The Predictors of Time Perspectives: A Comparative Study from Cyprus

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Keywords
Time perspectives, PTSD, psychological difficulties, war trauma, Cyprus

Abstract
Traumatic events may have long lasting consequences on physical and psychological well-being. Moreover, exposure to traumatic events might have adverse intergenerational consequences. The aim of the present study was to explore individuals' time perspectives (i.e. how individuals link their behavior to their past, present, and future), and their correlates with vulnerability to Post Traumatic Stress Disorder (PTSD) and psychological difficulties on two samples; first a theoretically traumatic group whom their parent had gone missing during the war of Cyprus (N= 50; age range = 49-70) and their first born offspring (N= 50; age range = 26-40); second a theoretically non-traumatic group with no missing parent (N= 50; age range = 46-69) and their first born offspring (N= 50; age range = 20-39). Purposeful sampling technique was used to recruit the participants. Brief Symptom Inventory (BSI), Impact of Event Scale-Revised and Zimbardo's Time Perspective Inventory were used as measurement tools. Results of the study revealed that parents' PTSD symptoms and time perspectives (TP) were associated with their offsprings'. Past-Negative and Present Fatalistic TP significantly predicted PTSD and experienced psychological difficulties. Participants whom had a relative gone missing during the war scored higher on PTSD compared to the participants whom had no missing relative.

Anahtar kelimeler
Zaman perspektifleri, TSSB, psikolojik zorluklar, savaş travması, Kıbrıs

Zaman Perspektifleri'nin Yordayıcıları: Kıbrıs'tan Karşılaştırmalı Bir Çalışma

Öz
Travmatik olaylar fiziksel ve psikolojik sağlık üzerinde uzun süreli etkilere neden olabilmektedir. Bunun da ötesinde travmatik deneyimler nesiller arasında da aktarılabilmektedir. Çalışmamızın amacı bireylerin zaman perspektiflerinin (diğer bir deyişle bireylerin davranışlarını geçmiş, bugün ve gelecekle nasıl bağlantılandırdığının) Travma Sonrası Stres Bozukluğu (TSSB) ve psikolojik zorlanmayla ilişkisinin iki ayrı örneklemde incelenmesidir: Birinci örneklem ebeveynlerini savaşta kaybeden teorik olarak travmatik bir grup (N= 50; yaş ranjı = 49-70) ve onların ilk doğan çocuklarından (N= 50; yaş ranjı = 26-40) oluşmaktadır. İkinci örneklem kayıp ebeveyni olamayan teorik olarak travma yaşamamış bireyleri (N= 50; yaş ranjı = 46-69) ve onların ilk doğan çocuklarını (N= 50; yaş ranjı = 20-39) içermektedir. Katılımcılara ulaşmak için amaçlı örnekleme tekniği kullanılmıştır. Ölçüm araçları olarak Kısa Semptom Envanteri, Olay Etkisi Ölçeği ve Zimbardo'nun Zaman Perspektifleri Envateri uygulanmıştır. Araştırma bulguları ebeveynlerin TSSB semptomlarının ve zaman perspektiflerinin çocuklarınınkiyle ilişkili olduğunu göstermektedir. Olumsuz Geçmiş ve Kaderci Zaman Perspektiflerinin TSSB puanlarını ve deneyimlenen psikolojik zorlukları yordadığı bulunmuştur. Ayrıca savaş sırasında yakınlarını kaybeden katılımcılar, herhangi bir kayıp yaşamayan katılımcılardan daha yüksek TSSB puanları almışlardır.

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Throughout a life-span, individuals are exposed to an endless number of interactions, events, and situations that influence their life. These experiences can be comforting life events, such as social gatherings, driving to work without traffic jams, reading books, etc. On the other hand, there are countless possible sudden and unexpected events that might occur that overwhelm individuals psychologically and/or physiologically. The Diagnostic and Statistical Manual of Mental Disorder (DSM-5, American Psychology Association, 2013) defines trauma as a response to a disturbing event and recognizes traumatic life experiences, such as witnessing or being exposed directly to actual or threatened death, sexual violence, or serious injury. Natural disasters, wars, terrorist attacks, genocides, and sudden loss of loved ones are examples of traumatic events. Being exposed to a traumatic event during childhood or as an adult may have effects on an individual's well-being. Traumatic events may have long-lasting consequences on physical and psychological health by influencing appraisal processes, coping methods, lifestyles, parental behavior, and behavioral and neural reactivity (Boscarino, 1995; Boudreaux, Kilpatrick, Resnick, Best, & Saunders, 1998). Posttraumatic stress disorder is a trauma and stressor-related disorder that can occur following the experience or witnessing of a life-threatening event.

