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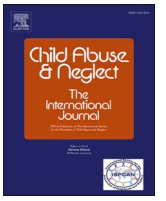

Trapped in time: Time perspective explains PTSD symptom severity following childhood abuse

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ABSTRACT

Background: Childhood abuse (CA) has profound impact on mental health, with survivors often exhibiting heightened vulnerability to posttraumatic stress disorder (PTSD). Time perspective–a psychological construct reflecting attitudes towards the past, present, and future–has emerged as a potential explanatory factor for PTSD symptoms; however, its role among CA survivors remains underexplored.
Objective: This study investigated time perspective following CA and its contribution to explaining PTSD symptom clusters, beyond known risk factors such as age, polyvictimization, the role of the perpetrator in survivors' lives, and abuse severity.
Participants and setting: The study included 977 Israeli women aged 18–70 years ($M = 33.40$, $SD = 9.54$), 80 % of whom reported a history of CA. Data were collected via an online survey.
Methods: Participants completed measures assessing CA, time perspective, and PTSD symptoms. Non-parametric tests, correlation analyses, and regression models were utilized to explore the study's hypotheses.
Results: CA survivors exhibited lower past-positive and future perspectives, higher past-negative and present-fatalistic perspectives, and greater deviations from balanced time perspective (all $ps < .001$, ε^2_H range = 0.02–0.29). Additionally, CA survivors exhibited a higher present-hedonistic perspective ($p < .05$, $\varepsilon^2_H = 0.01$). Time perspectives explained PTSD symptoms beyond the effects of age, polyvictimization, the role of the perpetrator in survivors' lives, and abuse severity, with varying effects across symptom clusters.
Conclusions: The findings underscore the impact of CA on time perspective and its contribution to PTSD symptomatology. Addressing maladaptive time perspectives through tailored interventions may enhance treatment outcomes for CA survivors.

1. Introduction

Childhood abuse (CA), which includes physical, emotional, and sexual maltreatment, is a prevalent global issue and a significant public health challenge (Zeanah & Humphreys, 2018). CA is regarded as complex trauma because it occurs during critical developmental periods and often involves continued contact with the perpetrator (Courtois, 2004). Such trauma can profoundly undermine an

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individual's development and may lead to various long-lasting detriments in adulthood. Extensive literature documents the persistent impact of CA on both physical health (Wegman & Stetler, 2009) and mental health (Sahle et al., 2022). CA survivors often exhibit a broad range of psychological symptoms, including anxiety and depression (Sahle et al., 2022), dissociation (Bradley et al., 2019; King et al., 2020; Lahav & Elklit, 2016), self-harm (Lahav et al., 2019; Liu et al., 2018), substance abuse (LeTendre & Reed, 2017), eating disorders (Rienecke et al., 2022), and suicidal ideation (Martin et al., 2016).

One of the most well-documented consequences of CA is post-traumatic stress disorder (PTSD), which manifests through four symptom clusters (American Psychiatric Association, 2022). The first cluster comprises intrusive symptoms, such as recurrent, involuntary, and intrusive memories or flashbacks, which cause individuals to feel or act as if the traumatic event is happening again. The second cluster consists of avoidance symptoms, including efforts to avoid distressing memories, thoughts, or feelings related to the event, and external reminders of the trauma. The third cluster involves negative alterations in cognitions and mood, marked by negative beliefs about oneself, others, or the world, and persistent negative emotions (e.g., guilt, shame). The fourth cluster encompasses hyperarousal associated with the trauma, including irritable behavior, angry outbursts, hypervigilance, concentration difficulties, and sleep disturbances (American Psychiatric Association, 2022).

While the literature indicates significant rates of PTSD among adults with a history of CA, ranging from 7.8 % to 35.6 % (Lueger-Schuster et al., 2018; Scott et al., 2023), not all individuals develop PTSD (Fondren et al., 2020), and the severity of symptoms varies among those who do (Rameckers et al., 2021). Research has identified risk factors that increase vulnerability to PTSD, including age, with younger individuals often being more susceptible due to their developmental stage and lack of coping mechanisms; the severity of abuse and polyvictimization (i.e., exposure to multiple forms of abuse), which can overwhelm an individual's capacity to process and recover; and the relationship to the perpetrator, with familial abuse often leading to more profound impacts due to the betrayal of trust and disruption of a fundamental support system (Clark et al., 2010; Dierkhising et al., 2019; Tzouvara et al., 2023).

Nevertheless, the role of time perspective–particularly the tendency of CA survivors to be focused on their past–in explaining PTSD symptomatology has received limited attention. Time perspective is a psychological concept that refers to how individuals perceive and relate to time, influencing their thoughts, emotions, and behaviors. It encompasses how people view their past, present, and future, and how these temporal orientations impact their decision-making and overall well-being (Zimbardo & Boyd, 1999). Zimbardo and Boyd (1999, 2015) identified five time perspectives: past-negative, which reflects a pessimistic attitude towards the past and discomfort with recalling it; past-positive, which reflects a warm and nostalgic attitude towards the past and enjoyment in remembering it; present-hedonistic, which reflects prioritizing present impulses, as well as embracing recklessness and risk-taking; present-fatalistic, which reflects a sense of apathy and helplessness due to the belief that uncontrollable forces determine one's fate; and future, which reflects a tendency to plan and strive for long-term goals while avoiding risks and favoring consistency. Individuals typically lean towards a specific time perspective, which influences their attitudes and behaviors (Stolarski et al., 2018).

