has been increased interest in dissociative manifestations among patients suffering from PTSD. Dissociation is described as a disruption in the usually integrated functions of consciousness, memory, identity, and perception of the environment (American Psychiatric Association, 2013). Dissociative symptoms are frequently observed in Post-Traumatic Stress Disorder (PTSD), and the dissociative subtype of PTSD has consequently been included in the DSM-5 (American Psychiatric Association, 2013). In addition to common PTSD symptoms, the dissociative subtype of PTSD is marked by depersonalization (i.e., feeling detached from oneself, a sense of not being real) and/or derealization (i.e., feeling as if the world is not real). Studies suggest that approximately 15% of patients suffering from PTSD present with additional dissociative symptoms (Stein et al., 2013; Wolf et al., 2012).

Some researchers have suggested that dissociation may be a problem for CBT, and it is in fact one of the contraindications of Prolonged Exposure Therapy (Foa et al., 2007). Although some studies found that dissociation has no moderating effect on treatment outcomes (Hagan et al., 2018; Halvorsen et al., 2014; Zoet et al., 2018), others indicated that it could moderate the outcome of psychotherapy through positive associations with poor treatment results and/or residual symptoms (Feeny & Danielson, 2004; Kleindienst et al., 2016; Lanius, Frewen, et al., 2010; Lanius et al., 2012; Price et al., 2014; Steuwe et al., 2012; Wolf et al., 2012). Furthermore, dissociation appears to interfere with treatment, particularly when patients face intense emotions (Lanius, Frewen, et al., 2010; Lanius, Vermetten, et al., 2010). According to dual representation theory (Brewin et al., 1996), dissociation may impair the creation of verbally accessible memories (VAM), while the development of such memories is the aim of psychotherapy. Taken together, these results highlight the need to develop new psychological tools to deal with dissociation before beginning prolonged exposure therapy.

To this end, it would be interesting to explore the determinants of dissociation and carry out functional analysis of patients suffering from dissociative subtype of PTSD. Qualitative studies could help identifying discriminative stimuli, beliefs related to dissociation or behavior incompatible with it. To our knowledge, only one qualitative study of dissociation has been conducted, involving 8 patients suffering from PTSD. The researchers explored peritraumatic dissociation manifestations and identified preserved perceptual and basic cognitive processes, but impaired ability to synthesize information, as proposed by Pierre Janet (1889) (Mattos et al., 2016). However, the study did not include patients suffering from chronic dissociative symptoms. Moreover, it explored the manifestations of dissociation but not its determinants (beliefs, stimuli, etc.), as recommended for functional analysis (Kanfer & Saslow, 1969).

The aim of the present study was thus to identify the determinants (discriminative stimuli, thoughts and emotions) of dissociation among patients with dissociative subtype of PTSD through functional analysis. A better understanding of determinants of dissociation would enable clinicians to develop treatments for dissociation based on this analysis. Another aim is to identify strategies to cope with dissociation.

## **2. Method**

### **2.1. Procedure**

Fifteen participants (11 Woman, mean age=32.93±10.14) were recruited after psychiatric consultations in a public hospital between May and July 2020. They were at least 18 years old and have been diagnosed with dissociative subtype of PTSD by their psychiatrist. Two patients met also the criteria for borderline personality disorder. They signed an informed consent form after receiving written and verbal information about the study from the clinician. All participants completed entirely the experiment. The experiment and consent procedures were approved by the ethics committee of the University (Comité d’Ethique de la Recherche Tours-Poitiers).

Participants answered few short questions about their age, sex, years of study, and substance use. Then they completed questionnaires and scales assessing PTSD, dissociation and emotion regulation. Semi-structured interviews were administered to identify the determinants of dissociation. Finally, participants were asked to evaluate their level of control of dissociation on a visual analog scale ranging from 0 (not at all) to 10 (perfectly). Three clinicians (AV, LS

and SB) performed the interviews. For each participant, data were gathered in a single interview.

## 2.2. Measures

### 2.2.1. Dissociative Experience Scale (DES)

The DES is a 28-item self-report questionnaire evaluating trait dissociation (Bernstein & Putnam, 1986). A typical item is “Some people have the experience of driving a car and suddenly realizing that they don’t remember what has happened during all or part of the trip”. Participants are asked to rate how often each experience happens to them on a scale ranging from 0 (never) to 100 (always). The overall score is the mean of the scores of all the items ranging from 0 to 100. French validation studies show good internal consistency ( $\alpha=0.94$ ) (Darves-Bornoz et al., 1999).

