Compartir google doc con rodrigo. El avanzara en metodologia y yo trabajo en lo que avanzamos en reunión. Luego le aviso a el para que lo revise y edite en general.

Revisar las siguientes refs:

Auxéméry, Y. (2012). [Posttraumatic stress disorder (PTSD) as a consequence of the interaction between an individual genetic susceptibility, a traumatogenic event and a social context].*L’Encephale*, *38*(5), 373–380. doi:10.1016/j.encep.2011.12.003

Bovin, M. J., & Marx, B. P. (2011). The importance of the peritraumatic experience in defining traumatic stress. *Psychological Bulletin*, *137*(1), 47–67. doi:10.1037/a0021353

Bryant, R. A. (2007). Does dissociation further our understanding of PTSD? *Journal of Anxiety Disorders*, *21*(2), 183–191. doi:10.1016/j.janxdis.2006.09.012

Candel, I., & Merckelbach, H. (2004). Peritraumatic dissociation as a predictor of post-traumatic stress disorder: a critical review. *Comprehensive Psychiatry*, *45*(1), 44–50. doi:10.1016/j.comppsych.2003.09.012

Cardeña, E., & Carlson, E. (2011). Acute stress disorder revisited. *Annual Review of Clinical Psychology*, *7*, 245–267. doi:10.1146/annurev-clinpsy-032210-104502

Gandubert, C., Scali, J., Ancelin, M. L., Carrière, I., Dupuy, A. M., Bagnolini, G., … Chaudieu, I. (2016). Biological and psychological predictors of posttraumatic stress disorder onset and chronicity. A one-year prospective study. *Neurobiology of Stress*, *3*, 61–67. doi:10.1016/j.ynstr.2016.02.002

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Pérez Benítez, C. I., Vicente, B., Zlotnick, C., Kohn, R., Johnson, J., Valdivia, S., & Rioseco, P. (2009). *Salud Mental (Mexico City, Mexico)*, *32*(2), 145–153.

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Ursano, R. J., Fullerton, C. S., Epstein, R. S., Crowley, B., Vance, K., Kao, T. C., & Baum, A. (1999). Peritraumatic dissociation and posttraumatic stress disorder following motor vehicle accidents. *The American Journal of Psychiatry*, *156*(11), 1808–1810. doi:10.1176/ajp.156.11.1808

Copiado de McKinnon 2016:

Dissociative experiences have been conceptualized as lying on a continuum from normal integration of consciousness, followed by depersonalization/derealization, through to identity fragmentation (Bernstein and Putnam, 1986; Bremner and Marmar, 1998; Spiegel, 1997). One recent theory suggests that dissociative experiences may be separated into two distinct forms, involving detachment (e.g., altered states of consciousness) and compartmentalization (e.g., inability to control deliberately processes such as memory) (Holmes et al., 2005). Other researchers have noted the distinction between altered states of consciousness and structural dissociation (e.g., divisions in personality), while noting that the two may co-occur in trauma-related disorders (Steele et al., 2009)

the trauma model of dissociation suggests that dissociation is a psychobiological response to threat or danger that allows an organism to engage in automized behaviour, enhancing analgesia, depersonalization, and removal of oneself from traumatic or catastrophic experiences with the aim of enhancing survival during and after the event (Dalenberg et al., 2012). Accordingly, dissociation allows for psychological escape when physical escape is not possible (Putnam, 1997). In addition to their association with traumatic life events, dissociative symptoms are frequently associated with disrupted development of attachment relationships (Dutra et al., 2009; Liotti, 2006, 2004; Schore, 2002, 2009).

Critically, poor cognitive functioning is thought to contribute to the development and maintenance of PTSD and other psychiatric disorders, where, for example, executive dysfunction impacts negatively on response to pharmacological and non-pharmacological treatments for psychiatric disorders including mood disorders and PTSD (Dunkin et al., 2000; Polak et al., 2012; Wild and Gur, 2008) (but see Walter et al. (2010)).

Mail Rodrigo

BACKGROUND:

Pienso que falta formular mejor la pregunta e hipótesis de investigación (falta una argumentación que resalte mejor el vacío de conocimiento o la controversia, que permita entender mejor el valor agregado del trabajo).