Previous studies indicate that individuals with heightened past-negative and present-fatalistic perspectives are less likely to engage in health-promoting behaviors and may be more vulnerable to depression and anxiety (e.g., Griffin & Wildbur, 2020; Griva et al., 2015; Olivera-Figueroa et al., 2015; Papastamatelou et al., 2015; Simon et al., 2022) as well as to suicidal ideation (Hayes et al., 2016). Conversely, those with high present-hedonistic, past-positive, and future perspectives often report greater positive affect, well-being, life satisfaction, and enhanced emotion regulation (Drake et al., 2008; Stolarski et al., 2014; Zhang & Howell, 2011). While it is clear that over-reliance on unfavorable time perspectives (past-negative and present-fatalistic) can lead to difficulties, the same might apply to time perspectives that are generally considered beneficial. For instance, an overly dominant future perspective can lead to workaholism and neglect of social connections (Boniwell & Zimbardo, 2004), while an overly dominant present-hedonistic perspective can lead to symptoms of mania in bipolar disorder (Gruber et al., 2012).

As research progressed, it became evident that an adaptive time perspective requires maintaining an optimal attitude towards the past, present, and future, alongside cognitive flexibility to shift between perspectives based on situational demands, values, and needs. Although termed *balanced time perspective* (BTP) by Boniwell and Zimbardo (2004), this approach does not imply an equal distribution among perspectives. Instead, it entails an adaptive attitude where the past-positive perspective carries the most weight, with moderate levels of present-hedonistic and future perspectives, and minimal emphasis on past-negative and present-fatalistic perspectives. The literature highlights that BTP is a key factor in adaptation across various domains of human functioning (Stolarski et al., 2020). Individuals with a BTP demonstrate enhanced emotional regulation, well-being, life satisfaction, happiness, positive affect, and resilience (Griffin & Wildbur, 2020; Matthews & Stolarski, 2015; Stolarski et al., 2014; Webster, 2016; Zhang et al., 2013).

Exposure to trauma, such as CA, can influence individuals' time perspective. CA often involves overwhelming stress and fear, leading to feelings of helplessness and hopelessness, which challenge the integration of traumatic events into an individual's sense of self (van der Kolk et al., 1989). CA survivors often remain vigilantly tied to an unresolved past, perceive the present as unsafe, and view the future with uncertainty and pessimism (Holman, 2015; Matthews & Stolarski, 2015). Consequently, they may exhibit lower scores in past-positive and future perspectives, and higher scores in past-negative, present-hedonistic, and present-fatalistic perspectives. Being cognitively and emotionally stuck in traumatic past experiences, while holding pessimistic views of the present and future, can hinder the ability to process and recover from trauma. This may, in turn, intensify vulnerability to post-traumatic distress (Matthews & Stolarski, 2015; Zimbardo & Boyd, 2015) and symptomatology, including PTSD (Jacobs-Kayam & Lev-Wiesel, 2019; Lahav et al., 2019; Levy, 1998; Stolarski & Cyniak-Cieciura, 2016; Tomich & Tolich, 2021; van der Kolk & van der Hart, 1991).

While direct evidence comparing time perspective before and after trauma is unavailable, existing research suggests that trauma can disrupt an optimal approach to time perspective and impair the cognitive flexibility needed to shift between them (Tomich, DeMalio, & Tolich, 2022; Tomich & Tolich, 2021). Specifically, research has indicated relationships between trauma exposure, time perspective, and PTSD symptomatology. Studies have shown that trauma exposure is positively correlated with past-negative and present-fatalistic perspectives and negatively correlated with past-positive and future perspectives (Holman, 2015; Stolarski & Cyniak-

Cieciura, 2016). Additionally, exposure to stressful events earlier in life has been linked to greater deviations from a BTP (Holman, 2015; Hosseini Ramaghani et al., 2019; Tomich & Tolich, 2021), and a recent study conducted among undergraduate students has indicated that deviation from a BTP mediated the path from trauma exposure to PTSD symptoms: more lifetime trauma exposure was related to greater deviation from a BTP, which, in turn, was associated with PTSD symptoms (Tomich, Tolich, & DeMalio, 2022). Furthermore, evidence indicates that past-negative, present-fatalistic and present-hedonistic perspectives, along with an overall unbalanced time perspective, are related to elevated PTSD symptomatology (Măirean & Diaconu-Gherasim, 2022; Mengxin & Zilan, 2022; Saltzman & Terzis, 2024; Tomich & Tolich, 2021).

Nonetheless, most studies assessing time perspective following trauma exposure have been conducted among individuals with a history of traumatic events other than CA (Holman, 2015; Măirean & Diaconu-Gherasim, 2022; Stolarski & Cyniak-Cieciura, 2016). Previous studies that included CA survivors have either referred to CA as part of a broader category of stressful life events– including terrorist attacks, intimate partner violence, motor vehicle accidents, life-threatening illnesses or injuries, and adult unwanted sexual contact (Holman, 2015; Holman et al., 2016; Hosseini Ramaghani et al., 2019; Tomich & Tolich, 2021)–or assessed the link between the *severity* of CA and time perspective (Wang et al., 2021).