Throughout history, the island of Cyprus has been colonized by some of the most influential colonial powers in the Mediterranean (Solsten, 1991; Beratli, 1997). In 1960, Cyprus gained its independence from the British Colony, and Turkish and Greek Cypriots established the Republic of Cyprus together. Greece, Turkey and Great Britain entered into a treaty to guarantee the basic provision of the establishment and the regional integrity and autonomy of the island. Unfortunately, political tension between Greek Cypriots and Turkish Cypriots increased in the following 3 years, and the relationship between the two communities depreciated and resulted in intercommunal violence in 1963, which lasted until 1974. In 1963-64 and 1974, the armed conflicts between the two communities caused many deaths, displacements and reports of missing people. In a report by the United Nations Secretary General (1964), it was declared that between December 1963 and September 1964, 232 Turkish Cypriots and 38 Greek Cypriots had gone missing. Some of these people had become missing while they were immigrating, and some were missing due to armed conflict. Towards the end of 1974, the number of missing people dramatically increased to 2001 (1,493 Greek Cypriot, 508 Turkish Cypriot) (Commission of Missing Persons, 2016). From 1974 to the beginning of the 2000s, there have been many attempts by international and local authorities to search for the remains of missing people. Although the Commission of Missing Persons was established in 1981, due to disagreements and lack of cooperation between two communities, the attempts to search for the remains of missing people failed to provide closure to individuals with missing relatives. However, since 2006, the bodily remains of 740 missing people have been returned to their families (Commission of Missing Persons, 2016). Enforced disappearance (i.e., involuntary disappearance of people, including detention, abduction, genocide, and war prisoners) is a global humanitarian problem and crime against humanity that also had a negative effect on the Cypriot community (United Nations, 1993). Enforced disappearance affects not only the close relatives of the missing persons but also their communities by increasing their sense of insecurity (United Nations, 1993). It is also a traumatic event that has a stressful impact on the survivor relatives (Barakovic, Avidibegovic, & Sinanovic, 2014).

Being exposed to a traumatic event might have an impact on an individual's cognitive process of time and the reflection of their life over time, which might influence their chosen strategies to cope with the trauma. During war and persecution, exposure to traumatic events can take place repetitively by seeing relatives injured, tortured or killed by other people (Nickerson, Priebe, Bryant, & Morina, 2014). Enforced

disappearance occurs during armed conflicts, kidnapping or natural disasters (Barakovic, Avidibegovic, & Sinanovic, 2014). A report by the United Nations in 2002 indicated that missing people are often men and the enforced disappearance of a male family member effects the status of the women survivors. According to the UN report of Women, Peace and Security, survivors are traumatized and continue to suffer and face uncertainty; they cannot find closure while they remain optimistic that one day their missing family member might return (United Nations, 2002).

Intergenerational Transmission of Trauma

Studies suggest that traumatic experiences may have adverse intergenerational consequences, and such experiences faced during childhood or as an adult might severely influence the well-being of not only the individuals themselves but also their offspring (Weems, & Scheeringa, 2013; Yehuda, & Bierer, 2008).

After World War II, an enormous number of studies over the last two decades were conducted investigating the theory regarding the transmission of trauma, where a traumatic event experienced by an individual may have a continued effect on others, as well as how trauma may have an intergenerational impact (Pearce, Christian, Patterson, Norris, & Moniruzzaman, et al., 2008; Lurie-Beck, 2007).