### 2.2.2. Difficulties in Emotion Regulation Scale (DERS)

The Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004) is a 36-item self-report questionnaire assessing emotion regulation difficulties. A typical item is “I am clear about my feelings”. Items are rated from 1 (almost never) to 5 (almost always). The French version has good internal consistency for all the sub-dimensions, with Cronbach alpha values of 0.84 to 0.90 (Dan-Glauser & Scherer, 2013).

### 2.2.3. Post-traumatic Stress Disorder Checklist (PCL-5)

The Post-traumatic Stress Disorder Checklist (Blevins et al., 2015) is a 20-item self-report questionnaire assessing symptoms of PTSD. A typical item is “In the past month, how much were you bothered by repeated, disturbing, and unwanted memories of the stressful experience?” Items are rated from 0 (not at all) to 4 (extremely). The French version has excellent internal consistency ( $\alpha=0.94$ ) (Ashbaugh et al., 2016).

## 2.3. Semi-structured interview

After a brief explanation of dissociation, clinicians conducted semi-structured interviews with the participants. These interviews were recorded with the participants’ consent, to enable qualitative analysis. The following questions were asked:

- What manifestations of dissociation do you have?
- When does dissociation usually appear?
- What is/are the similarity(ies) between these situations?

- When does dissociation not appear?
- What is/are the similarity(ies) between these situations?
- What techniques do you use to block dissociation?
- What is/are the similarity(ies) between these techniques?
- In what way do you think dissociation is helpful?
- In what way do you think dissociation is unhelpful?

The clinician explored the patient's response to each question and asked if they had anything to add before moving on to the next question.

#### 2.4. Thematic analysis

We used thematic analysis to process the data (Braun & Clarke, 2006). The interviews were transcribed and were first read for overall familiarization and then read again and coded using a double-coding procedure. The data were coded first by the first author and then by the second author; minor disagreements were resolved, and the codes were categorized in themes and sub-themes.

### 3. Results

#### 3.1. Descriptive data

We recruited 15 participants (11 women, age=32.93±10.14). Two participants had not completed high school, five participants had obtained a school-leaving diploma and eight participants had completed higher studies. Two participants were regular drug users. All participants met the criteria for dissociative subtype of PTSD. Quantitative results are presented in Table 1.

-Insert Table 1-

#### 3.2 Thematic Analysis

Five themes were identified. The number and percentage of participants who mentioned each theme and sub-theme are presented in Table 2.

### **Theme 1: Manifestations of dissociation**

All the participants described their experience of dissociation. The most commonly observed manifestations (in order of frequency) were: depersonalization (e.g., *"Most of the time, I fly"*), altered perception (e.g., *"I realize I've spent two hours doing the same thing, while I thought it took 10 minutes"*), physiological manifestations (e.g., *"I feel I'm going to faint"*), absorption (e.g., *"I'm completely lost in my thoughts."*), anesthesia (e.g., *"There's nothing in my head anymore"*), derealization (e.g., *"It's like a dream"*), being split into multiple personalities (e.g., *"I have multiple sides. I told doctor E., it's like a diamond, which has multiple facets."*).

### **Theme 2: Positive beliefs and emotions about dissociation**

Almost all the participants mentioned positive beliefs about dissociation; 93.33% said that it relieved negative emotions (e.g., *"Pain is too strong, and my body can't take it, so it protects me"*). Two patients also said that it helped them to cope (e.g., *"I don't know how people cope without dissociation"*).

### **Theme 3: Negative beliefs and emotions about dissociation**

All the participants mentioned negative aspects of dissociation. All of them said that it impaired their functioning in terms of relationships, memory, concentration, etc. (e.g., *"When I'm in class, I realize I switched off for 10 minutes, and I have to catch up"*); 46.67% experienced negative emotions such as anger, fear, guilt or sadness induced by dissociation (e.g., *"Negative points of dissociation? Sometimes it makes me sad"*); 40% also perceived dissociation as madness or lack of control (e.g., *"I have the feeling of being completely mad"*).