Similarly, the majority of studies exploring the relationship between time perspective and PTSD symptomatology included CA survivors as part of a sample consisting of individuals with a history of traumatic events occurring during adulthood (Măirean & Diaconu-Gherasim, 2022; Saltzman & Terzis, 2024; Tomich, Tolich, & DeMalio, 2022). To the best of our knowledge, only one study has specifically examined the relationship between time perspective and PTSD symptomatology in CA survivors, indicating a relationship between time perspective and PTSD. However, this study assessed only the total PTSD score and did not account for other risk factors for PTSD (Hosseini Ramaghani et al., 2019).

Therefore, it remains unclear whether CA survivors differ from individuals without a history of CA in terms of time perspective, and whether time perspective uniquely contributes to explaining the different PTSD symptom clusters. Although it is important to investigate various types of trauma, the complex trauma of CA may stand apart due to its unique multifaceted consequences (Cloitre et al., 2013; Herman, 1992). Occurring during critical developmental periods and often involving ongoing contact with the perpetrator, CA may exert distinctive implications on time perspective that warrant focused inquiry. Furthermore, although evidence has suggested a link between time perspective and PTSD total scores, further exploration of the contribution of time perspective in explaining different PTSD clusters is necessary to enhance our understanding of its implications for posttraumatic distress.

Addressing these gaps, this study–conducted among participants with and without a history of CA–explored time perspective following CA and the contribution of time perspective in explaining PTSD symptom clusters, beyond the effects of age, polyvictimization, the role of the perpetrator in individuals' lives, and severity of abuse–all of which are risk factors for PTSD. Given that research among CA survivors has indicated high rates of polyvictimization (Finkelhor et al., 2007), and similar patterns in the relationship between different types of CA and time perspectives (Wang et al., 2021), this investigation explored time perspective while taking into account the overall CA severity score rather than the severity of specific types of CA to provide a comprehensive view of CA experiences.

Drawing upon the aforementioned literature, we hypothesized that (a) CA survivors would differ from participants without a history of CA in time perspective, exhibiting lower scores in past-positive and future perspectives, higher scores in past-negative, present-hedonistic, and present-fatalistic perspectives, and greater deviations from BTP; (b) time perspective would be related to elevated PTSD symptom clusters among CA survivors; and (c) time perspectives would uniquely contribute to explaining PTSD symptom clusters beyond the effects of age and features of abuse (i.e., polyvictimization, the role of the perpetrator in survivors' lives, and severity of abuse).

2. Method

2.1. Participants and procedure

An online survey was administered to a convenience sample of adult Israelis, aged 18 and over. The survey was distributed via Facebook and the Tel Aviv University Sona system for recruiting subjects. Participants completed self-report questionnaires through Qualtrics, a secure web-based platform. The study was advertised as a research project exploring the consequences of difficult childhood experiences on adult health. The survey, open from December 2022 to March 2023, took approximately 30 min to complete. To maintain anonymity, no data linking participants to recruitment sources were collected. All study procedures and instruments received approval from The Tel Aviv University institutional review board (IRB). Participants accessed an explanatory page and an informed consent form by clicking on the provided link.

To ensure data quality, several measures were implemented. Qualtrics' '*Prevent Ballot Box Stuffing*' feature was activated to prevent multiple submissions from the same individual. Additionally, the university's official recruitment system utilized a unique personal identification number to prevent participants from duplicating or replacing their entries. Finally, responses linked to duplicate IP addresses were removed to detect and exclude potential fraudulent submissions by bots.

Upon completion of the survey, participants had the opportunity to win one of ten 200 NIS gift vouchers or receive credit points. The survey also included instructions stating that participants could withdraw at any time, and contact information for the study authors and external support centers was provided to ensure participants' well-being.

A total of 1868 participants entered the survey. Of them, 1209 filled out only a portion of the study's questionnaires. Additionally, 12 cases of duplicate IP addresses were detected and removed to maintain data integrity. The current sample consisted of 977 women, who provided data on all study variables, ranging in age from 18 to 70 ($M = 33.40$, $SD = 9.54$). The majority were Jewish (92.5 %),

secular (75.9 %), and had completed an average of 14.65 years of education (*SD* = 3.55). Most participants identified as heterosexual (80.7 %) and had no children (58.6 %). Of the total sample, 780 women reported having experienced CA. Over half of these participants reported that the abuser was male (61.8 %) and a parent (56.9 %). The average age at the onset of abuse was 6.89 (*SD* = 4.05). A majority indicated that the abuse involved multiple types (71.8 %) and occurred more than once (91 %).

2.2. Measures

2.2.1. Background characteristics

Participants provided demographic information through a concise questionnaire that inquired about age, education level, religion, religiosity, sexual orientation, and whether or not they have children.