The family system theory (Kerr, & Bowen, 1988) argues for the interdependence of individuals and suggests that trauma passes down from one generation to the next by relational patterns that are learned and passed down through generations. On the other hand, the epigenetic approach suggests that memories of trauma are stored in an individual's DNA and pass from one generation to the next as genetic makeup (Yehuda, & Bierer, 2009). The epigenetic theory further suggests that these genetic imprints that individuals inherited from their ancestors might activate a nonfunctional response to stress, which increases the possibility of suffering from symptoms related to trauma, such as PTSD (Yehuda, & Bierer, 2009). On the other hand, according to contemporary psychoanalytic theory, unconscious processes are involved in the transmission of trauma from one generation to the next (Rowland-Klein, & Dunlop, 1998). Rowland-Klein and Dunlop (1998) argued that second-generation trauma survivors learn control mechanisms to cope with their parents' repressed and unsolved issues, and they named this process projective identification, which was explained as follows: "projection by the parent of holocaust-related feeling and anxieties to the child; introjection by the child as if she herself had experienced the concentration camps; and return of this input by the child in the form of compliant and solicitous behavior associated with enmeshment and individuation problems" (p.358).

Pearce et al. (2008) revealed that the children and grandchildren of trauma survivors often experience higher rates of physical and mental health challenges compared to other children. For instance, PTSD symptoms were identified among two generations of Cambodian refugees after their survival of the Pal Pat War (Sack, McSharry, Clarke, Kinney, Seeley, & Lewinsohn, 1994). Additionally, Rosenheck and Fontana (1998) revealed that the children of fathers who participated in abusive violence during the Vietnam war showed more behavioral disturbances than the children of other Vietnam war veterans.

The existing empirical evidence indicates that the first-born and only children of trauma survivors are more vulnerable to transmitted trauma from their parents (Davidson, 1980a; cited at Lurie-Beck, 2007; Baron, Reznikoff, & Glenwick, 1993). In a study by Baron, Reznikoff and Glenwick (1993), first-born children of holocaust survivors were found to spend more time alone with their parents, who shared more memories and stories about traumatic events, which would increase their exposure to the survivor syndrome.

Theory of Time Perspectives and Intergenerational Transmission

Zimbardo and Boyd (1999) proposed the Theory of Time Perspective (TP), which is an unconscious process that helps individuals encode, store and recall information related to their personal and social experiences, making it possible to provide order, meaning and coherence to those events through various temporal categories that enable the reinterpretation of this information. Zimbardo and Boyd (1999) suggested five temporal categories, as follows: Past Positive (a nostalgic and sentimental attitude towards the past), Past Negative (a generally negative, aversive view of the past), Present Fatalistic (which reflects a fatalistic, helpless and hopeless attitude towards the future and life), Present Hedonistic (which reflects a hedonist, high risk-taking attitude and little concern for the future) and Future (which is dominated by future goals and rewards). Following a traumatic event, individuals might experience difficulty thinking of the future and may ruminate over negative past experiences,and experience the present without any concerns about the future. It has been argued that an individual's TP dimension can influence their tendency towards PTSD and experiencing psychological difficulties (Zimbardo, Sword, & Sword, 2012). Janoff-Bulman's (1992) Theory of Shattered Assumptions also stresses a similar point. According to this theory, traumatic events may shatter the victim's cognition, which includes negative perceptions of the past, present and future world (which is similar to the TP).

An individual's TP dimension might be subject to transmission from one generation to the next. The empirical evidence in the literature indicates that non-cognitive skills, such as critical thinking, social skills, creativity and cognitive skills, such as attention and memory, are transmitted from one generation to another (Anger, & Heineck, 2010; Gronqvist, Ockert, & Vlachos, 2011). Vasquez and Cruz (2013) investigated the intergenerational transmission of TP, and the results of their study revealed that the parental TP and the children's episodic foresight, which is an ability to forecast future needs and desires before experiencing the event and decide in accordance, were associated. Additionally, it was suggested that the impulsiveness/present (Hedonistic TP) orientation of parents delays the development of the cognitive capacity for thinking in the personal future (Vasquez, & Cruz, 2013).

