

Posttraumatic Stress Disorder among Yazidi Who Were Survivors of the 2007 Bombings in Northern Iraq

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ABSTRACT

Objective: In 2007, two simultaneous bomb attacks in Northern Iraq killed at least 311 people and injured more than 600. In 2018, eleven years after the bombing, the author conducted follow-up evaluations with the survivors to determine the prevalence of Posttraumatic Stress Disorder (PTSD) and factors associated with its occurrence.

Materials and methods: Survivors of the two bombings were recruited for a retrospective cross-sectional study. The study was conducted in Germany through trained personnel to evaluate PTSD, according to DSM-V criteria. Participants were assessed in respect of their health status before the attack, the severity of the injury and the perceived threat at the time of the attack, as well as psychological symptoms, physical mutilation and use of health services at the time of the follow-up evaluation. Univariate logistic regression analysis and multiple logistic regression analysis were used to investigate the factors associated with PTSD.

Results: A total of 202 people participated in the study. 19% of the participants had serious physical injuries after the bombing and had to be treated in hospital for up to two weeks. The survivors in the hospitals reported seizure-related hearing problems (51%) and PTSD (32%), (95% confidence interval=24.1%-44.9%). Logistic regression analysis showed that the risk of PTSD (odds ratio=2.04) and participants with severe injuries after the bomb attack (odds ratio=3.15) were significantly higher. While men who had lost their wives married again (32%), women who had lost their husbands married significantly less (8%).

Conclusion: The high average prevalence of PTSD, which was determined eleven years after a terrorist bombing, indicates the need for improved health services to cope with the long-term consequences of terrorism even if they live in a safe country after the bombing.

INTRODUCTION

Events like war, torture, flight, rape, terrorist attacks, but also accidents, robbery and natural disasters can lead to unprocessed traumatic experiences. These experiences, in turn, frequently result in a Post-Traumatic Stress Disorder (PTSD) [1,2]. For more than 30 years, not only the medical effects but also the psychological consequences of bomb attacks, captivity and other terrorist acts have been studied [3,4,5,6]. The prevalence of PTSD after terrorist attacks is reported to range from 7.5% to 50% depending on the severity of the terrorist attack [7]. In recent years, numerous studies have provided ample evidence that these terrorist attacks can lead to long-term

psychological consequences for some victims, especially PTSD [6,8,9,10]. This research particularly refers to terror perpetrated by radically Islamized terrorist group in the Middle East but also to a global context. While most long-term studies with 9/11 primary care patients have shown that the rate of PTSD decreased over time, a meta-analysis study showed an increase of PTSD among rescue workers. [11,12]. Similarly, a follow-up study from Israel found an increase in the prevalence of PTSD among people who survived a suicide bomb attack [13]. These findings imply that medium-term and long-term follow-ups are needed in order to determine the actual prevalence of PTSD in terror attack survivors. In one study pre-9/11 prior psychiatric history, major depressive disorder, emerged as the strongest predictor of PTSD four years after the attacks [11].

There is sample evidence that people can suffer psychological consequences which are caused by physical injuries. For this reason, psychological treatment must be considered in addition to medical treatment, as the traumatic events, lead to psychological symptoms and disorders if they are not coped with. Accidents, such as motor vehicle, also show a high risk of PTSD with rates varying between 11% and 46%, even after one year [14]. To date, few studies have examined the long-term prevalence of Posttraumatic Stress Disorder in burn victims. These studies report PTSD risk of 22% to 45% after leaving hospital [15,16]. After terrorist attacks, many people leave their country and live as refugees in different countries of the world. Despite safety and adequate care, those affected show numerous psychiatric symptoms and mental disorders [17,18,19]. This can be seen in the Yazidi population [6] who had suffered severe attacks perpetrated by the "Islamic State of Iraq and Syria" (ISIS) in July 2014 [20,21]. Recently, it has been shown that about 43% of survivors of terrorist attacks met the DSM-V diagnostic criteria for PTSD, about 40% suffered from severe depressive disorder (MDD) and about 26% had both Depression and Posttraumatic Stress Disorder [20,21]. The severity of posttraumatic symptoms seems to be the strongest predictor of impaired health-related quality of life in PTSD outpatients [22]. Gender and sexual abuse are frequently considered risk factors for the development of PTSD, with women affected more frequently than men [1,23]. However, our own research indicates that this finding may be based on

the fact that women are survivors of sexual violence and other sexual assaults more often, especially in war zones [11].