Controversia de valor predictivo de fenomenos disociativos para predecir el riesgo de ptsd. Algunos dicen que si y otros que no. Los datos en controversia se han obtenido en momentos distintos y con instrumentos. Los que miden muy temprano no encuentran asociacion. Los que miden 2 semanas despues si encuentran que seria predictivo.

Es normal disociarse las primeras horas y minutos, para todos, por eso no es predictivo. Pero si se sigue disociando despuès, esa es la gente que desarrolla estrés post traumatico. En las primeras 48 hrs es reaccions disociativa normal. Plantear esta área de controversia. Nuestros datos muestran que los fenomenos disociativos tempranos si predicen. En nuestro caso lo medimos en un continuo.

PDEQ mide detachment y no mide compartamentalización. Lo primero es menos grave. A pesar de eso predice PTSD.

Continuo entre fenemoenos normales de disociacion (detachmente) y lo más grave de disociación con compartamentalización. Nuestros datos son congruentes con esta idea de continuo porque lo menos grave (sintomas de detachment dentro de las primeras 72 horas son predictivos de ptsd). Citar a Putnam

MÉTODOS:

Hay que describir mejor las características de la muestra, muestreo, e instrumentos.

Gran limitación son la personas que no pudieron ser seguidas por razones que se desconocen. Se sabe que son los pacientes más graves los que no pudieron ser seguidos.

RESULTADOS:

OK.

DISCUSIÓN:

Pienso que las limitaciones de estudio son más que las que se presentan, incluyendo limitaciones de la muestra utilizada, y de los instrumentos utilizados. A la interpretación de los resultados también se les puede dar un giro más, por ej., en relación a educación y la falta de asociación entre PTSD y variables conocidas como género y apoyo social.

No poner

ASPECTOS FORMALES:

Hay que mejorar la gramática y la ortografía.

During a **traumatic event**, an individual may suffer alterations in the experience of time, place, and person, making the traumatic event feel unreal. This way of processing information during a traumatic experience, or subsequently, has been **conceptualized as traumatic dissociation** (Van der Kolk, Van der Hart, & Marmar, 1996). According to Van der Kolk (2014), dissociation is the essence of trauma and refers to a compartamentalization of experience where the elements of trauma are not integrated into a sense of self or a unitary whole. The **dissociative symptoms** may manifest as psychological or as bodily phenomena and include disrupted memory encoding, affect compartmentalization, and time distortion and fugue.

The term “dissociation” refers to three distinct but related mental health phenomena, one of which is peritraumatic dissociation, also called “secondary dissociation” (Van der Hart, Van der Kolk, & Boon, 1996). Marmar and his colleagues (1994) have described peritraumatic dissociation as an alteration in the experience of time place and person that makes the occurring event seem unreal. Some of the symptoms they describe in this type of dissociation include experiencing that time is going slower or faster, depersonalization, out-of-body experiences, confusion, bewilderment, disorientation, altered perception of pain, tunnel vision, and altered body image.

Over a century ago Pierre **Janet** (1907) described as the main problem of severely traumatized victims the **inability to emotionally process traumatic memories**. According to Janet’s clinical observations, in the wake of traumatic experiences, the self lacks the capacity to incorporate into its structure emotions and memories resulting from the trauma. Thus, the traumatic experience is not available to normal conscious representation, and therefore cannot be processed, persisting as a fixed idea that is split off from consciousness and distorts subsequent experiences. Unlike normal memories, traumatic memories are not associated with an internal sense of self, and consequently, the retrieval of those memories are not under voluntary control (Bower and Sivers, 1998). Nevertheless, the sensory fragments of the traumatic experiences can be revived in consciousness when associated with external cues similar to those of the original traumatic experience, which could explain the **relationship between peritraumatic dissociative experiences and intrusive thoughts or flashbacks**, key symptoms of Post Traumatic Stress Disorder (PTSD; American Psychiatric Association, 2013).