2.2.2. Childhood abuse and features of abuse

History of CA was assessed using the physical, sexual, and emotional abuse subscales of the Childhood Trauma Questionnaire-Short Form (CTQ-SF; Bernstein et al., 2003). Participants rated the frequency of these experiences during childhood on a 5-point Likert scale (1 = *never true* to 5 = *very often true*). The total abuse severity score ranges from 15 to 75, with higher scores indicating more severe abuse. Classification of CA was based on cutoff scores: ≥9 for emotional abuse, ≥8 for physical abuse, and ≥6 for sexual abuse (Tietjen et al., 2010). Participants exceeding any of these cutoffs were classified as having a history of CA. The CTQ-SF demonstrates strong convergent and discriminant validity and high internal consistency (Bernstein et al., 2003). In This study, the scale showed excellent internal consistency (α = 0.90).

Polivictimization was calculated as a dichotomous variable when multiple types of abuse were reported, with two or more types considered poly-victims. In addition, CA survivors were further asked to indicate the role of the perpetrator in their lives by responding to the question, "*What was the role of the abuser in your life*?" Response options included: parent or parental figure (e.g., adoptive parent, stepparent, parent's partner), sibling, other family member, family friend, authority figure (e.g., teacher, counselor, therapist), peer, older acquaintance, neighbour, stranger, or other. Participants' responses were converted into a dummy variable, with parental figure coded as 1 and non-parental figure coded as 0.

2.2.3. Post-traumatic stress disorder symptoms

PTSD symptoms were evaluated using the PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013). This 20-item self-report questionnaire measures symptoms across the four symptom clusters: intrusive symptoms, avoidance, negative alterations in cognitions and mood, and hyperarousal, and is also in line with the latest version, DSM-5-TR (American Psychiatric Association, 2022). Participants rated the symptoms they experienced in the past month related to CA on a 5-point Likert scale (0 = *not at all* to 4 = *extremely*). Total scores range from 0 to 80, with higher scores indicating greater PTSD severity. Although not a definitive diagnostic measure, preliminary research suggests that a cutoff score of 33 is a useful threshold to indicate symptomatology that may be at clinical levels (Bovin et al., 2016).

The PCL-5 demonstrates strong internal consistency and test-retest reliability (Bovin et al., 2016). In this study, the total scale showed excellent internal consistency (α = 0.93), with Cronbach's alpha values for the symptom clusters as follows: intrusion (α = 0.88), avoidance (α = 0.78), negative alterations in cognitions and mood (α = 0.86), and hyperarousal (α = 0.82).

2.2.4. Time perspective

Time perspective was assessed using the Zimbardo Time Perspective Inventory – Short Hebrew Version (ZTPI-S; Orkibi, 2015). This 20-item self-report questionnaire evaluates five attitudes towards time: past-negative, past-positive, present-hedonistic, present-fatalistic, and future. Participants rated the extent to which these time perspectives characterize their perception on a 5-point Likert scale (1 = *very atypical* to 5 = *very typical*). Scores for each perspective were derived from the item averages, ranging from 1 to 5. Deviation from BTP was quantified using a formula proposed by Stolarski et al. (2011):

$$\mathrm{DBTP} = \sqrt{(1.95 - \mathrm{ePN})^2 + (4.60 - \mathrm{ePP})^2 + (1.50 - \mathrm{ePF})^2 + (3.90 - \mathrm{ePH})^2 + (4.00 - \mathrm{eF})^2}$$

The ZTPI-S demonstrates strong convergent and discriminant validity (Zhang et al., 2013). In the current study, the internal consistency values were: past-negative (α = 0.86), past-positive (α = 0.75), present-hedonistic (α = 0.68), present-fatalistic (α = 0.81), and future (α = 0.75).

2.3. Analytic strategy

The analyses were performed using R software. Of the total sample size of 977 participants, there was no missing data, and no imputation procedures were needed. We applied Mahalanobis' distance measure to our raw data to detect and omit multivariate outliers (Leys et al., 2018). No outliers were detected in our data. To explore the relationships between the study variables and PTSD clusters, we conducted association analyses. Pearson's correlation coefficient was used for continuous-by-continuous relationships, Pearson's point biserial correlation coefficient for continuous-by-nominal relationships, and the Chi-square (χ^2) test's phi (ϕ) measure of association for nominal-by-nominal ones (Hollander et al., 2013). All continuous data were tested for univariate and multivariate normality using the omnibus Shapiro-Wilk (S-W) test (Thode, 2002) and Mardia's (1970) test for skewness and kurtosis. In both cases, we applied the common $p < .05$ threshold, however since the S-W test statistic is sensitive to sample sizes greater than $n = 50$, critical

values were set using a Monte-Carlo simulation. As for Mardia's test statistics, values were obtained from the χ^2 and normal distribution for the skewness and kurtosis test statistics, respectively.

To analyze the joint differences in all time perspectives between participants with and without a history of CA, a MANOVA analysis was conducted. The data failed to meet several assumptions of parametric tests: it did not adhere to a multivariate normal distribution, as indicated by Mardia's test; the covariance matrices of the dependent variables were not equal across groups, as suggested by Box's (1949) M test; and finally, a visual inspection of scatterplots of the relationships between the dependent variables showed some instances of weak linearity in some bivariate plots. Therefore, a multivariate Kruskal-Wallis test was performed, followed by its Bonferroni-corrected post-hoc tests (Katz & McSweeney, 1980). The mean difference comparison for the DBTP metric between the CA and non-CA groups was conducted using the Mann-Whitney test.