The Present Study

The aim of this study is to explore whether the Time Perspective is associated with a vulnerability to PTSD and psychological difficulties in two samples with and without traumatic tendencies. Further, this study aimed to examine the association between the individuals' time perspective and that of their offspring. Additionally, this study aimed to examine the association between the parents' PTSD scores and that of their firstborn offspring. Further investigation will be performed to explore whether the individuals' Time Perspective and PTSD score are associated with psychological difficulties. Finally, this study aimed to investigate whether there will be a difference between the time perspective, PTSD score and experienced psychological difficulties of the participants who experienced the trauma of loss and the participants who had not experienced loss. Hence, the following hypotheses were generated:

Hypothesis 1: The time perspectives of the parents and their firstborn offspring will be positively associated.
Hypothesis 2: The PTSD scores of the parents and their firstborn offspring will be positively associated.
Hypothesis 3: The participants who scored high in the Past Negative Time Perspective and Present Fatalistic Time Perspective will score higher on PSTD.
Hypothesis 4: The participants who scored high in the Past Negative Time Perspective and Present Fatalistic Time Perspective will report higher psychological difficulties.

Hypothesis 5: The participants who have missing relatives will have higher scores in the Past Negative Time Perspective and Present Fatalistic Time Perspective compared to the participants who have no missing relatives.

Hypothesis 6: The participants who have a relative that went missing during the war will have higher PTSD scores compared to the participants who have no missing relative.

Method

Participants

A total of 200 individuals (141 female and 59 male) were recruited for this study. This sample was divided into two groups. The first group included 100 Turkish Cypriots, consisting of 50 individuals that had one missing parent (never returned) since the tragic events of 1963-64 and 1974 in Cyprus, whose ages range from 49 to 70 (M=62.06, SD=5.88), and 50 first-born offspring, whose ages range from 26 to 40 (M=34.46, SD=3.81). The second sample group included 50 Turkish Cypriots who were in Cyprus during the war but had no relatives that experienced enforced disappearance, whose ages ranged between 46 and 69 (M=58.18, SD=6.33), and 50 first-born offspring, whose ages ranged between 20 and 39 (M=30.6, SD=5.1). Purposeful sampling techniques were used to recruit the participants.

Measurements

Demographic Information: The demographic information collected included the participants' age, gender, education level, the experience of physical or verbal violence during the war, and witnessing someone else experiencing physical or verbal violence.

Impact of Event Scale-Revised (IES-R): The Impact of Event Scale-Revised is used for evaluating posttraumatic stress disorder symptoms. The IES-R was developed in 1979 by Horowitz, Wilner, Alvares and colleagues with 15 items and was later revised by Weiss and Marmar (1997), as cited in Corapcioglu, Yargic, Geyran and Kocabasoglu (2006, p.15). The IES-R is a 22-item self-report test with a 5-point scale ranging from "not at all" to "extremely". The IES-R contains three subscales, i.e., intrusion, avoidance, and hyperarousal. In the current study, the total score of the IES-R was used as a continuous variable (Cronbach's alpha: .93)

Brief Symptom Inventory (BSI): The Turkish version of the Brief Symptom Inventory (BSI) was used to measure the psychological distress and the psychological disorder tendency. The original version of the BSI was developed by Derogatis (1993) for adult and adolescent psychiatric inpatients. It is a brief psychological self-report symptom scale with 53 items that uses a 5-point Likert scale. The range for the test-retest reliability was 0.68 to 0.91 (Derogatis, 1993). Originally, the BSI had 9 scales, as follows: somatization, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoia, and psychoticism (Derogatis, 1993). The BSI was adapted to Turkish by Sahin and Durak (1994), and the following 5 subscales were suggested for inclusion: depression, somatization, anxiety, self-alienation and hostility. In the current study, the total BSI score was used, and the Cronbach's alpha coefficient for the whole scale was 0.95.

Zimbardo's Time Perspective Inventory (ZTPI): To measure the Time Perspective, the Turkish version of the Zimbardo Time Perspective Inventory (ZTPI) is used. The ZTPI was developed by Zimbardo and Boyd (1999). It is a self-reported test with 56 items and with the following five subscales: Past-Negative (total of 10

items), Past-Positive (total of 9 items), Present-Fatalistic (total of 9 items), Present-Hedonistic (total of 15 items) and Future Oriented (total of 13 items). The Cronbach's alpha coefficients for the subscales have been reported as between 0.74 and 0.82 and test-retest reliability as changing from 0.70 to 0.80 (Zimbardo, & Boyd, 1999). The Turkish version of the inventory was adapted to the Turkish Cypriot sample by Bayraktar (2016). In the current study, the Cronbach's alpha coefficient for the whole scale was .64. The Cronbach's alpha coefficients were .84, .60, .81, .83, and .76 for the Past-Negative, Past Positive, Present-Fatalistic, Present-Hedonistic and Future Oriented subscales, respectively.