Until now, there have not been many clinical studies on the long-term effects of the complex psychopathological phenomena and prevalence of PTSD [23,24,25,26]. Neither has there been much research on long-term consequences of PTSD in people living in exile. One example of such groups are the Yazidi survivors of the bombing attack in 2007, who were given refuge in a safe western country [27,28,29]. In 2007, a terrorist bomb attack was perpetrated against them by Al Qaeda in Northern Iraq [30,31].

Today, the Yazidis are a religious minority living in Northern Iraq, Syria and South-East Turkey, living in well-established communities in the Caucasus and a growing European diaspora. There are probably 800,000-1,000,000 Yazidis worldwide [32]. The Yazidi religion is regarded to be one of the oldest religions in the Near- and Middle East. Its roots go back to Mithraism, which existed about three thousand years B.C. [33,34]. From 2004 to 2007, several terrorist attacks were perpetrated against the Yazidi by radical Islamic groups.

In 2007, Yazidis were the target of a bombing attack in the city of Sinjar. The bombing was targeted at civilians and was by far the most brutal and ruthless attack against civilians since the American invasion of Iraq in 2003. The attack took 311 lives and about 600 people were injured [31]. This act of terrorism made hundreds of families homeless, as the explosions completely destroyed 400 houses [35]. More than 1 km² of the town was extremely damaged. Over 70 corpses could not be identified clearly. Some families were completely extinguished [31]. This attack was the biggest in Iraq since 2003. In 2014, ISIS terror attacks and the murder of 12,000 Yazidis and captivity of more than 7,000 women and children took place. It was not considered in this study. While it is very likely that this terror had additional psychological consequences, its effects were not quantified and taken into account because the participants were not survivors of this 2014 terror and lived abroad and we wanted to investigate the long-term psychiatric consequences of the 2007 bombing terror [36]. There are no studies on the prevalence of psychological disorders following the 2007 bombing of the Yazidi population in general and of those affected in particular. The following statistic (Table 1) was documented by

the Head Organisation of the Yazidi Associations in EU Countries in October 2007 [31] (Table 1).

Table 1: Consequences of the bomb attack in 2007 in northern Iraq.

Consequences of the bomb attack	Number
Survivors	511
Missing people	70
Wounded people	600
Person who lost both parents	33
Person who lost their fathers or mothers	195
Completely damaged houses (90-100% damage)	375
Damaged houses (50-89% damage)	500
Damaged houses (till 50 % damage)	650
Destroyed shops and offices	90

Table 2: Sociodemographic Characteristics of the 2007 Terrorist Bombing Survivors at the 2018 Follow-Up Assessment.

Characteristic	n N=202	%
Age (years)		
<35	62	30.2
35–54	93	46.0
≥55	42	20.8
Sex		
Female	107	53.0
Male	95	47.0
Employed Yes	115	57.0
No	87	44.0
Occupation in 2007		
Farmer	74	36.7
Skilled worker	42	20.8
Civil employee	23	11.3
Freelancer / self-employed	50	24.8
Retired	13	6.4
Marital status at follow-up		
Single	17	8.4
Married, remarried, living together	142	70.3
Widowed	36	17.8
Divorced	7	3.5
Education		
None	54	26.8
Elementary school (3-8 years)	96	47.5
High school and higher	52	25.7

The purpose of this study was to examine the prevalence of PTSD among Yazidis who survived the 2007 bombings and have lived abroad since then. The aim was to examine long-term predictors of Posttraumatic Stress Disorder (PTSD).

MATERIALS AND METHODS

Subjects

The examination group consisted of participants who were exposed to the 2007 bombings in Northern Iraq. Afterwards, some of the survivors left Iraq and have been living in Germany since 2008. All participants have a guaranteed residence in Germany and did not experience the terrorist attack of ISIS in 2014.