To explore the unique contribution of time perspectives above and beyond age and the features of abuse (polyvictimization, the role of the perpetrator in individuals' lives, and severity of abuse) in explaining PTSD symptoms, hierarchical linear regression models were implemented. The models consisted of three blocks: the first included age; the second included features of abuse; and the third included time perspectives. Within each block, all variables were introduced simultaneously into the model. Each predictor's effect is assessed while controlling for all others, with estimation following the standard OLS solution. We tested for the OLS assumptions using the following tests: (a) the Anderson-Darling test for the normality of residuals; (b) the Breusch-Pagan test for heteroscedasticity; (c) the Durbin-Watson test for autocorrelation; and (d) the VIF value for multicollinearity. In cases where the data met all assumptions, an OLS model was fitted to the data. In cases where the data departed from normality, we applied a conservative case-based bootstrap estimation procedure. When the data also exhibited heteroscedasticity patterns, we applied a wild-bootstrap estimation procedure for non-clustered data, as suggested by Wu (1986) and Liu (1988). All models showed no multicollinearity or auto-correlation.

3. Results

3.1. PTSD symptoms in CA survivors

Of the total sample, 80.3 % ($n = 626$) reported experiencing at least one intrusive symptom, 75.5 % ($n = 589$) reported at least one avoidance symptom, 93.8 % ($n = 732$) reported at least one negative alteration in cognitions and mood, and 91.8 % ($n = 716$) reported at least one hyperarousal symptom. Additionally, a majority of the CA sample (65.4 %, $n = 510$) had PTSD symptoms above the cutoff, indicating clinically significant symptomatology.

3.2. Differences in time perspective in participants with and without a history of CA

A-parametric multiway MANOVA indicated a significant difference in the multiway rank of all time perspectives combined ($PV < 0.001, \varepsilon^2_H = 0.36$). Post-hoc analysis revealed that CA survivors had lower scores in past-positive and future perspectives, and higher scores in past-negative, present-hedonistic, and present-fatalistic perspectives, compared to participants without a history of CA. Group-wise means, standard deviations, test values, and ε^2 effect sizes of the post-hoc analyses are presented in Table 1. An a-parametric test of the mean-rank of DBTP scores also showed a significant difference, with a higher DBTP mean score for CA survivors ($W = 22207, pv < 0.001, \overline{Mean - diff} = 1.26$).

3.3. Associations between time perspectives and PTSD symptoms

As shown in Table 2, levels of past-positive perspective were negatively and significantly correlated with PTSD symptoms: the greater the past-positive score, the lower the levels of intrusiveness, negative alterations in cognitions and mood, and hyperarousal. Similar results were found for future perspective, which exhibited a negative and significant correlation with intrusiveness, negative alterations in cognitions and mood, and hyperarousal. Conversely, past-negative and present-fatalistic perspectives were positively correlated with PTSD symptoms: the greater the scores for these perspectives, the higher the levels of PTSD symptoms. The present-hedonistic perspective was positively and significantly correlated only with the negative alterations in cognitions and mood cluster.

Table 1
Means, SDs, and univariate Kruskal-Wallis results of time perspectives among CA survivors and participants without a history of CA ($N = 977$).

	CA survivors ($n = 780$)		Participants without a history of CA ($n = 197$)		[a]H	[b]ε^2_H
	M	*SD*	*M*	*SD*		
Past-positive	2.80	0.92	3.75	0.76	156***	0.16
Past-negative	4.11	0.72	2.55	0.99	288***	0.29
Present-hedonistic	2.56	0.88	2.37	0.76	8.25*	0.01
Present-fatalistic	2.65	0.89	2.06	0.65	78.9***	0.08
Future	3.43	0.87	3.71	0.73	17.2***	0.02

[a] Bonferroni corrected values.
[b] Kruskal Wallis eta-squared value, based on the test's H statistic.
* $p < .05$.
*** $p < .001$.

Table 2
Correlations between study variables and PTSD symptoms (n = 780).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	–													
2. Polyvictimization (yes)	−0.05	–												
3. The role of the perpetrator in survivors' lives (parental figure)	0.03	0.04	–											
4. Severity of abuse	−0.04	0.53***	0.11**	–										
5. Past positive	−0.02	−0.11**	−0.15***	−0.29***	–									
6. Past-negative	−0.12***	0.25***	0.07*	0.38***	−0.20***	–								
7. Present-hedonic	−0.15***	0.09**	0.02	0.03	0.19***	0	–							
8. Present-fatalistic	−0.06	0.06	−0.03	0.11**	−0.10**	0.20***	0.13***	–						
9. Future	0.04	−0.04	0.03	−0.04	0.11**	−0.07	−0.08*	−0.37***	–					
10. Intrusion	−0.18***	0.23***	0.01	0.44***	−0.24***	0.58***	0.05	0.25***	−0.08*	–				
11. Avoidance	−0.17***	0.21***	−0.01	0.34***	−0.20***	0.42***	0.03	0.18***	−0.05	0.66***	–			
12. Hyperarousal	−0.20***	0.20***	0.05	0.37***	−0.31***	0.50***	0.01	0.39***	−0.21***	0.61***	0.54***	–		
13. Negative alterations in cognitions and mood	−0.14***	0.23***	0.02	0.38***	−0.18***	0.45***	0.17***	0.32***	−0.20***	0.65***	0.55***	0.70***	–	
14. DBTP[a]	–	–	–	–	–	–	–	–	–	0.47***	0.36***	0.40***	0.55***	–
Mean (N)	33.94	573	476	35.24	2.80	4.11	2.56	2.65	3.43	8.47	4.00	11.87	14.71	3.77
SD (%)	9.52	73.46	61.03	11.18	0.92	0.72	0.88	0.89	0.87	5.16	2.30	5.58	6.69	0.91

Note. Pearson's point biserial coefficient and ϕ measure of association serves as measures of association where Pearson correlation is inapplicable.