### **Theme 4: Dissociation triggers**

For 86.67% of the participants, dissociation appeared after a negative emotion, which may or may not be related to the traumatic experience (e.g., *"Generally, when I read something traumatizing, or something that reminds me of the traumatic event, I feel dissociated"*). All

aversive emotions (fear, sadness, guilt, anger...) with different intensity were mentioned as potential triggers for dissociation. For 73.33%, dissociation sometimes occurred without any obvious trigger (e.g., *"Dissociation can appear anytime"*). Finally, a few participants mentioned other triggers such as an overstimulation of cognitive information or tiredness (e.g., *"It's possible that I dissociate more when I'm tired"*).

### **Theme 5: Strategies to block dissociation**

Participants identified a range of strategies to block dissociation. These strategies could be mentioned as decreasing dissociation after its onset or as preventing dissociation before its onset. The most common strategies are concentration techniques (80%) (e.g., *"We throw a Freddie Mercury doll in the air, and we have to say the name of an author or an artist before it lands"*), emotion regulation (73.33%) (e.g., *"breathing"*), and reality anchoring techniques (66.67%) (e.g., *"Everything that makes me feel something"*). They also mentioned social support (e.g., *"I call someone"*), feeling safe (e.g., *"When I'm in a situation without pressure, violence or aggression, with good people and caring people"*) and physiological stimulation techniques (e.g., *"Sugar helps me"*). Among the participants, 40% mentioned difficulty managing dissociation (e.g., *"I have no techniques, I live with it"*), while 26.67% said they could control it (e.g., *"I can't stop it happening, but I can reduce it and keep it under control"*).

### **3.3. Functional analysis of dissociation**

Based on these data, we proposed a functional analysis of dissociation (Figures 1 and 2). We used S-R-C model with chaining behavior to conceptualize the contingencies of dissociation (Pierce & Cheney, 2008). We identified the initial trigger of dissociation and then, we considered the first response as the stimulus for the next response. Responses considered could be Pavlovian or Skinnerian. In that way, participants' explanations suggest that negative emotions usually trigger dissociation. They can think positively or negatively about dissociation; positive thoughts may increase dissociation by not seeking to block it, whereas negative thoughts may increase negative emotions and therefore dissociation, even if they can also lead to strategies to reduce the effect.

-Insert figure 1-

-Insert figure 2-

#### **4. Discussion**

This study aimed to identify the determinants of dissociation in patients suffering from dissociative subtype of PTSD. First, we identified the common manifestations of dissociation: depersonalization, alteration of perception, physiological manifestations, absorption, anesthesia, derealization, splitting into multiple personalities. These manifestations are commonly evaluated with scales such as the Dissociative Experiences Scale (Bernstein & Putnam, 1986), the Clinician-Administered Dissociative States Scale (Bremner et al., 1998) and the Somatoform Dissociation Questionnaire (Nijenhuis et al., 1996).

We also identified positive beliefs about dissociation. Almost all the participants mentioned that dissociation is a way of finding relief. This is in line with the view that dissociation can be conceptualized as an emotional avoidance (O'Driscoll et al., 2014). In the present study, none of our patients mentioned that they could deliberately dissociate, but some recognized the stimuli that could trigger dissociation and voluntarily approach them. Other patients declared they did not want to fight it. This may suggest that dissociation is a Pavlovian rather than a Skinnerian response (Pierce & Cheney, 2008). In other words, positive consequences may not reinforce dissociation itself, but may reinforce behavior leading to dissociation or to not fighting it. We also identified negative beliefs and emotions related to dissociation. All the participants said that it impaired their functioning. This emphasizes the importance of developing techniques to treat dissociation. Participants perceived dissociation as madness and as triggering negative emotions that may actually increase the effect. We also observed that participants mostly said that dissociation was triggered by negative emotions, but that they could not always identify the trigger. However, many patients explained that sometimes dissociation appears without any trigger. One possible explanation is that there is actually a trigger but patients were not able to identify them.