The participants were all civilians and 18 years or older at the time of the bomb attack. They accepted to participate in the study. Out of 240 subjects we found 202 subjects accepted to take part in the study. 38 (15.8%) survivors did not accept to be interviewed. The participants were guaranteed anonymity and signed an informed consent form.

Data were collected by two trained psychologists eleven years after the terror bombing from November 15, 2018 to February 15, 2019.

Measures

We used the PTSD standardized instrument with 22-items, based on DSM-V criteria, which was developed and used by Verger and colleagues [37]. The standardized PTSD instrument developed by Verger et al. 2004 with a reliability (Cronbach's Alpha= 0.91), specificity (0.88) and sensitivity (0.73) for 15 subjects with PTSD and 33 subjects with anxiety or depression is similar to the DSM-V criteria for PTSD.

For physical injuries, such as burns, the Body Deformation Scale (BDS) by Munster and Colleagues (1987) was used. The questions were rated on an intensity scale of 1 to 5 (1= very much or all the time; 5 = not at all or never). If the questions were answered with 1, 2 or 3, then a cosmetic impairment was present.

With regards to the psychiatric history, questions were asked about the use of sleeping medication or sedatives in the last 6 months at the time of the research and other psychiatric problems, and whether therapy had taken place or was in progress. The interviews were done in Kurdish. Due to the low level of school education the interviews were conducted verbally. Table 2 shows the socio-demographic characteristics of the participants and their occupational situation in 2007 (Table 2).

Data analysis

The SPSS 22.0 program for Windows (2016) was used to compute the data collected. In order to compile graphs and tables SPSS 22.0 and Excel 2016 from Microsoft Office were used. Descriptive data was illustrated as mean values of the standard deviation, and categorical parameters as percentages. The factors associated with PTSD were examined with univariate logistic regression analyses, followed by multiple logistic regression analyses. We have used a step-by-step forward/backward procedure to retain the explanatory variables in the models. At each step, a new variable was entered into the model, which was then recomputed to test whether this or another variable should remain in the model. This was continued until all variables were complete. The input threshold for other variables was $p=0.15$ and the output thresholds were $p=0.05$. The Hosmer and Lemeshow goodness of fit test and c-index were taken to evaluate the fit of the resulting model.

Respondent characteristics

In the study, 155 of the participants (77%) were younger than 55 years old and 70% lived with a partner, half of them were women and had attended primary school between three and eight years. The mean interval between the bombing and the follow-up was 11.0 years ($SD=3.2$, $range=8.4-12.8$).

Psychological disorders

Table 3 shows that approximately eleven years after the bombing most participants suffered from depression (35%), anxiety (27%), somatoform disorder (37%) and PTSD (31%). With regards to all mental disorders, women show higher rates than men. This is particularly the case for dissociation (87%), depression (59%) and PTSD (59%) (Table 3).

Table 3: Frequency of Psychological Disorders Among the 2007 Terrorist Bombing Survivors at the 2018 Follow-Up Assessment, Note- N=202.

Psychiatric disorders:			Male	Female
	n	%	(n) %	(n) %
Depression	72	35.6	(29) 40.3	(43) 59.7
Anxiety	55	27.2	(23) 41.8	(32) 48.2
Somatoform	76	37.6	(32) 42.1	(44) 47.9
Dissociation	32	15.8	(4) 12.5	(28) 87.5
Posttraumatic Stress Disorder (PTSD)	64	31.7	(26) 40.6	(39) 59.4

Table 4: Frequency of DSM-V PTSD Criteria Among the 2007 Terrorist Bombing Survivors at the 2018 Follow-Up Assessment; Note: According to DSM-V criteria, PTSD is present after exposure to a traumatic event when each of the five criteria listed in the table are present; each of the first three criteria is considered present when the sub criteria reach a specified number, b 95% CI=24.5–37.5.