**PTSD**

According to the most recent version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, American Psychiatric Association, 2013), trauma is defined as any situation of exposure to death, serious injury or actual or threatened sexual violence, directly or as a witness. Traumatic experiences produce strong emotional reactions in most people. Only a minority, but significant group, of those who experience a trauma, will develop long-term emotional sequelae, such as Posttraumatic Stress Disorder (PTSD; Cova, Rincon, Grandón, & Vicente, 2011). PTSD is characterized by involuntary re-experience of trauma through involuntary, almost dreamlike images, memories and/or sensations about the trauma; strong discomfort and/or need to escape from people, situations, places or things that remind of the event; fear, guilt, anger, sadness, embarrassment and/or feeling of emotional dullness (Friedman, Resick, Bryant, & Brewin, 2011). It has been reported that up to 11.8% of people attending primary care services may suffer PTSD, but their diagnosis is much lower (Wade, Howard, Fletcher, Cooper, & Forbes, 2013, Grinage 2003; Stein, McQuaid, Pedrelli, Lenox, & McCahill, 2000).

Unlike what was previously thought, the experience of having lived a trauma is very frequent in the life of people, varying the frequency between different countries. For example, in a study, almost 80% of the population in Mexico reported having experienced a traumatic event in their lifetime, compared to Germany, where only slightly above 20% reported the same (Norris et al., 2003; Perkonigg, Kessler, Storz, & Wittchen, 2000). In the United States and Australia, the figure was just over 50% (Creamer, Burgess, & McFarlane, 2001; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Chile has an intermediate situation: almost 40% of Chileans report having experienced a trauma at some point in their lives (Zlotnick et al., 2006).

The incidence of PTSD after trauma varies according to the type of trauma, its severity, duration, and the amount of time that has passed since the event occurred. In general terms, one out of seven people (14%) are described as having long-term emotional sequelae following trauma, such as PTSD, post-traumatic depression or anxiety disorders (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Norris et al., 2003; Zlotnick et al., 2006). PTSD is more frequent in women than in men, with a 2:1 ratio (Breslau, 2001). Other risk factors include a low perception of social support and a high perception of post-trauma stress (Ozer, Best, Lipsey, & Weiss, 2003), a high perception of vital risk during trauma, physical sequelae, and previous psychiatric history. It is important to note, however, that none of these factors increases the risk by more than 50% (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003).

The results of two well-known meta-analyses (Brewin et al., 2000; Ozer et al., 2003) reveal that the variables that have been proven to be relevant predicting PTSD symptoms one month after suffering a traumatic event are the following: a) demographic variables: age, sex and education; b) non-demographics personal characteristics salient for psychological processing and functioning: perceived social support and traumatic load; and c) aspects of the traumatic event or sequelae: dissociation and traumatic stress during the event.

Dissociative experiences and PTSD

The relationship between dissociative experiences and PTSD is not clear. On one hand, there is research that finds Birmes et al., 2003; . Nevertheless, other research does not find a significant association between the two (REFS).

In addition, pathological dissociation has been used as a basis for a subtype of PTSD because research has identified a subgroup of individuals with both biological and psychological features of dissociation in addition to PTSD (Lanius, Brand, Vermetten, Frewen, & Spiegel, 2012).

According to van der Kolk (2014), due to dissociation the traumatic experience is split off and fragmented, causing sounds, images, emotions, thoughts, and physical sensations to be left unintegrated. These split off aspects would then intrude into the present in those who suffer PTSD. As he explains "As long as the trauma is not resolved, the stress hormones that the body secretes to protect itself keep circulating, and the defensive movements and emotional responses keep getting replayed." (pag. 66).