Procedure

The study has been revised and approved by the Department of Psychology Research Ethics Board and the Research and Publication Ethics Board of the researchers' university. All participants were given a brief description of the study, and they were told that they would receive three questionnaires that would take 25 to 35 min to complete. They were informed that the study was completely confidential and voluntary. The parents and their offspring were given the same questionnaires but separately. To complete the questionnaire, they received a phone call and were invited to meet somewhere comfortable to provide privacy. The participants were given an informed consent form at the beginning of the research. Their participation was confirmed after they read, understood and signed this form. The participants were informed that they were free to withdraw from the study at any time they wished. At the same time, the participants were given a personal code (participant's order number), which would identify their data.

Results

The following section provides the analyses of the data that had been collected from two different groups of samples in accordance with the aim of the current study. First, the means and standard deviations of the variables are presented in Table 1.

Table 1
Means and Standard Deviations of the Variables

Measure	Group with No Missing Relative				Group with Missing Relative			
	Parent		Offspring		Parent		Offspring	
	M	SD	M	SD	M	SD	M	SD
Past-Negative TP	2.98	.88	2.91	.66	3.15	1.15	3.15	.79
Past-Positive TP	3.57	.56	3.57	.37	3.63	.63	3.41	.47
Present Hedonistic TP	3.08	.62	3.33	.48	3.07	.89	3.19	.68
Future TP	3.54	.45	3.43	.46	3.68	.93	3.39	.57
Present Fatalistic TP	2.85	.81	3.06	.66	2.79	.84	3.03	.79
PTSD	29.84	16.85	28.34	15.9	33.82	18.75	33.28	12.44
Psych. Difficulties	3.45	2.5	3.42	2.7	4.84	3.14	5.53	2.57

Note. M=Mean. SD=Standard Deviation. Psychological difficulties is measured by Brief Symptom Inventory that score ranges between 0 to 24 which 0 indicates low psychological difficulties and 24 high psychological difficulties. PTSD is measured by Impacted of Event Scale that score ranges between 0 to 88, which 0 indicates low PTSD and 88 indicates high PTSD.

Pearson's Correlation Coefficients of the Psychological difficulties, PTSD and TP Subscales.

The relationships among the TP subscales, PTSD and experienced psychological difficulties were tested using Pearson's correlation coefficient. Table 2 provides the Pearson correlations between the variables.

The Relationship Between the TPs of the Parents and Their First-Born Offspring

The associations between the TPs of the parents and their offspring were tested using Pearson's correlation coefficient. Table 3 provides the correlation between the parents' and their offspring's TP. The results indicated that except for the Past Positive TP, all the time perspectives of parents and their first-born offspring were positively correlated. Therefore, Hypothesis 1 was partly supported.

Table 2
Pearson Correlation Coefficients among the variables

Variables	1	2	3	4	5	6	7
1. Psychological Difficulties	_						
2. PTSD	.68**	_					
3. Past-Negative TP	.39**	.41**	_				
4. Past-Positive TP	-.32**	-.31**	-.46**	_			
5. Present Hedonistic TP	.01	.14	-.27**	.20**	_		
6. Future Oriented TP	-.22**	-.16*	-.21**	.38**	-.08	_	
7. Present- Fatalistic TP	-.30**	.32**	.41**	-.25**	.14*	.31**	_

*p < .05, **p < .01

Table 3
Pearson Correlation Coefficients among Time Perspective of Parents and Their Offspring

	Past-Negative TP Parent	Past-Positive TP Parent	Present-Hedonistic TP Parent	Future Oriented TP Parent	Present – Fatalistic TP Parent
Past-Negative TP Offspring	.38**	.18	-.04	-.20*	.30**
Past-Positive TP Offspring	-.16	.09	.03	.17	-.08
Present-Hedonistic TP Offspring	-.24*	.20	.53**	.05	-.07
Future Oriented TP Offspring	-.21*	.24*	-.08	.53**	-.05
Present–Fatalistic TP Offspring	.27**	-.14	-.01	-.19	.44**

*p < .05, **p < .01

The Relationship Between the PTSD Scores of the Parents and Their First-Born Offspring

Another Pearson's correlation coefficient was conducted to determine the relationship between the PTSD scores of the parents and their firstborn offspring. The results of the test revealed a significant positive association between the parents' PTSD scores and their offspring's PTSD scores (r=.464, *p<.01).* This result confirmed Hypothesis 2.