Finally, our qualitative study enabled us to identify several techniques that could be used to block dissociation, such as enhancing concentration, emotion regulation, and reality anchor

techniques, family support, feeling safe, and physiological stimulation techniques. The efficacy of these techniques may be evaluated in further research. Use of emotion regulation techniques is congruent with the relationship between dissociation and emotional dysregulation identified in the literature (Powers et al., 2015). The diversity of techniques mentioned also suggests that different techniques should be used depending on the specific manifestations of dissociation. In accordance with the defense cascade model (Kozłowska et al., 2015), we can suppose that emotion regulation techniques may be the most useful for patients with low dissociative manifestations and arousal activity. However, for patients with more intense dissociative manifestations and low arousal activity, physiological stimulation techniques might be more beneficial. Further research may also compare the efficacy of the different techniques depending on patients' specific dissociative manifestations.

### **Implications**

This study has a number of implications. At the clinical level, cognitive restructuring techniques such as Socratic questioning could be used to develop more neutral beliefs about dissociation. Neither strong positive or negative beliefs about dissociation seem to be useful. Explaining that dissociation was helpful at the time of the traumatic event but that it is now a deleterious strategy that needs to be reduced may help the patient develop a different view of dissociation. Psychoeducation could be a useful therapeutic tool to develop these beliefs. For patients who do not know what triggers dissociation, psychotherapy could focus on helping them identify the triggers. To do so, patient could learn to discriminate the different intensity levels of their dissociation. Then, they could be asked to observe themselves to identify when the dissociation starts and when it increases. Patients can be shown how to use all the techniques mentioned in this study. This study also has implications for research. It would be interesting to replicate the results using quantitative techniques. This would require developing a tool to assess beliefs about dissociation and identify the relationship between them. The effect of the different techniques to block dissociation could also be tested in a randomized controlled study.

### **Limitations**

This study has a few limitations. As a qualitative study, there were few participants, making it difficult to generalize the conclusions. It was conducted with patients suffering from dissociative subtype of PTSD, and it cannot therefore be concluded that the same phenomena are found in all patients suffering from dissociation. Finally, we observed the occurrence of

dissociation's contingencies (such as beliefs, negative emotions...), but we cannot conclude that these contingencies have a causal relationship with dissociation.

## 5. Conclusion

Patients suffering from dissociative subtype of PTSD have positive and negative beliefs about dissociation. These beliefs may be crucial in the maintenance of dissociation. They determine whether patients want to block dissociation. Multiple strategies could be used to block dissociation such as enhancing concentration, emotion regulation, and reality anchor techniques, family support, feeling safe, or physiological stimulation techniques.

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**Table 1.** Quantitative descriptive data.