In a study of over 25,000 adults from 16 countries assessed with a 12-month DSM-IV/Composite International Diagnostic Interview, Stein et al. (2013) found that **dissociative symptoms** were present in 14% of individuals. **These symptoms were associated with high counts of re-experiencing symptoms, severe role impairment, specific phobia, and suicidality. Individuals who reported dissociative symptoms were more likely to be male, have a childhood onset of PTSD, high exposure to traumatic events and childhood adversities, and prior histories of separation anxiety disorder.**

But not everyone who undergoes a traumatic experience dissociates. Research has shown that a **potential etiological factor of dissociation is that of traumatic experiences**, particularly childhood abuse (see Dutra, Bureau, Holmes, & Lyubchik, 2009 for an overview). Bernstein and Putnam (1986) found among hospital admissions that of the patients who reported the highest dissociation, all of them had a history of sexual abuse, and a very high percentage also had a history of physical abuse and/or witnessing domestic violence. At the same time, a protective factor appears to be social support, since research has consistently found that having a good support network is the most powerful protection against being traumatized, and not having an adequate social support gives rise to problems such as dissociation (van der Kolk, 2014). To the best of our knowledge, existing research has not convincingly demonstrated that **age, gender, and education significantly influence dissociation** (Dutra et al., 2009).

While we have advanced greatly in the understanding of dissociation, further research is necessary to understand individual characteristics that make a person more vulnerable to experiencing peritraumatic dissociation, and how this type of dissociation, as well as other individual variables, are related to the development of PTSD in the aftermath of a traumatic event.

The **current study** focused on better understanding the role of peritraumatic dissociation. We had three objectives a) Predict which subjects would develop peritraumatic dissociation; b) Assess the role of dissociation as a predictor of PTSD symptomatology; and c) Test mediational model with dissociation mediating between traumatic load and PTSD symptomatology. Based on the previous literature we hypothesized that: a) Traumatic load would predict dissociation even after controlling for other variables; b) Dissociation would significantly predict the development of PTSD symptoms, even after controlling for gender, age, education, traumatic load, social support, and traumatic stress; and c) Dissociation would significantly mediate between traumatic load and PTSD symptoms.

**Methods**

**Design**

This is a secondary analysis of a randomized clinical trial that took place between

XX and XX of 2016 in the emergency rooms of general hospitals in Santiago de Chile. Adults who came to the emergency who had experienced a recent non-intentional traumatic experience (as defined by DSM5), and who were medically able to respond to questionnaires, were invited to participate in the study. All participants signed informed consent forms, and the study was approved by the relevant ethical review boards.

Inclusion criteria: Adults (≥ 18 years old) attending the emergency service, either as a patient or companion, who had been victims of recent unintentional trauma (less than 72 hours), and who meet one of the following criteria: a) Direct victim, or witness, to a risk for life situation; or b) Direct victim, or witness, to a situation that that pose a serious risk to physical integrity. Examples of these situations include serious accidents, catastrophic illnesses, highly painful medical procedures, negative medical news, natural catastrophes, fires, witnessing the violent death of another person, and explosions, among others.

Exclusion criteria were the following: a) Did not understand Spanish; b) Did not remember the traumatic experience; c) Poisoning; d) Loss of consciousness for more than 5 minutes; e) Psychosis (loss of judgment of reality); f) Children and adolescents (<18 years); g) People at risk of life or medical instability requiring the implementation of life support measures incompatible with the application of measures (severe fractures, wounds with severe uncontrolled hemorrhage, unbearable pain, unstable myocardial infarction); h) Relatives of imminently impaired or newly deceased persons in the emergency department in whom the offer to participate in the investigation could cause further discomfort; i) Commitment of conscience (Glasgow 2 <15); j) Direct and indirect victim of intentional trauma (e.g., assault, abduction, sexual abuse, terrorist act, etc.); k) Patients who were vulnerable to psychiatric disorder (excluding personality disorder), in formal medical treatment (e.g., schizophrenia, mental retardation, autism, obsessive-compulsive disorder, bipolar disorder, depression, Alzheimer's, panic disorder, etc.).

As can be seen in the flow diagram (Figure 1), of 953 individuals invited to participate, XX (XX%) agreed and XX (XX%) completed measures time 0 (T0) measures that included XX self-report questionnaires. Participants were randomly assigned to a treatment XX and a Psychoeducation control group. A month later (time 1 – T1), 57 participants completed the second data collection, which included XX self-report questionnaires. Because some of the analyses of the current study require T1 data, only the 57 participants that completed T0 and T1 measures were included. Data at T0 and T1 was collected by a psychologist.