[a] DBTP = deviation from balanced time perspective. Values are derived from time perspectives scores; therefore, correlation tests are inapplicable between these variables. Correlation tests applied to PTSD clusters only.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

DBTP was positively correlated with all PTSD symptoms: the higher the DBTP score, the higher the levels of symptoms. Additionally, the severity of abuse and polyvictimization were positively correlated with all PTSD symptoms, while age was negatively correlated with the latter. The role of the perpetrator in survivors' lives showed no significant association with any PTSD symptoms.

3.4. The unique contribution of time perspective in explaining PTSD symptoms

Results of the hierarchical linear regression models are presented in Table 3. The effect of respondents' age was negative and significant for all PTSD symptoms. The addition of the abuse feature variables to the model significantly contributed to the model's explanatory power ($\Delta R^2 > 0.11$ with $p < 0.001$ for all four PTSD clusters). While the individual effects of polyvictimization and the role of the perpetrator in survivors' lives were insignificant, the severity of abuse had a positive and significant effect on PTSD symptoms.

The inclusion of time perspectives also significantly enhanced the model's explanatory power, with LRT test results indicating a good fit of the explanatory variables to the final model ($\Delta R^2 > 0.1$ with $pv < 0.001$ for all four PTSD clusters). The past-positive perspective had a negative and significant effect on all PTSD symptoms, whereas past-negative and present-fatalistic perspectives had a positive and significant effect on all symptoms. Results were mixed for the present-hedonistic and future perspectives across the four models: present-hedonistic had a positive effect on the hyperarousal cluster, while future perspectives had a negative effect on negative alterations in cognitions and mood, as wells as the hyperarousal cluster.

4. Discussion

Although CA survivors exhibit substantial variability in their posttraumatic distress, the role of time perspective in relation to specific PTSD symptom clusters has not been thoroughly investigated. This study is the first to examine how time perspective uniquely contributes to each PTSD symptom cluster, independent of established risk factors. By addressing this gap, the study provides novel insights into the relationship between time perspective and distinct symptom clusters of PTSD in CA survivors. The results indicated significant differences in time perspectives and BTP between CA survivors and participants with no history of CA. Specifically, CA survivors scored lower in past-positive and future perspectives and higher in past-negative, present-hedonistic, and present-fatalistic perspectives compared to participants without such a history. Additionally, CA survivors demonstrated greater deviation from a balanced time perspective. These findings align with previous research among trauma survivors (Hosseini Ramaghani et al., 2019; Stolarski & Cyniak-Cieciura, 2016; Tomich, Tolich, & DeMalio, 2022; Wang et al., 2021), suggesting the enduring impact of CA on individuals' perceptions of and relationships with time, even many years after the abuse has ended.

Several processes may underlie these patterns. The painful history of CA may not only lead to a negative perception of the past, but may also overshadow former positive experiences (Barlow et al., 2017), resulting in a high past-negative perspective and a low past-positive perspective. Additionally, the feelings of helplessness experienced during CA may become ingrained in individuals' mentality (Soral et al., 2021; Steine et al., 2017), fostering a fatalistic view of the present. This perspective may be accompanied by reliance on a defensive hedonistic approach, manifested in pursuit of short-term rewards and impulsive behaviors (Dixon et al., 2023). At the same time, the emotional pain rooted in the trauma may cause hopelessness and despair (Barlow et al., 2017), limiting survivors' belief in a better future and their motivation to strive for long-term goals. Lastly, the adverse effects of CA on mentalization (Fonagy & Bateman, 2016) and integration of experience (Miragoli et al., 2017) may restrict individuals' ability to adopt a balanced approach towards the past, present, and future, and to shift flexibly between these time frames. Therefore, CA survivors may not only exhibit maladaptive patterns within each time perspective but also present a harmful combination of these patterns, as manifested in a significant deviation from a balanced time perspective.

The current findings, consistent with previous research (Mengxin & Zilan, 2022; Stolarski & Cyniak-Cieciura, 2016; Tomich, Tolich, & DeMalio, 2022), underscore the costs associated with the time perspective patterns observed in CA survivors. A narrowed, negative, and inflexible time perspective may contribute to distress in this population, as mirrored in PTSD symptoms. Regression analysis revealed that *all* time perspectives contributed to explaining PTSD symptoms. However, the direction of the effects and the specific PTSD clusters explained varied across different time perspectives.

The past-negative, present-fatalistic, and past-positive perspectives explained all PTSD symptom clusters. While past-negative and present-fatalistic perspectives contributed to elevated symptoms, the past-positive perspective contributed to lower symptom levels. Conversely, present-hedonistic and future perspectives explained only some clusters: the present-hedonistic perspective contributed to elevated hyperarousal, whereas the future perspective contributed to lower levels of hyperarousal and negative alterations in cognitions and mood. Explanations for these effects are discussed in the following section.