Criterion	n N=202	%
Re-experiencing the event	72	36.7
Avoidance of reminders of the event and numbness of feelings	52	26.5
Hyperarousal	60	30.6
Duration of preceding symptoms 1 month or longer	62	30.6
Repercussions of the preceding symptoms on activities of daily living	70	34.6
Meets criteria for PTSD	64	31.7

Prevalence of PTSD

In the follow-up examination, 64 (31.7%) of the participants showed a PTSD (Table 4). The prevalence of PTSD was 25% (95% CI (Confidence Interval) =24.1%-45.9%) for persons with severe physical damage and 20% (95%, CI=18.7%-28.8%) for persons with moderate physical damage. It was lower in participants with mild injuries 15% (95% CI=12.2%-23.8%, respectively). 37 % of the participants reported re-experiencing the event and 27% reported on their attempts to avoid remembering the event or feelings of numbness, respectively. While the prevalence of PTSD in men was 27%, it was 36% in women (95% CI=26.2%-40.2%) (Table 4).

Risk factors associated with PTSD

Through univariate analysis, it could be shown that the risk of PTSD was significantly higher for women, participants aged 35 to 54 years, the unemployed, single people, people whose family situation had changed after the attack (widows), people who had suffered severe physical injury, mutilation or other mutilation and mental health problems, and people who reported a high perception of threat and fear at the time of the bombing attack or who have been in psychotherapy since the attack (Table 5).

Table 5: Factors Associated With PTSD Diagnosis in the 2007 Terrorist Bombing Survivors at a 2018 Follow-Up Assessment; *p<0.05.; Note- N=202; a Hosmer and Lemeshow goodness-of-fit test: 0.84; c-index: 0.81.

Factor	No PTSD		PTSD		Univariate Logistic Regression		Multiple Logistic Regression ^a	
	N	%	N	%	Odds Ratio	95% CI	Odds Ratio	95% CI
Sex								
Men	69	50.4	26	40.0	1.00		1.00	
Women	68	49.6	39	60.0	2.04*	1.19–3.92	3.48*	1.22–6.32
Age								
<35	49	37.8	15	23.1	1.00		1.00	
35–54	59	63.7	35	53.8	2.28*	1.12–4.68	3.47*	1.27–7.16
≥55	29	21.2	15	23.1	1.71	0.54–3.68	1.64	0.74–7.12
Employment								
Yes	85	62.0	30	46.2	1.00			
No	52	38.0	35	53.8	1.98*	0.99–3.45		
Education								
High	31	22.6	15	23.1	1.00			
Low	50	36.5	30	46.2	1.03	0.52–1.81		
No school education	56	40.9	20	30.7	1.39	0.63–4.18	2.48	0.81–6.52
Relationship status								
With a partner	114	83.2	38	58.5	1.00		1.00	
Alone	23	16.8	27	41.5	2.19*	1.22–4.35	2.89*	1.02–5.37
Injury severity (initial gravity score)								
Low	58	42.3	17	26.2	1.00		1.00	
Moderate	53	38.7	31	47.6	2.81*	1.24–4.31	2.96	1.06–5.72
High	26	19.0	17	26.2	3.15*	1.26–5.44	3.49*	1.05–6.44
Mutilation body								
No	95	69.3	37	56.9	1.00		1.00	
Yes	42	30.7	28	41.1	3.24*	1.57–5.74	3.14*	1.33–5.64
Other health problems since attack								
No	46	33.6	11	16.9	1.00			
Moderate	45	32.8	18	27.7	1.78	0.74–4.2		
Severe	46	33.6	36	55.4	3.15*	1.02–6.12		
Psychiatric history								
No	98	71.5	34	52.3	1.00			
Yes	39	28.5	31	47.7	1.95	0.76–5.99		

A psychiatric history in both women and men was associated with a non-significant increase in the rate of PTSD symptoms. A correlation between the prevalence of PTSD with the location of the bomb attack or with the number of years since the bombing could not be found. However, several logistic

regression analyses showed that there is a significant correlation between PTSD and age (35-54 years), gender, marital status, severity of the physical injury, especially mutilation, and perception of threat (Table 4). The odds ratios associated with these variables in multiple logistic regression analysis did not result in a significant change from those in univariate analysis. However, it could be shown that the goodness-of-fit test of Hosmer and Lemeshow and the c-index that the model fits the data.

DISCUSSION

In this study, 202 survivors of terrorist bombings were interviewed. To date, this is a relatively high number compared to most studies which focus on the medium and long-term mental consequences of terrorist bombing attacks. [31,38]. According to the Organisation of the Yazidi Associations, this group included almost all people injured during the 2007 bombings attack in Northern Iraq [31].