Figure 1: Flow Diagram

**Participants**

Participants were 57 adults (35 female and 22 male) who attended a hospital emergency room after experiencing or witnessing a non-intentional traumatic event and who completed T0 and T1 measures. The mean age was 46.79 (SD=17.21) and the mean years of education 12.09 (SD=3.82). Regarding the most recent trauma exposure (reason why they were in the ER), 29.82% (17) were having a serious, severe or very painful medical problem; also 29.82% (17) received in a violent manner the news of family member, or other loved one, that died or was gravely injured; 26.32% (15) had been in a vehicle accident or other type of accident; 3.51% (2) witness grave injury, and 10.53% (6) had another type of traumatic experience.

After being randomized, XXX of the subjects received an intervention (PAP) and XXX were in a psychoeducation control group.

**Measures**

CIDI: Administered at T0.

TQ: Administered at T0. For this study, we use a total score of traumatic load, which was calculated by adding the number of traumatic experiences endorsed.

MSPSS. Administered at T0.

PCL: administered at T0 and T1.

Peritraumatic Dissociative Experiences Questionnaire (PDEQ): The PDEQ is a 10-item self-report questionnaire that was used to measure the level of peritraumatic dissociation during the last traumatic event (the one related to the participant`s visit to the ER). The items describe the following dissociative experiences at the time a traumatic event was occurring: losing track of time or blanking out; acting on “automatic pilot”; sensation of time changing during the event; the event seeming unreal; feeling as if floating above the scene; feeling of body distortion; confusion as to what was happening; not being aware of things that happened during the event; and disorientation (Marmar, Weiss, & Metzler, 1997). Administered at T0 and T1.

**PDI:** Administered at T0 and T1.

**Data Analysis Strategy**

We included in our analyses the variables that are the focus of the current study, peritraumatic dissociation (T0) and PTSD symptomatology (T1), as well as other variables measured at T0 that have been found to predict PTSD (Brewin et al., 2000; Ozer et al., 2008): age, gender, education, perceived social support, traumatic load, and traumatic stress during the traumatic event.

We first calculated the mean and standard deviation of the former variables, as well as calculating the percentage of the participants who reported a history of each specific type of trauma.

Second, we calculated a Person correlation between PTSD symptoms at T1 and T0 quantitative variables. We used an independent t-test to see if there were significant differences in PTSD symptomatology based on gender. We then included all these T0 variables in a multiple regression predicting T1 PTSD symptomatology.

Third, we calculated a Person correlation between peritraumatic dissociation at T0 and the relevant T0 variables and used an independent t-test to see if there were significant differences in peritraumatic dissociation based on gender. We then included all the T0 variables in a multiple regression predicting T0 peritraumatic dissociation.

Finally, we performed a causal mediation analyses, calculating Quasi-Bayesian confidence intervals, using R Statistical Package. The model was as follows:

Traumatic load (T0) -> peritraumatic dissociation (T0) -> PTSD symptomatology (T1). Because we found that education was a significant predictor of peritraumatic dissociation we also decided to add the posthoc mediation analyses with this variable:

Education (T0) -> peritraumatic dissociation (T0) -> PTSD symptomatology (T1)

**Results**

**Descriptives**

The mean peritraumatic dissociation score during the last traumatic event was 22.33 (SD=11.41), which is considered xXXX. The mean reported peritraumatic distress during the last traumatic event was 24.48 (SD=13.05), considered xxxx. And the mean traumatic load (i.e., number of traumatic events experienced before the last traumatic event) was 3.11 (SD=2.12). The most commonly reported previous traumatic experiences were: unexpected death of a family member or loved one (72%), transportation accident (37%), serious threat or injury to a family member or loved one (35%), been the victim of aggression (28%), almost drowning (26%), and being in an industrial or work accident (23%).

In addition, the mean score for perceived social support was 33.37 (SD=10.62), considered xxx, and the mean PTSD symptomatology score at T1 was 39.53 (SD=16.23). Out of the complete sample, 26 individuals (45.61%) met criteria for PTSD one month after the traumatic event, and 31 (54.39) did not.