The effects of past perspectives in explaining all PTSD clusters are consistent with previous research (e.g., Mengxin & Zilan, 2022; Saltzman & Terzis, 2024; Stolarski & Cyniak-Cieciura, 2016), emphasizing the importance of how individuals relate to their past. A bleak and unpleasant view of the past understandably exacerbates PTSD symptoms, reinforcing feelings of regret, loss, and unresolved pain, which can perpetuate distress. However, while trauma remains a painful and undeniable part of one's history, the ability to recognize and hold onto positive memories from other moments can serve as a resource, offering a sense of wholeness and hope (Mengxin & Zilan, 2022; Williams et al., 2022). Integrating such memories alongside acknowledgment of loss may support trauma processing.

Our findings regarding the contribution of the present-fatalistic perspective to explaining all PTSD clusters align with previous research (Jung et al., 2021; Măirean & Diaconu-Gherasim, 2022; Mengxin & Zilan, 2022) and can be attributed to the negative repercussions of helplessness in intensifying posttraumatic distress. Individuals with a fatalistic view, believing their fate is determined

Table 3
Regression standardized coefficients for PTSD symptoms (n = 780).

Independent variable	Intrusion[a]				Negative alterations in cognitions and mood[a]				Hyperarousal [a]				Avoidance[b]			
	B	*BETA*	R^2	ΔR^2	β	*BETA*	R^2	ΔR^2	B	*BETA*	R^2	ΔR^2	[a]β	*BETA*	[b]R^2	ΔR^2
Step 1																
Age	−0.09***	−0.18	0.03***	0.03***	−0.14***	−0.2	0.04***	0.04***	−0.08***	−0.14	0.02***	0.02***	−0.04***	−0.17	0.03***	0.03***
Step 2																
Age	−0.09***	−0.16			−0.13***	−0.18			−0.07***	−0.13			−0.04**	−0.16		
Polyvictimization	−0.17	−0.01			0.00	0.00			0.36	0.03			0.17	0.03		
The role of the perpetrator in survivors' lives (parental figure)	−0.32	−0.03			0.18	0.01			−0.22	−0.02			−0.19	−0.04		
Severity of abuse	0.20***	0.44	0.22***	0.19***	0.21***	0.36	0.17***	0.13***	0.18***	0.36	0.17***	0.15***	0.06***	0.32	0.14***	0.11***
Step 3																
Age	−0.06***	−0.10			−0.09***	−0.14			−0.04*	−0.06			−0.03***	−0.12		
Polyvictimization	−0.46	−0.04			−0.17	−0.01			−0.60	0.00			0.10	0.02		
The role of the perpetrator in survivors' lives (parental figure)	−0.56	−0.05			−0.06	0.00			−0.36	−0.03			−0.28	−0.06		
Severity of abuse	0.12***	0.25			0.10***	0.16			0.11***	0.22			0.04***	0.18		
Past-positive	−0.54***	−0.10			−1.20***	−0.17			−0.39*	−0.07			−0.25**	−0.10		
Past-negative	3.12***	0.44			3.07***	0.33			2.38***	0.31			0.95***	0.30		
Present-hedonistic	0.23	0.04			−0.14	−0.02			0.87***	0.14			0.04	0.02		
Present-fatalistic	0.74***	0.13			1.97***	0.26			1.08***	0.17			0.25**	0.10		
Future	0.17	0.03	0.44***	0.22***	−0.47*	−0.06	0.41***	0.14***	0.57**	−0.09	0.35***	0.18***	0.08	0.03	0.24***	0.10***

[a] Wild bootstrap estimates. *P*-values are calculated through confidence interval inversion. Bootstrapped R^2 measure.
[b] Case-based bootstrapped estimates. P-values are calculated through confidence interval inversion. Bootstrapped R^2 measures are based on the coefficient of determination proposed by Nakagawa et al. (2017).
* $p < .05$.
** $p < .01$.
*** $p < .001$.

by uncontrollable forces, often experience heightened helplessness (Islam et al., 2022). For CA survivors, this feeling may resonate deeply, reflecting their sense of defenselessness and powerlessness during their abuse. Consequently, the helplessness associated with a present-fatalistic perspective may not only trigger traumatic memories and intrusive symptoms (Mengxin & Zilan, 2022) but may also intensify vigilance, tension, avoidance behaviors, negative mood, and pessimistic cognitions, reinforcing a sense of powerlessness and an inability to influence one's circumstances.

Conversely, our findings indicated that the present-hedonistic perspective contributed only to hyperarousal symptoms. This perspective, characterized by a focus on immediate pleasure and impulsive behavior, may play a distinct role in the coping strategies of CA survivors. Engaging in impulsive or risky behaviors may serve as maladaptive coping mechanisms, temporarily numbing emotional pain or providing relief from distress (Oshri et al., 2015). However, the unpredictability and chaos often associated with such actions can expose individuals to repeated stressful or threatening situations (Augsburger et al., 2017; Young et al., 2020). Over time, this pattern reinforces hypervigilance and perpetuates feelings of instability and danger, further entrenching hyperarousal (Mahoney et al., 2020).

