

A Meta-analysis on Childhood Trauma Involved in Dissociative Identity Disorder

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Abstract: Dissociative identity disorder (DID) is a psychobiological syndrome referred to the appearance of extra identities and memories which cause the changes in cognize and behaviour. Evidence has shown that early childhood trauma plays a key role in the genesis of DID. This paper compiles and analyzes the amount of emotional and physical neglect and abuse as well as sexual abuse in DID patients' early childhood. Evidence shows that DID patients report more experience in every type of trauma than healthy people. Then a meta-analysis is made to illustrate the influence of different types of traumatization on DID patients, giving a result that the origin of DID is more likely comes from emotional abuse and neglect, followed by sexual abuse, and is least likely to come from physical abuse and neglect.

Keywords: dissociative identity disorder, childhood trauma, neglect, abuse

1. Introduction

Dissociative identity disorder (DID), which was formerly known as Multiple Personality Disorder. According to the DSM-IV description, DID refers to a dramatic dissociative disorder in which two or more distinct identities or personality states are displayed. Different identities and personality state control the patient's behaviour alternately. Each personality of the DID patient is independent and complete. They have their own personality characteristics and behaviour patterns. They may also have individual characteristics such as names and ages as well as independent memories.

Two aetiology models of the formation of DID have been proposed, which are the Trauma model and the Fantasy model. The Trauma Model posits that DID is a severe trauma-related disorder, often accompanied by post-traumatic stress disorder (PTSD) and associated closely with the trauma experienced during early childhood. Bryer et al. [1] suggested that maltreatment has a seriously detrimental effect on the psyche of children. This abuse leads the children to deny the reality of being forced to deal with overwhelming emotions. In order to survive, the abused children place the memories of the trauma into the subconscious by dissociating, where they later manifest themselves as separate personalities.

And the Fantasy Model is also known as the sociocognitive model or non-trauma-related model. Instead of supporting a clear causal relationship between DID and early childhood trauma, the Fantasy Model suggested that the formation of DID was strongly related to the patient's fantastical tendencies. And could also be affected by high suggestibility and sociocultural influences.

More evidence is shown to support the Trauma Model. Snapose gave evidence supporting the sociocognitive model which was retested and refuted by David [2,3]. Xiao et al. has done an experiment in China proving that pathological dissociation was more common in the traumatized sample, and not consistent with sociocognitive model [4]. A cross-culture test conducted by Colin et al. further supports this view [5]. In addition, doubting the dichotomization between these two models, Vissia et al. have done a joint test on individuals with DID in an empirical manner [6]. The results supported the Trauma Model of DID to a greater extent instead of the Fantasy Model.

Undeniably, much research has demonstrated the relationship between DID and early childhood trauma. A review done by Raison et al. also suggests that people with DID report more trauma experience than healthy people [7]. However, instead of focusing on the analysis of the differences between the possibility of each type of trauma involves in the formation of DID, previous studies have only demonstrated that DID occurs as a result of repeated abuse and/or neglect experienced in early childhood and reported on the types of traumas that DID patients may have experienced. This paper will a) certify whether DID patients report more traumatic experiences of each type than healthy people, b) analyze the likelihood of DID patients having experienced different types of childhood trauma by the data collected from eight papers published from 1998 to 2021.

2. Methods

2.1. Participants

The total number of participants in these eight papers was 762 (with 223 people with DID, and 539 people in health control groups) [6,8-14]. All these papers include data from DID patients and healthy people.

Table 1: The demographic of the DID groups in the included papers.

Authors	Number	Gender	Age (Year) M(SD)	Education (year) M(SD)	Source/ culture group
Vissia et al. (2016)[6]	17	All female	43.88 (9.86)	14.88 (0.99)	Native Dutch speaker
Chalavi et al.[8]	17	All female	43.82 (9.85)	14.88 (0.99)	Western European ancestry
Chalavi et al. (2013)[9]	17	All female	43.82 (9.85)	14.88 (0.99)	Western European ancestry
Lauren et al. (2020)[10]	82	80 females, 2 males	40.14 (12.87)	Varied education experience	Mix cultural with 61 of the participants are white
Julia B. Merker et al. (2021)[11]	20	All female	43.47 (13.79)	Varied education experience	1 is Black/African American, 18 are white, 2 are missing
Chalavi et al. (2015)[12]	17	All female	43.82 (9.85)	14.88 (0.99)	Western European ancestry
Scroppo et al. (1998)[13]	21	All female	35.95	Median = 4 years of college	From clinician-led study groups

Table 1: (continued).