Past-Negative TP and Present-Fatalistic TP Association with PTSD

Hierarchical multiple regression was used to assess the ability of two control measures, i.e., Past Negative TP and Present Fatalistic TP, to predict PTSD after controlling for age, gender, loss, witnessing violence and experiencing violence (See table 4).

Preliminary analyses were conducted to ensure no violations of the assumptions of normality, linearity, multicollinearity and homoscedasticity. The results indicated no violations (Gender, tolerance= .98, VIF=1.01; age, tolerance=.55, VIF= 1.82; lost, tolerance= .95, VIF= 1.06; violence, tolerance= .25, VIF= 3.96; witnessing, tolerance= .28, VIF= 3.59; Past Negative TP, tolerance=.79, VIF=1.27; Present Fatalistic TP, tolerance=.80, VIF= 1.25).

Age and gender were entered in step 1, explaining 1.6% of the variance in PTSD. After entering loss, witnessing violence, and experiencing violence in step 2, the total variance explained by the model as a whole was 6.9%, F(5,194)=2.87, p<.05. Three variables explained an additional 5.3% of the variance in PTSD after controlling for age and gender, and this increase significantly predicted PTSD (ΔR^2 =.053, ΔF (3,194)= 3.67, p<.05). In step 3, after entering Past Negative TP and Present Fatalistic TP, the total variance explained by the model as a whole was 23.7% (F (7,192)=8.51, p < .001). Two variables explained an additional 16.8% of the variance in PTSD after controlling for age, gender, loss, witnessing violence, and experiencing violence. This increase significantly predicted PTSD (ΔR^2=.168, ΔF (2,192) =21.15, p < .001). In the final model, three additional measures were statistically significant, i.e., loss (β=-.135, p<.05), Past Negative TP (β=.286, p<.001) and Present Fatalistic (β=.209, p<.01). This result showed that Hypothesis 3 was supported.

Table 4
Summary of Hierarchical Regression Analysis for Variables Predicting PTSD

Predictor	ΔR^2	β
Step 1	.07*	
Age		.15*
Gender		.01
Step 2	.05*	
Loss		-.14*
Violence		.12
Witness		-.07
Step 3	.17**	
PN TP		.29***
PF TP		.21**
Total R^2	.24**	

*p<.05, **p<.01, ***p<.001

Past-Negative TP and Present-Fatalistic TP Association with Experienced Psychological Difficulties

The hierarchical multiple regression technique was used to assess the ability of Past Negative TP and Present Fatalistic TP to predict experienced psychological difficulties after controlling for the influence of age, gender, loss, witnessing violence and experiencing violence (see Table 5). Preliminary analyses were conducted to ensure no violations of the assumptions of normality, linearity, multicollinearity and homoscedasticity. The results indicated no violations (Gender, tolerance= .98, VIF=1.02; age, tolerance=.56, VIF= 1.80; lost, tolerance= .95, VIF= 1.06; violence,

tolerance= .26, VIF= 3.89; witnessing, tolerance= .28, VIF= 3.53; Past Negative TP, tolerance=.79, VIF=1.28; Present Fatalistic TP, tolerance=.80, VIF= 1.25).

Table 5
Summary of Hierarchical Regression Analysis for Variables Predicting Psychological Difficulties

Predictor	ΔR^2	β
Step 1	.01	
Age		.03
Gender		-.04
Step 2	.04**	
Loss		-.12*
Violence		-.02
Witness		-.02
Step 3	.15**	
PN TP		.29**
PF TP		.18**
Total R^2	.18**	

*p<.05, **p<.001

Age and gender were entered in step 1, explaining 0.5% of the variance in experienced psychological difficulties. After entering loss, witnessing violence, and experiencing violence in step 2, the total variance explained by the model increased to 4.2% (F (5,190) =1.68, p =.141). Three measures explained an additional 3.7% of the variance in psychological difficulties after controlling for age and gender; however, this increase did not significantly predict psychological difficulties, (ΔR^2 =.037, ΔF (3,190)=2.44, p=.65). In step 3, after entering Past Negative TP and Present Fatalistic TP, the total variance explained by the model as a whole was 19.5% (F(7,159)=6.51, p< .001). Two variables explained an additional 15.3% of the variance in PTSD after controlling for age, gender, loss, witnessing violence, and experiencing violence. This increase significantly predicted psychological difficulties (ΔR^2=.153, ΔF (2,188) =17.84, p < .001). In the final model, only two measures were statistically significant, i.e., Past Negative TP (β=.295, p<.001) and Present Fatalistic (β=.175, p<.05); therefore, Hypothesis 4 was confirmed.