On average, 11.0 years after the bombing attack, the overall prevalence of PTSD was still high (31.7%), indicating that a good third of the participants did not have a remission after the bombing. Comparisons with other studies that focus on the medium and long-term psychological consequences of terrorist attacks, such as bombings, are difficult to conduct because of the differences between population groups, investigation methods and measures [9,39]. On the one hand, studies emphasize high PTSD rates. A study which examined survivors of bomb attacks in Rwanda and France between 1987 and 1997 [37,38,40] determined a PTSD prevalence which amounted to 18.1%. On the other hand, most studies report that the prevalence of PTSD after a traumatic event decreases over time due to new life experiences. In a US study of patients who had PTSD and were between 15 and 54 years old, the median time to remission was 64 months in people who were not treated. For those who were treated, the median time to remission was 36 months [1].

In our study, a significant correlation between injury severity and PTSD prevalence could be shown eleven years after the terrorist attack. The prevalence of psychological disorders is significantly higher among women than among men. This refers particularly to depression, PTSD and dissociation. In another study, the association between PTSD, somatoform disorder and

dissociation was demonstrated among Yazidi women. These findings confirm the results in our study [41].

A link between the nature and severity of physical injuries, mutilation and PTSD has been reported in a very inconsistent way. Some studies report that there is no evidence of a relation [42,43]. Some authors rather assume that the subjective perception of stressors leads to the onset of PTSD. Others report that the severity of physical injury is one of the most reliable predictors of PTSD development [44,45,46,47]. There are two reasons which might explain the high prevalence of PTSD in our study group. First, the group of the Yazidis has experienced long-lasting discrimination by the majority of Muslims. Secondly, the psychological state of the Yazidi is significantly shaped by transgenerational traumata [27,29]. Although the study group has lived in a safe environment in Germany since 2008, the ISIS attacks on the Yazidis in Iraq in 2014 might have reactivated the trauma. This assumption emerges from a study which has found PTSD symptoms in the Yazidi diaspora community in Germany after the genocide in 2014 [34]. The negligence of these aspects can be seen as one limitation of this study.

Yet, it is assumed that the 2007 bombing explains the PTSD. It is less likely that new traumatic events occurred in Germany. Although the effects of the 2014 attacks on relatives back in Iraq might have influenced the participants, it is unlikely that it led to re-experiencing the event or other PTSD criteria, as the study sample did not experience it themselves. This is also one reason why this study focuses on PTSD instead of depression. Events that might explain depression eleven years after the bombing are more likely to occur in Germany than events that explain PTSD, for example the consequences of the migration or worries about relatives in Iraq in 2014.

Similar to a study of a French bomb-explosion in 1995 [37], our study found a connection between mutilation and PTSD. We could not demonstrate a significant correlation between PTSD and mutilation.

Nonetheless, this should be further examined in the context of risk factors in future studies.

A higher prevalence of PTSD was found in persons with moderate and minor injuries (30% and 40% respectively) compared to the general population [1]. This suggests that other factors which are not necessarily related to the trauma

event also play a role in the development and perpetuation of PTSD. The perceived threat and PTSD showed the highest odds ratio (4.99). This result is also supported by other studies that show, among other things, a close relationship between PTSD, the risk of dying or witnessing horrific events, burning of people or their death [7,2].

Our findings that women have a higher prevalence of PTSD are also confirmed by numerous studies [48,16,7].

Research has shown different results with regards to a connection between age and PTSD [16,49,50]. At the same time, several studies have observed an increased risk of PTSD in 35-54 year during extreme stress [38].

Women who had lost their husbands remarried significantly less often than the men who had lost their wives. This can certainly be explained with patriarchal concepts. In such societies, women have significantly less rights than men, not because of religious but patriarchal values [34]. Our findings may be explained by the substantial economic and cultural consequences experienced by respondents with PTSD which still exists after having lived in a migration context for 11 years.

Although one third of the participants had PTSD, a relation between the psychiatric history and PTSD could not be proven. However, this may have methodological reasons, as a reconstruction of the events and consequences with the test instruments was not sufficient. This could also be due to insufficient statistical power, as relatively few subjects report a psychiatric history.