**Predicting PTSD**

Regarding PTSD symptomatology a month after the traumatic event, we found a strong positive Pearson correlation with peritraumatic dissociation (r=0.49) and traumatic stress (r=0.49), a moderate positive correlation with traumatic load (r=0.32), a moderate negative correlation with perceived social support (-0.23), a moderate to weak negative association to education (-0.19), and a weak positive correlation with age (r=0.09). We found no significant differences between men (37.23) and women (40.97) in their report of PTSD symptomatology one month after a traumatic event (t = 0.83, df = 42.91, p-value = 0.41), and also no significant differences between the intervention group (36.57) and the psychoeducation control group (42.38; t = -1.36, df = 54.43, p-value = 0.18).

Through a multiple regression, we predicted the level of PTSD symptomatology individuals reported a month after a traumatic event (see Table 1). As hypothesized, controlling for the intervention and other relevant variables, peritraumatic dissociation significantly predicted PTSD symptomatology (β=0.54, SE=0.19, t =2.65, p=0.0108). Individuals who reported more dissociative symptomatology during a traumatic event were more likely to present greater PTSD symptomatology a month after the event. Gender, age, education, traumatic load, perceived social support, and traumatic stress during the event were not significant predictors of PTSD symptomatology.

Table 1: Predicting PTSD symptomatology one month after a traumatic event

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Coefficients: | |  |  |  |  |
|  | Estimate | Std. Error | t value | Pr(>|t|) | Signif. |
| (Intercept) | 22.23911 | 11.83683 | 1.879 | 0.066 | . |
| Gender - Male | -6.67248 | 3.60394 | -1.851 | 0.0699 | . |
| Age | 0.06981 | 0.10002 | 0.698 | 0.4884 |  |
| Education | -0.34509 | 0.46615 | -0.74 | 0.4625 |  |
| Intervention – Psicoeducation | 7.11858 | 3.3709 | 2.112 | 0.0396 | \* |
| Traumatic load | 1.35894 | 0.85259 | 1.594 | 0.1171 |  |
| Social Support | -0.14133 | 0.17714 | -0.798 | 0.4287 |  |
| Dissociation | 0.50479 | 0.19079 | 2.646 | 0.0108 | \* |
| Traumatic stress | 0.27729 | 0.16687 | 1.662 | 0.1027 |  |

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1; Residual standard error: 12.88 on 51 degrees of freedom; Multiple R-squared: 0.4458; Adjusted R-squared: 0.3589; F-statistic: 5.129 on 8 and 51 DF, p-value: 0.0001028.

**Predicting peritraumatic dissociation**

Regarding peritraumatic dissociation, we found a positive medium strength correlation with traumatic load (r=0.24), a moderate negative correlation with perceived social support (r=-0.20), a weak negative correlation with years of education (r=-0.12), and a weak positive correlation with age (r=0.11). An independent t-test showed that there were no significant differences between men (22.95) and women (21.94) in their report of peritraumatic dissociation (t = -0.32, df = 44.58, p-value = 0.75).

Because peritraumatic dissociation during a traumatic event proved to be a significant predictor of PTSD, which is consistent with previous findings (Ozer et al., 2008) we tried to understand what predicts dissociation (see Table 2). For this, we used a larger sample, since we only needed T0 data. As hypothesized, peritraumatic dissociation was significantly predicted by traumatic load (β=0.82, SE=0.38, t =2.17, p=0.032) and years of education (β=- 0.96, SE=0.20, t =-4.75, p=0.0001). Individuals who reported greater traumatic load (i.e., had suffered more traumatic events in their life), and with fewer years of education, were more likely to present peritraumatic dissociation. Gender, age, and perceived social support were not significant predictors of peritraumatic dissociation.