Reinders et al. (2018)[14]	32	All female	43.56 (9.34)	14.84 (1.63)	Three centers in Netherlands and Switzerland
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Most of the participants in the DID groups are females aged between 18 and 65, and 2 male participants are included in the study by Lauren et al. [10]. And three studies from Sima Chalavi et al. include participants that are western European ancestry [8,9,12], two articles include mixed populations [10,11], two articles include the participants from local hospitals and clinics [13,14] and one article includes participants that are all native Dutch speaker [6]. The sample of three studies from Sima Chalavi is similar [8,9,12]. Moreover, the participants in three articles carried both DID and PTSD diagnosis [8,10,11]. The detailed information of DID groups is shown in Table 1 and Table 2 illustrates the demographic of the health control groups.

Table 2: The demographic of the health control groups in the included papers.

Authors	Number	Gender	Age (Year) M(SD)	Education (year) M(SD)	Source/ culture group
Vissia et al. (2016)[6]	16	All female	43.59 (11.68)	15.25 (0.58)	Native Dutch speaker
Chalavi et al.[8]	32	All female	41.91 (12.61)	15.09 (1.14)	Western European ancestry
Chalavi et al. (2013)[9]	32	All female	41.75 (12.29)	15.04 (1.20)	Western European ancestry
Lauren et al. (2020)[10]	NA	NA	NA	NA	NA
Merker et al. (2021)[11]	367	NA	NA	NA	NA
Chalavi et al. (2015)[12]	28	All female	41.75 (12.99)	15.04 (1.20)	Western European ancestry
Scroppo et al. (1998)[13]	21	All female	35.95	Median = 4 years of college	Local clinics
Reinders et al. (2018)[14]	43	All female	42.28 (11.57)	14.84 (1.63)	Three centers in Netherlands and Switzerland

2.2. Measures

All participants in these articles were asked to do the Traumatic Experience Checklist and/or Childhood Trauma Questionnaire to collect data on the amount of childhood trauma.

Five articles choose to use Childhood trauma questionnaire (CTQ) [9-13], which is a scale that reflects the severity of abuse and/or neglect experienced emotionally, physically and sexually in childhood. It collects data on five different types of traumatization in a retrospective self-report way. Each type of traumatization is scored ranging from 5 to 25, and the score ranges from 1 to 5 in the

study of Scropo. The score represents the frequency of certain events that took place in participants' childhood, with 1/5 representing "Never true" and 5/25 representing "Very often true". Total trauma is the sum of all five subscores, ranging from 25 to 125 or from 5 to 25 in the study of Scropo. Higher scores indicate greater childhood trauma severity.

Due to the theory of 'structural dissociation', personalities could have different identity states which formed through dissociation and are similar to the different subsystems of the personality that have been split. And each of the identity states has its first-person perspective, in other words, the subjective judgments about themselves and the world. One of the studies collects the data in two identity states, which are Traumatic Identity State (TIS) and Neutral Identity State (NIS) [9]. Under TIS, traumatic memories are considered to be an experiential memory in which people will have emotional and physical responses to traumatic cues. On the contrary, people report traumatic memories without experiencing them from a first perspective under NIS. TIS may report more traumatization as they are less likely to avoid the trauma memories mentally. The data in one DID patient in both identity states were missing and another DID patient did not fill in the questionnaire in TIS.

The other three articles used the Traumatic experience checklist (TEC) [6,8,14]. TEC does not cover the category of physical neglect, but sexual harassment is taken into account. Particularly, TEC scores from different age groups were calculated by Reinders et al., that is for 0-6 years, 7-12 years, and 13-18 years [14].

3. Data Analysis and Results

Five articles contain detailed data on different types of traumatization of the health control group [6,8,12-14], which is illustrated in Table 3. It is obvious that DID patients report more trauma experience than healthy people in every type of traumatization.