The main limitation of this study was the time difference between the event and the interviews. The study was conducted 11 years after the event. In the meantime, other factors played a primary role in shaping the present mental state. The mental state of the participants might have been influenced by the interviews which might have evoked recollections of the 2007 bombing 11 years after the event. At the same time, it is unlikely that the participants intentionally stressed their PTSD symptoms because they had no financial or other advantage.

Additionally, the social structures which the participants live in today might have influenced the results. This particularly applies to women. Women had a lower educational level than men and it is likely that they live in a patriarchal environment.

Finally, the memory might have changed after 11 years abroad, which may have influenced the result as well.

CONCLUSION

There have been few studies on the long-term prevalence of PTSD after more than 10 years of a terrorist bomb attack. To examine the psychological results eleven years after the 2007 attacks, we interviewed a sample of Yazidi survivors (N=202). We found a high prevalence of PTSD among the survivors injured at that time, especially among women. The results suggest that mutilation plays a significant role in the prevalence of PTSD. Our results indicate that it is very important to offer psychological care, psychotherapeutic treatment in particular, to the survivors even eleven years after the traumatic event. The results clearly reflect the need for improved health services and psychiatric diagnostics to treat long-term psychological and social consequences of terrorism. A culturally sensitive approach and gender-specific aspects for treatment may be necessary. At the same time, the specific role of minority and non-Muslim groups and their specific interaction with PTSD in Iraq and in the diaspora requires further research.

DECLARATIONS

Ethics approval and consent to participate

We confirm that all the research meets the ethical guidelines, including adherence to the legal requirements of the country in the study. All participants confirm their participation in the study in writing. This study was approved by the ethics committee of the University of Duhok, Kurdistan Region Iraq.

AVAILABILITY OF DATA AND MATERIALS

The data and materials of study are available from the corresponding author on reasonable request.

AUTHORS' CONTRIBUTIONS

JIK planned the study, analyzed all psychometric data in Germany and was writing the manuscript. The author read and approved the final manuscript.

REFERENCES

1. Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry*. 52: 1048–1060.
2. Yehuda R. (2002). Posttraumatic stress disorder. *N Engl J Med*. 346: 108–114.
3. Curran PS, Bell P, Murray A, Loughrey G, Roddy R, et al. (1990). Psychological consequences of the Enniskillen bombing. *Br J Psychiatry*. 156: 479–482.
4. North CS, Nixon SJ, Shariat S, Mallonee S, McMillen JC, et al. (1999). Psychiatric disorders among survivors of the Oklahoma City bombing. *JAMA*. 282: 755–762.
5. Galea S, Ahern J, Resnick H, Kilpatrick D, Bucuvalas M, et al. (2002). Psychological sequelae of the September 11 terrorist attacks in New York City. *N Engl J Med*. 346: 982–987.
6. Kizilhan JL. (2018). Zur Psychologie des islamisierten Terrors. *Psychotherapie im Dialog (PiD)*. 19: 73–77.
7. Fuhr DC, Acarturk C, McGrath M, Ilkkursun Z, Sondorp E, et al. (2019). Treatment gap and mental health service use among Syrian refugees in Sultanbeyli, Istanbul: A cross-sectional survey. *Epidemiology and Psychiatric Sciences*. 29: e70.
8. Shalev AY. (1992). Posttraumatic stress disorder among injured survivors of a terrorist attack: predictive value of early intrusion and avoidance symptoms. *J Nerv Ment Dis*. 180: 505–509.
9. Jehel L, Duchet C, Paterniti S, Consoli S, Guelfi J. (2001). Prospective study of post-traumatic stress in victims of terrorist attacks. *Encephale*. 27: 393–400.
10. Desivilya HS, Gal R, Ayalon O. (1996). Extent of victimization, traumatic stress symptoms, and adjustment of terrorist assault survivors: a long-term follow-up. *J Trauma Stress*. 9: 881–889.
11. DiGrande L, Neria Y, Brackbill RM, Pulliam P, Galea S. (2010). Long-term posttraumatic stress symptoms among 3,271 civilian survivors of the September 11, 2001, terrorist attacks on the World Trade Center. *American journal of epidemiology*. 173: 271–281.
12. Lowell A, Suarez-Jimenez B, Helpman L, Zhu X, Durosky A, et al. (2018). 9/11-related PTSD among highly exposed populations: a systematic review 15 years after the attack. *Psychological medicine*, 48: 537–553.
13. Dolberg OT, Barkai G, Leor A, Rapoport H, Bloch M, et al. (2010). Injured civilian survivors of suicide bomb attacks: From partial PTSD to recovery or to traumatization. Where is the turning point? *The World Journal of Biological Psychiatry*. 11: 344–351.