Table 2: Predicting peritraumatic dissociation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Coefficients: | |  |  |  |  |
|  | Estimate | Std. Error | t value | Pr(>|t|) | Signif. |
| (Intercept) | 40.67025 | 5.08483 | 7.998 | 0.0001 | \*\*\* |
| Traumatic load | 0.81886 | 0.37829 | 2.165 | 0.0317 | \* |
| Sex Male | -1.82539 | 1.65695 | -1.102 | 0.272 |  |
| Age | -0.01543 | 0.05329 | -0.29 | 0.7724 |  |
| Education | -0.95519 | 0.20126 | -4.746 | 0.0001 | \*\*\* |
| Social Support | -0.12469 | 0.08393 | -1.486 | 0.139 |  |

Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1; Residual standard error: 11.16 on 187 degrees of freedom; Multiple R-squared: 0.1637; Adjusted R-squared: 0.1414; F-statistic: 7.323 on 5 and 187 DF, p-value: 2.731e-06

**Mediation models**

As a next logical step in trying to understand the role of peritraumatic dissociation, we tried mediational models in which each of the significant predictors of dissociation (traumatic load and education) were included as meditional variables. Contrary to our hypothesis, dissociation was not a significant mediator between traumatic load and PTSD symptomatology (p=0.33; see Table 3). Also contrary to our hypothesis, education was not a significant mediator between traumatic load and PTSD symptomatology (p=0.33; see Table 4).

Table 3: Peritraumatic dissociation as a mediator between traumatic load and PTSD

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | 95% CI Lower | 95% CI Upper | p-value |
| ACME | 0.588 | -0.389 | 2.058 | 0.25 |
| ADE | 1.331 | -1.435 | 4.105 | 0.34 |
| Total Effect | 1.919 | -0.945 | 4.674 | 0.18 |
| Prop. Mediated | 0.234 | -1.787 | 2.831 | 0.33 |
| Sample Size Used: 57; Simulations: 10000 | | |  |  |

Table 4: Peritraumatic dissociation as a mediator between years of education and PTSD

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Estimate | 95% CI Lower | 95% CI Upper | p-value |
| ACME | 0.599 | -0.369 | 2.057 | 0.25 |
| ADE | 1.338 | -1.468 | 4.137 | 0.35 |
| Total Effect | 1.936 | -0.978 | 4.762 | 0.18 |
| Prop. Mediated | 0.235 | -1.749 | 3.032 | 0.33 |
| Sample Size Used: 57; Simulations: 10000 | | |  |  |

**Discussion**

With a medical sample of adults who attended the ER after experiencing or witnessing a traumatic event, we assessed the role of peritraumatic dissociation in the development of PTSD. In order to do this, we predicted which subjects would develop peritraumatic dissociation; assessed the role of dissociation as a predictor of PTSD symptomatology; and tested mediational models with dissociation mediating between traumatic load, and education, and PTSD symptomatology.

Almost half (45.61%) of individuals who had suffered a traumatic event met criteria for PTSD a month later. This seems to be high, considering that previous literature reports that only a minority of those who experience a trauma will develop long-term emotional sequelae such as PTSD (Cova, Rincon, Grandón, & Vicente, 2011). This percentage is particularly high considering that our sample excluded individuals who could not participate in the study due to the severity of their physical condition or who were receiving mental health treatment.

As hypothesized, we found that individuals with greater dissociative symptomatology during a traumatic event presented greater PTSD symptomatology a month later. This is consistent with the fact that a significant percentage of individuals who suffer PTSD report dissociative symptoms (Stein et al., 2013). This finding can be understood considering van der Kolk’s (1996; 2014) theory. According to this author, when an individual dissociates during a traumatic event, emotional and sensorial aspects of the experiences are split off from normal consciousness and cannot be normally integrated and stored in memory. Then this split of aspects intrudes into the present in the form of symptoms present in PTSD, such as flashbacks and nightmares. Thus, dissociation during a traumatic event would be responsible for many of the later symptoms.

Also as hypothesized, individuals who had suffered more traumatic events in their life, were more likely to present peritraumatic dissociation. These findings are consistent with the results of two meta-analyses (Brewin et al., 2000; Ozer et al., 2003). Our results highlight the key role that past trauma history plays in the response to a new traumatic event. As previous research has shown, previous traumatic experiences increase the likelihood of dissociating during a traumatic event (Bernstein and Putnam; 1986; Dutra, Bureau, Holmes, & Lyubchik, 2009).