Table 3: Different trauma types experienced by DID patients and healthy people.

3a. DID groups.

Authors		EN M(SD)	EA M(SD)	PN M(SD)	PA M(SD)	SA M(SD)	SH M(SD)	Total M(SD)
Vissia et al. (2016)[6]		13.99 (0.00)	11.75 (3.07)	NA	11.44 (3.74)	9.75 (4.71)	9.31 (4.98)	16.75 (3.32)
Chalavi et al.[8]		12.23 (3.07)	11.06 (4.11)	NA	10.76 (4.56)	9.17 (5.13)	8.76 (5.32)	17.53 (4.08)
Chalavi et al. (2015)[12]		23.40 (2.26)	22.80 (3.30)	17.47 (3.87)	15.60 (5.37)	17.87 (7.32)	NA	97.13 (16.63)
Scropo et al. (1998)[13]		3.78 (0.55)	4.16 (0.65)	2.23 (0.76)	3.14 (1.19)	3.84 (1.16)	NA	17.15 (3.26)
Reinders et al. (2018)[14]	0-6 years	5.00 (0.00)	4.75 (0.97)	NA	4.75 (1.00)	4.36 (1.57)	3.57 (1.97)	NA
	7-12 years	4.75 (0.97)	3.79 (0.79)	NA	3.82 (0.86)	3.21 (1.55)	2.79 (1.37)	NA
	13-18 years	3.71 (1.05)	3.75 (0.84)	NA	3.57 (1.26)	3.18 (1.54)	2.89 (1.47)	NA

Table 3: (continued).

total	12.28 (2.58)	11.86 (3.26)	NA	11.69 (3.63)	10.38 (4.41)	10.07 (4.41)	18.45 (3.97)
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3b. Health control groups.

Authors	EN M(SD)	EA M(SD)	PN M(SD)	PA M(SD)	SA M(SD)	SH M(SD)	Total M(SD)
Vissia et al. (2016)[6]	2.19 (3.97)	0.25 (1.00)	NA	0.25 (1.00)	0.00 (0.00)	0.06 (0.25)	2.00 (1.93)
Chalavi et al.[8]	2.31 (4.17)	0.81 (2.26)	NA	1.09 (3.16)	0.16 (0.63)	0.53 (1.27)	2.62 (2.95)
Chalavi et al. (2015)[12]	10.36 (4.14)	7.50 (2.56)	7.42 (2.28)	5.43 (1.34)	5.29 (0.73)	NA	36.00 (8.00)
Scroppo et al. (1998)[13]	2.27 (0.67)	2.46 (1.00)	1.28 (0.34)	1.67 (1.07)	1.41 (0.71)	NA	9.09 (2.69)
Reinders et al. (2018)[14]	1.05 (1.94)	0.35 (1.29)	NA	0.30 (1.12)	0.00 (0.00)	0.05 (0.31)	NA
0-6 years	1.02 (1.61)	0.65 (1.41)	NA	0.42 (1.18)	0.00 (0.00)	0.19 (0.76)	NA
7-12 years	0.77 (1.48)	0.53 (1.28)	NA	0.16 (0.75)	0.12 (0.45)	0.37 (0.90)	NA
13-18 years	2.60 (4.39)	1.53 (3.23)	NA	0.60 (1.99)	0.07 (0.34)	0.52 (1.57)	3.14 (2.78)
total							

3b. P-value.

Authors	EN M(SD)	EA M(SD)	PN M(SD)	PA M(SD)	SA M(SD)	SH M(SD)	Total M(SD)
Vissia et al. (2016)[6]	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001
Chalavi et al.[8]	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001
Chalavi et al. (2015)[12]	<0.001	<0.001	<0.001	<0.001	<0.001	NA	<0.001
Scroppo et al. (1998)[13]	≤0.001	≤0.001	≤0.001	≤0.001	≤0.001	NA	≤0.001
Reinders et al. (2018)[14]	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001
0-6 years	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001
7-12 years	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001
13-18 years	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001
Total	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001

In the table 3, EN and EA representing emotional neglect and emotional abuse, PN and PA representing physical neglect and physical abuse, SA and SH representing sexual abuse and sexual harassment.

The rest three articles only collect data from DID patients and the detailed information is shown in the table 4 [9-11].