Comparing PTSD Symptoms between Two Samples with Missing Relative and with No Missing Relative

The PTSD scores of the participants with no missing relative were not normally distributed with the significant Shapiro-Wilk test (p= .012). Therefore, a nonparametric test was conducted to analyze the data. An independent sample Mann-Whitney U test revealed that the participants who had a missing relative (M=33.55, SD=15.83) had significantly higher PTSD scores than the participants who had no missing relative (M=29.1, SD=16.31) (U= 4103, Z= -2.193, p= 0.028). Therefore, Hypothesis 6 has been confirmed.

Comparing Past-Negative TP and Present-Fatalistic TP between the Two Samples with Missing Relative and with No Missing Relative

An independent sample t-test was conducted to explore whether the Past Negative TP and Present Fatalistic TP scores between the two participant groups, i.e., with a missing relative and with no missing relative, varied. The results of the test indicated that there was no difference between the Past Negative TP scores of the participant group with no missing relative (M=2.94, SD=.78) and the participant group with a missing relative (M=3.15, SD= .99, t (198) =-1.67, p =.096). Additionally, the Present Fatalistic TP scores showed no differences between the participant groups that had no missing relative (M=2.96, SD=.75) and the participant group that had a missing relative (M=2.91, SD= .82, t (198) =.38, p =.704). This result indicated that Hypothesis 5 was rejected.

Discussion

The present study investigated whether an individual's attitude towards time (i.e., Time Perspective) was associated with PTSD and psychological difficulties in two samples. Moreover, the current study examined whether individuals' PTSD symptoms and time perspectives were related to those of the next generations.

The findings of the current study partly supported the first hypothesis that the TPs of the parents and their first-born offspring were associated. It was found that the parents' Past-Negative TP, aversive view of their past, and those of their offspring were positively related. In addition, the parents' Past-Negative TP was also positively associated with their offspring's Present-Fatalistic, hopeless attitude towards life and to the future scores. On the other hand, the parents' aversive view of past (Past-Negative) was negatively associated with their offspring's impulsiveness (Present-Hedonistic TP) and nostalgic view of their past (Past-Negative) and future TP. There was no association between the parents' and offspring' Past-Positive TP; however, the current study findings revealed that when parents have a more nostalgic, sentimental (Past-Positive) view of their past, their offspring are likely to become more future oriented. Further findings revealed that there was an association between the parents' Present-Hedonistic, Present-Fatalistic and Future TP with that of their offspring. Regardless of the fact that there have been few studies examining the process of intergenerational transmission of temporal cognition and TP, a study performed by Vasquez and Cruz (2013) suggested that the main cause for the transmission of temporal preferences from one generation to the next might be parental modeling. Additionally, genetic inheritance from the previous generation can result in similarities between the parents' temporal preferences and that of their offspring (Lawrence, 2005). Two recent studies also indicated that the cognitive abilities of parents and their siblings are highly correlated (Grönqvist, Öckert, & Vlachos, 2017; Schulz, Schunck, Diewald, & Johnson, 2017). Both studies stressed that not only genetic inheritance, but also shared environmental influences play a role in the similarities of cognitive abilities. When this judgment was adapted to our finding, we can say that the shared postwar conditions (both positive and negative) in Cyprus may make the time perspectives of the parents and their offspring similar.

Additionally, North Cyprus is a small country with a population of 326,000 where narrow socialization (Arnett, 2001) occurs. According to Arnett (2001), this type of socialization is characterized by close interpersonal relationships and more shared environmental influences. Therefore, we may say that narrowly socialized parents and their offspring may share more similar environments and cognitions, including time perspectives.