We also found that education was a protective factor, with persons with more years of education being less likely to present peritraumatic dissociation. This is an important finding that to the best of our knowledge has not been presented before. It may be that being more educated offers, in the extreme condition of a traumatic event, resources that allow a person to feel in control and deal with the situation without distancing the self from the experience. It could be that specific knowledge about how to deal with the unexpected situation, or a sense of self-agency related to having knowledge in general, are protective factors.

It is also possible that in our sample individuals with less education had lower cognitive abilities and that this contributed to a greater dissociation tendency. This would be consistent with a recent review (McKinnon, Boyd, Frewen, Lanius, Jetly, Richardson, & Lanius, 2016) in which the authors report that most, though not all, of the scientific evidence supports the relation between the presence of dissociative experiences and decrements in neuropsychological functioning. According to this review, both chronic dissociation, and state dissociation, would be associated with reduced performance on measures of attention, executive functioning, and memory.

Moreover, years of education are known to be highly correlated with income. Thus, part of the impact of the predictive power that education has on how much a person experiences peritraumatic dissociation may be explained by the fact that there is an observed association between education and mental health (Halpern-Manners, Schnabel, Hernandez, Silberg, & Eaves, 2016). It is possible that more economic resources to deal with a traumatic situation (e.g., medical expenses due to an accident) make the person feel less uncertain and more in control, which could diminish the tendency to dissociate. Higher income and/or higher education may also be associated to better mental health previous to the traumatic experience, which was not measured in our study.

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Contrary to previous findings (Brewin et al., 2000; Ozer et al., 2003), we did not find that peritraumatic dissociation was significantly predicted by age, sex, and perceived social support. A plausible explanation for the finding that perceived social support was not a significant predictor is the fact data was collected right after the traumatic event, plausibly leaving no time for the person to receive social support to deal with the stressor. Nevertheless, it would be important to see if our findings are replicated with a larger sample that provides greater statistical power.

Contrary to our expectations, we could not prove that dissociation mediates between traumatic load and PTSD symptoms. Since we did find that traumatic load predicts dissociation, and the later predicts PTSD symptoms, we believe that the reason we did not find a significant mediation was the lack of statistical power. The same can be said for education: as expected, more educated patients were less likely to develop dissociation and PTSD symptoms. Nevertheless, we did not find that dissociation significantly mediates between education and PTSD symptoms. Future research should replicate both mediational models with a larger sample.

Our study had several limitations, being the main one the small size of our sample (n = 57). Our study also had a self-selection bias because only a small percentage of the initial sample completed the second measure, which was necessary to be included in the current study. This is particularly relevant considering that compared to patients who completed the study, those who abandoned the study between T0 and T1 were significantly more depressed at baseline (p < .05) and dissociated more during the traumatic experience (p < .01).

Our sample was from an emergency room and did not include traumatized patients that would be found in other settings. In addition, we did not include the most severe patients in the emergency room, individuals who were being treated for psychiatric conditions, and those who suffered intentional trauma. Thus, it is not possible to know if our findings generalize to those populations. Finally, all our measures were self-report, which limits the quality of the assessments.

Nevertheless, our study also had some important strengths. We assessed several relevant psychological phenomena, collected data right after a traumatic event had occurred, and followed patients to see how their symptomatology had evolved a month later. Additionally, our study is the first to show that education can be a protective factor of peritraumatic dissociation.

We consider that this study has important clinical implications and draws to the importance of identifying persons who dissociated most during a traumatic event (e.g., earthquake), since this may help predict, and prevent if adequate help or treatment is provided, PTSD symptomatology. In addition, since we know who is at most risk for dissociating (individuals with high traumatic load and low education) it would be relevant to screen these vulnerable populations first. This information is especially relevant in contexts where a very large number of persons has been affected by a traumatic event, such as in the aftermath of a natural disaster. Considering our findings, we would suggest screening for dissociative symptoms in vulnerable populations that are more likely to include individuals who are less educated and present a history of past traumas. Once individuals who presented peritraumatic dissociation have been detected, we suggest prioritizing support and treatment options for them in order to help prevent, or diminish, the appearance of PTSD symptomatology.

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(publicar en Inglés; Devin Atala puede revisar ingles a cambio de autoria)

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