14. Berna G, Vaiva G, Ducrocq F, Duhem S, Nandrino JL. (2012). Categorical and dimensional study of the predictive factors of the development of a psychotrauma in victims of car accidents. *J Anxiety Disord.* 26: 239-245.
15. Bryant RA. (1996). Predictors of posttraumatic stress disorder following burns injury. *Burns.* 22: 89-92.
16. Basoglu M. (2009). A multivariate contextual analysis of torture and cruel, inhuman, and degrading treatments: Implications for an evidence-based definition of torture. *American Journal of Orthopsychiatry.* 79: 135-145.
17. Teodorescu DS, Siqveland J, Heir T, Hauff E, Wentzel-Larsen T, et al. (2012). Posttraumatic growth, depressive symptoms, posttraumatic stress symptoms, post-migration stressors and quality of life in multi-traumatized psychiatric outpatients with a refugee background in Norway. *Health and quality of life outcomes.* 10: 84.
18. Buhmann CB. (2014). Traumatized refugees: morbidity, treatment and predictors of outcome. *Dan Med J.* 61: B4871.
19. Abbott A. (2016). The mental-health crisis among migrants. *Nature.* 538: 158-160.
20. Ceri V, Ozlu-Erkilic Z, Ozer U, Yalcin M, Popow C, et al. (2016). Psychiatric symptoms and disorders among Yazidi children and adolescents immediately after forced migration following ISIS attacks. *Neuropsychiatr.* 30: 145-150.
21. Cetorelli V, Sasson I, Shabila N, Burnham G. (2017). Mortality and kidnapping estimates for the Yazidi population in the area of mount Sinjar, Iraq, in august 2014: a retrospective household survey. *PLoS medicine.* 14: e1002297.
22. Pagotto LF, Mendlowicz MV, Coutinho ESF, Figueira I, Luz MP, et al. (2015). The impact of posttraumatic symptoms and comorbid mental disorders on the health-related quality of life in treatment-seeking PTSD patients. *Comprehensive psychiatry.* 58: 68-73.
23. Gillespie CF, Phifer J, Bradley B, Ressler KJ. (2009). Risk and resilience: genetic and environmental influences on development of the stress response. *Depression and anxiety.* 26: 984-992.
24. Yehuda R, Hoge CW, McFarlane AC, Vermetten E, Lanius RA, et al. (2015). Posttraumatic stress disorder. *Nat Rev Dis Primers.* 15057.
25. Horn SR, Charney DS, Feder A. (2016). Understanding resilience: new approaches for preventing and treating PTSD. *Experimental Neurology.* 284: 119-132.
26. Mendoza C, Barreto GE, Avila-Rodriguez M, Echeverria V. (2016). Role of neuroinflammation and sex hormones in war-related PTSD. *Molecular and cellular endocrinology.* 434: 266-277.
27. Kizilhan JI, Noll-Hussong M. (2017). Individual, collective, and transgenerational traumatization in the Yazidi. *BMC medicine.* 15: 198.
28. Mohammadi D. (2016). Help for Yazidi survivors of sexual violence. *The Lancet Psychiatry.* 3: 409-410.
29. Wenk-Ansohn M. (2007). Treatment of torture survivors - influences of the exile situation on the course of the traumatic process and therapeutic possibilities. *Torture.* 17: 88-95.
30. The Head Organisation of the Yazidi Associations in EU Countries, with a charitable foundation (2007).
31. Kizilhan JI, Othman M. (2012). Trauma nach einer Bombenexplosion im Irak PTSD-Faktoren bei Opfern der groessten Bombenexplosion im Irak im Jahre 2007. *Zeitschrift Trauma & Gewalt.* 6: 62-71.
32. Kreyenbroek PG. (2010). Orality and Religion in Kurdistan: The Yazidi and Ahl-e Haqq Traditions. *Oral Literature of Iranian Languages: Kurdish, Pashto, Balochi, Ossetic, Persian and Tajik (70-88).* London: IB Tauris.
33. Omarkhali K. (2017). The Yazidi Religious Textual Tradition: From Oral to Written. Categories, Transmission, Scripturalisation and Canonisation of the Yazidi Oral Religious Texts. Wiesbaden: Harrassowitz.
34. Kizilhan J. (2017). The Yazidi—Religion, Culture and Trauma. *Advances in Anthropology.* 7: 333-339.
35. EasternStar News Agency, Oct.-1-2007 23:43:1, Assyrian International News Agency in North Iraq, www.christiansofiraq.com/whobombedyezidisoct37.html.
36. Gerdau I, Kizilhan JI, Noll-Hussong M. (2017). Posttraumatic stress Disorder and Related Disorders among Female Yazidi Refugees following Islamic state of Iraq and