Table 4: Characteristics of participants of the included papers.

Authors		Emotional neglect M(SD)	Emotional abuse M(SD)	Physical neglect M(SD)	Physical abuse M(SD)	Sexual abuse M(SD)	Total trauma M(SD)
Chalavi et al. (2013)[9]	NIS (N=16)	21.81 (2.90)	19.68 (4.61)	16.56 (4.37)	14.00 (6.02)	16.19 (7.26)	88.25 (18.62)
	TIS (N=15)	23.40 (2.26)	22.80 (3.30)	17.47 (3.87)	15.60 (5.37)	17.87 (7.32)	97.13 (16.63)
Lauren et al. (2020)[10]		19.87 (3.86)	19.63 (4.78)	13.49 (4.64)	12.50 (5.27)	20.49 (5.13)	85.73 (17.32)
Julia B. Merker et al. (2021)[11]		18.55 (3.20)	19.65 (4.63)	11.45 (3.58)	12.25 (4.94)	20.95 (4.03)	82.85 (15.57)

Since the range of score of traumatization in the three papers using TEC was not clarified. Only five articles were included in the subsequent calculation [8,10-13], in which the figure of CTQ is illustrated in Table 5. The mean number of each type of trauma included in these articles are standardized into percentage based on the scale (emotional neglect: ranging from 74.20% to 93.60%, physical neglect: ranging from 44.60% to 69.88%, emotional abuse: ranging from 78.52% to 91.20%, physical abuse: ranging from 49% to 62.80%, sexual abuse: ranging from 64.76% to 83.80%) and then weighted by the number of subjects. Higher weighted percentages indicate more trauma experienced. The weighted percentage of emotional neglect (81.75%) is similar to that of emotional abuse (81.49%), which is higher than the other three figures. Two other similar figures are from physical neglect and physical abuse, which are 55.98% and 54.34% respectively. And the percentage of sexual abuse is 77.97%. Though it is lower than the data of two types of emotional traumatization overall, it should be noted that in two papers, the number of sexual abuse is the highest among the five groups [10,11].

Table 5: Percentage of the mean of each type of trauma.

Authors	Number	Emotional neglect M(SD)	Emotional abuse M(SD)	Physical neglect M(SD)	Physical abuse M(SD)	Sexual abuse M(SD)	Total trauma M(SD)
Chalavi et al. (2013)[9]	16 (NIS)	87.24%	66.24%	78.72%	56.40%	64.76%	70.60%
	15 (TIS)	93.60%	69.88%	91.20%	62.40%	71.48%	77.70%
Lauren et al. (2020)[10]	82	79.48%	53.96%	78.52%	50.00%	81.96%	68.50%
Julia B. Merker et al. (2021)[11]	20	74.20%	45.80%	78.60%	49.00%	83.80%	66.28%

Table 5: (continued).

Chalavi et al. (2015)[12]	17	93.60%	69.88%	91.20%	62.40%	71.48%	77.70%
Scroppo et al. (1998)[13]	21	75.60%	44.60%	83.20%	62.80%	76.80%	68.60%
Weighted percentage	171	81.75%	55.98%	81.49%	54.34%	77.97%	70.17%

Noticing the overlap between the data in a different type of trauma, analysis of variance (ANOVA) is introduced to confirm the relationship between different groups of data. The p-values of all these articles were 0.001 or less, that is, the data from different trauma types could be identified as different groups of data.

In conclusion, emotional abuse and neglect is the main factor in the formation of DID and DID patients experience a similar level of emotional abuse and emotional neglect while less sexual abuse was reported by the DID patients. And physical neglect, with a similar level of physical abuse, has the least involvement among all kinds of trauma.

4. Conclusions

DID remains a dissociative disorder that is still under-recognized and the reasons for the formation of DID are still debated. However, more evidence is shown to support the Trauma Model. It is proven that DID patients reported more emotional abuse and neglect as well as physical and sexual abuse than the health control group. And the origin of DID is more likely to come from emotional abuse and neglect, followed by sexual abuse, and is least likely to come from physical abuse and neglect.

However, there are some limitations to lack of the data collected from males with DID. In addition, the effect of age, education level, and culture groups are not defined.

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