The lack of significant contribution from the present-hedonistic perspective in explaining other PTSD symptom clusters aligns with some previous studies (Saltzman & Terzis, 2024; Stolarski & Cyniak-Cieciura, 2016). Avoidance, intrusiveness, and changes in cognitions and mood appear to be rooted in a pessimistic worldview shaped by an individual's relationship with their traumatic experiences. In contrast, the present-hedonistic perspective may function as a defense mechanism, using immersion in immediate desires to create detachment or numbness from past difficulties. Unlike avoidance, which is driven by fear and future-oriented anxieties (Gagne et al., 2018), hedonism disregards such concerns, promoting risk-taking behaviors focused on the present. Similarly, while intrusiveness pulls survivors back into the immediacy of past trauma, hedonism anchors them in the present, emphasizing immediate gratification and disengagement from both past and future. Lastly, while changes in cognitions and mood often involve feelings of guilt, shame, or distrust, hedonism may foster a detached, almost omnipotent sense of freedom, enabling actions one might otherwise avoid.

Our findings indicated that the future perspective contributed to explaining the hyperarousal and negative alterations in cognitions and mood clusters only. Previous research on the relationship between future perspective and PTSD symptoms has yielded mixed results, with some studies reporting associations (Jung et al., 2021; Mengxin & Zilan, 2022) and others finding none (Măirean & Diaconu-Gherasim, 2022; Saltzman & Terzis, 2024). However, these studies relied on total PTSD scores rather than examining specific symptom clusters. By focusing on clusters, this study revealed that the future perspective contributed to explaining some but not all clusters, potentially clarifying the inconsistencies in prior findings.

Trauma often disrupts an individual's belief in predictability and stability, making it challenging to plan for the future (Montoya-Arenas et al., 2022; Thompson et al., 2012). However, survivors who manage to maintain a stronger future-oriented perspective may not only experience a greater sense of control over their lives, but also lower physiological and emotional tension, by focusing on purposeful goals and fostering feelings of optimism (Cui et al., 2020). Additionally, being future-oriented may alleviate negative thoughts and emotions in survivors by encouraging a forward-looking mindset (Pimentel & Oliveira, 2024). While a future orientation is beneficial, findings suggest its effects are limited, as it neither alleviates nor worsens the intrusiveness or avoidance clusters.

This study should be interpreted with several limitations in mind. First, it employed a convenience sample conducted online, consisting exclusively of Israeli women. Furthermore, the sample included a disproportionately high number of CA survivors compared to non-abused participants. The study's advertisement, which emphasized its focus on the consequences of difficult childhood experiences, may have particularly attracted abuse survivors motivated to share their narratives. Moreover, while interpreting the results, it is important to consider the differences in sample sizes between groups (CA survivors: $n = 780$; participants without a history of CA: $n = 197$). Larger sample sizes tend to yield more stable estimates with lower standard errors, whereas smaller samples may introduce greater variability and reduce statistical power, potentially affecting the detectability of effects. To assess whether sample size differences influenced our findings, we examined effect sizes alongside significance levels. Despite the discrepancy in sample sizes, the observed effects remained consistent across groups, suggesting that the key associations are not solely driven by statistical power differences. However, results for the smaller group should be interpreted with caution, as greater variability in estimates may reduce the precision of conclusions drawn for this subgroup. Second, the study did not include diagnostic information, meaning that observed differences in time perspective might be influenced by participants' current mental health states. Third, we did not assess other types of traumatic events. It is possible that non-abused participants had experienced other types of traumatic events (e.g., terrorist attacks, motor vehicle accidents) or life-threatening illnesses or injuries that could have influenced the results. Fourth, the cross-sectional design of this study prevents conclusions about causality and directionality of relationships, leaving it unclear whether time perspectives predicted PTSD or vice versa. Fifth, the reliability of the present-hedonistic time perspective measurement was low, potentially hampering the capacity to detect its associations with symptomatology.

Future research should address these limitations by employing longitudinal designs to explore the relationship between time perspectives and PTSD over time. Diverse cultural samples, including both male and female participants, would enhance generalizability. Moreover, future research with more balanced group sizes would be beneficial to confirm the robustness of these findings. Further studies should also conduct semi-structured clinical interviews to gather diagnostic information and inquire about previous traumatic events other than CA, to provide a more comprehensive understanding of their experiences. Additionally, using a combination of methodologies and improved measurements of time perspective would provide a clearer understanding of these connections.

The findings underscore the importance of identifying patients with an unbalanced time perspective, as these individuals may be more vulnerable to PTSD. Incorporating evidence-based interventions that specifically address time perspective could enhance treatment outcomes. For instance, Time Perspective Therapy (Sword et al., 2015) has shown success in addressing PTSD among military veterans. Adapting such approaches to meet the unique needs of childhood trauma survivors could provide a tailored and

impactful therapeutic strategy.

CRediT authorship contribution statement

Anastasia Keidar: Writing – original draft, Methodology, Conceptualization. **Lee Gafter:** Formal analysis. **Yael Lahav:** Writing – review & editing, Supervision, Conceptualization.

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Data availability

Due to the nature of this research, participants of this study did not agree for their data to be shared publicly, so supporting data is not available.

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