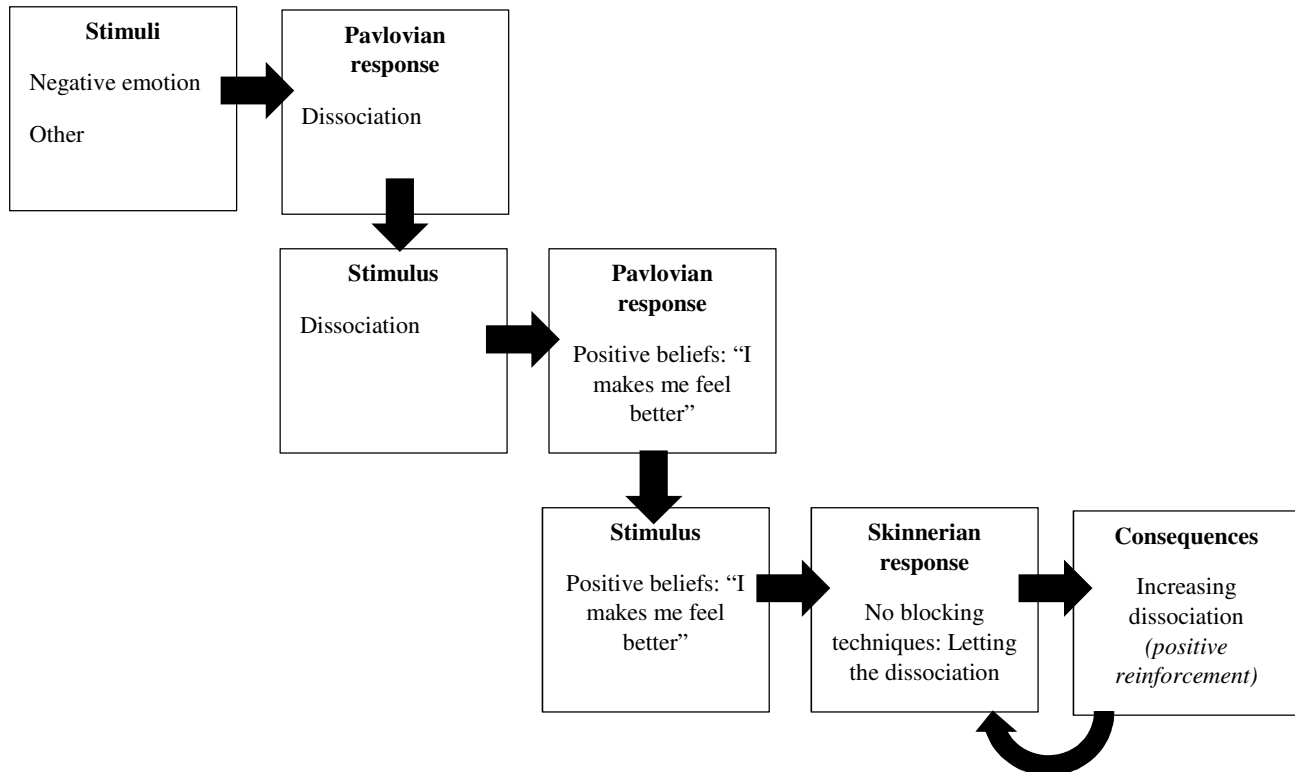
<b>Dimension</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Minimum</b>	<b>Maximum</b>
<b>PCL-5</b>	44.40	16.52	15	70
<b>DERS-NA</b>	20.33	7.26	7	30
<b>DERS-E</b>	18.	5.34	6	25
<b>DERS-I</b>	16.4	6.02	8	28
<b>DERS-L</b>	18.8	5.75	9	26
<b>DERS-S</b>	25.47	5.16	14	33
<b>DERS-C</b>	13.47	5.32	4	24
<b>DES</b>	40.43	21.41	8.93	81.07
<b>DES-DD</b>	43.33	26.43	10	95
<b>DES-AI</b>	48.96	20.95	8.89	83.33
<b>DES-A</b>	23.17	24.39	0	76.25
<b>VAS</b>	3.8	2.48	0	8

*PCL-5: Post-Traumatic Stress Disorder Checklist; DERS: Difficulties in emotion regulation scale; NA: non acceptance of emotional response; E: Difficulties in engaging with goals; I: lack of control of impulsivity; L: lack of emotional awareness; S: lack of access to strategies; C: lack of emotional clarity; DES: dissociative experiences scale; DD: depersonalization-derealization; AI: absorption-imaginative implication; A: Amnesic dissociation; VAS: visual analog scale for controlling dissociation*

**Table 2.** Number and percentage of participants who mentioned each theme and sub-theme.

Theme	Sub-theme	Number of participants	Percentage of participants
<b>Manifestations of dissociation</b>		15	100
	Depersonalization	11	73.33
	Alteration of perception	5	33.33
	Physiological manifestations	5	33.33
	Absorption	4	26.67
	Anesthesia	4	26.67
	Derealization	4	26.67
	Dividing into multiple personalities	2	13.33
<b>Positive beliefs about dissociation</b>		14	93.33
	Dissociation provides relief	14	93.33
	Dissociation helps cope	2	13.33
<b>Negative beliefs and emotions about dissociation</b>		15	100
	Dissociation impairs functioning	15	100
	Secondary negative emotions induced by dissociation	7	46.67
	Dissociation means madness or loss of control	6	40
<b>Dissociation triggers</b>		15	100
	Aversive stimuli	13	86.67
	No identifiable triggers	11	73.33
	Other triggers	4	26.67
<b>Strategies used to block dissociation</b>		15	100
	Concentration techniques	12	80
	Emotion regulation techniques	11	73.33
	Reality-anchoring techniques	10	66.67
	Difficulty controlling dissociation	6	40
	Good control of dissociation	4	26.67
	Family support	4	26.67
	Feeling safe	3	20
	Physiological stimulation techniques	2	13.33

**Figure 1. Functional analysis of dissociation with chaining behavior for patient with positive beliefs about dissociation**



**Figure 2. Functional analysis of dissociation with chaining behavior for patient with negative beliefs about dissociation**