- Syria Attacks—a Case Series and Mini-Review. *Frontiers in psychiatry*. 8: 282.
37. Verger P, Dab W, Lamping DL, Loze JY, Deschaseaux-Voinet C, et al. (2004). The Psychological Impact of Terrorism: An Epidemiologic Study of Posttraumatic Stress Disorder and Associated Factors in Victims of the 1995–1996 Bombings in France. *Am J Psychiatry*. 161: 1384–1389.
 38. Meffer SM, Marmar CR. (2009). Darfur Refugees in Cairo. Mental Health and interpersonal conflict in the aftermath of genocide. *Journal of Interpersonal Violence*. 24: 1835–1848.
 39. Fukunishi I. (1999). Relationship of cosmetic disfigurement to the severity of posttraumatic stress disorder in burn injury or digital amputation. *Psychother Psychosom*. 68: 82–86.
 40. Pham PN, Weinstein HM, Longman T. (2004). Trauma and PTSD in Rwanda: Implication for attitudes towards justice and reconciliation. *The Journal of the American Medical Association*. 292: 602–612.
 41. Kizilhan JI, Steger F, Noll-Hussong M. (2020). Shame and dissociative seizures and their correlation among traumatized female Yazidi with experience of sexual violation. *BJP*. 216: 138–143.
 42. Lovstad M, Manum G, Wisloff-Aase K, Hafstad GS, Røeder J, et al. (2019). Persons injured in the 2011 terror attacks in Norway - Relationship between post-traumatic stress symptoms, emotional distress, fatigue, sleep, and pain outcomes, and medical and psychosocial factors. *Disability and Rehabilitation*.
 43. Basoglu M, Salcioglu E, Livanou M. (2009). Single-case experimental studies of a self-help manual for traumatic stress in earthquake survivors. *Journal of Behaviour Therapy and Experimental Psychiatry*. 40: 50–58.
 44. Solomon Z. (2001). The impact of posttraumatic stress disorder in military situations. *J Clin Psychiatry*. 62: 11–15.
 45. Jeavons S. (2000). Predicting who suffers psychological trauma in the first year after a road accident. *Behav Res Ther*. 38: 499–508.
 46. Gouweloos J, Postma ILE, Brake H, Sijbrandij M, Kleber R, et al. (2016). The risk of PTSD and depression after an airplane crash and its potential association with physical injury: A longitudinal study. *Science direct*. 47: 250–256.
 47. Nakamine S, Kobayashi M, Fujita H, Takahashi S, Matsui Y. (2018). Posttraumatic Stress Symptoms in Victims of the Tokyo Subway Sarin Attack: Twenty Years Later. *Journal of Social and Clinical Psychology*. 37: 794–811.
 48. Gibbs MS. (1989). Factors in the victim that mediate between disaster and psychopathology: a review. *J Trauma Stress*. 2: 489–514.
 49. Thompson MP, Norris FH, Hanacek B. (1993). Age differences in the psychological consequences of Hurricane Hugo. *Psychol Aging*. 8: 606–616.