The findings of the current study supported the second hypothesis, which was that the PTSD scores of parents and their first-born offspring were associated. The results revealed a high correlation between the parents' PTSD scores and that of their offspring. These findings were comparable to the existing empirical evidence in the literature that suggested that the effects of traumatic experiences are subject to transmission from one generation to the next (Weem, & Scheeringa, 2013; Yehuda, & Bierer, 2008; Sack, McSharry, Clarke, Kinney, Seeley, & Lewinsohn, 1994; Pearce, et al., 2008; Rosenheck, & Fontana, 1998; Davidson, 1980a; cited at Lurie-Beck, 2007; Baron, Reznikoff, & Glenwick, 1993). Transmission of trauma can result through learned relational patterns in shared environments not only within the family but also in society, especially when traumatic events occur at the collective level, such as a war (Yehuda, & Bierer, 2009; Kerr, & Bowen, 1988; Volkan, Ast, & Greer, 2002). From the perspective of the family system theory, Kerr and Bowen (1988) suggested that trauma survivors communicate the traumatic experience in a peculiar way; for example, through storytelling jokes, trauma survivors dissent from the traumatic experience without distancing themselves from it. Through such constant communication patterns about traumatic experiences, the parents' worries, anxieties and coping strategies are learned and owned by their offspring without them experiencing the actual traumatic event (Kerr, & Bowen, 1988). A recent review (Yehuda, & Lehrner, 2018) also stressed that epigenetic studies that might show the links between individual, cultural, societal and biological characteristics need to be conducted with human populations. This type of research would enrich the current literature.

The findings of our study supported hypothesis three that participants with high Past Negative Time Perspective and Present Fatalistic Time Perspective scores will score higher on PTSD. The results showed that the Past Negative and Future Fatalistic TP scores significantly predicted the PTSD score. Holman and Zimbardo (1999, cited at Zimbardo, & Boyd, 1999, pp.1282) suggest that an aversive view of the past (Past-Negative) and feeling no control over life influences the individual's active problem-solving abilities, as well as their ability to cope with stressful events. Moreover, it is known that Past-Negative and Present-Fatalistic TP induce severe PTSD symptoms in Vietnam veterans, and finding relief from these TPs is crucial for recovering from such symptoms (Zimbardo, Sword & Sword, 2012). A very recent publication (Papastamatelou, Unger, & Zachariadis, 2000) found the same link between Past Negative/Future Fatalistic TPs and PTSD among Syrian refugees in Greece. Following the authors' discussion, the replicated findings related to Negative/Future Fatalistic TPs and PTSD may indicate a maladaptive change in TPs after the trauma (in our case, postwar experiences). Additionally, as mentioned before, Turkish Cypriots have been living in political uncertainty and international isolation since 1974. A lack of reconciliation between the two communities over 40 years might lead to a sense of hopelessness towards future

solution attempts (Solsten, 1991). Pham, Weinstein and Longman (2002) suggested an association between negative attitudes towards reconciliation and negative attitudes towards the future, as well as higher PTSD symptoms. The significant association between PTSD and present fatalistic TP found in the current study can be related to an individual's belief that the future is predestined and irrevocable and that they have no control over the situations around them.

Holman and Zimbardo (1999, cited at Zimbardo, & Boyd, 1999, pp.1282) revealed that individuals with the Past-Negative TP dimension are likely to experience high anxiety and social conflict when they experience a stressful event (1999, cited at Zimbardo, & Boyd, 1999, pp.1282). It has been suggested that PTSD symptoms are higher among individuals who report lower perceived social support following a traumatic event (Laffaye, Cavella, Drescher, & Rosen, 2008). On the other hand, participants with Past-Positive TP and Future TP dimensions reported fewer PTSD symptoms. Additionally, the results of the current study revealed that the experience of losing relatives during the war was also a significant predictor for PTSD, supporting the findings of Rosenheck and Fontana (1998), which showed that when individuals lost their relatives during war time, they were more likely to suffer from PTSD compared with those who did not.

The current study revealed that Past-Negative TP and Present-Fatalistic TP significantly predicted experienced psychological difficulties. These findings supported hypothesis four, which was that participants who scored high on the Past Negative Time Perspective and Present Fatalistic Time Perspective would report higher scores for psychological difficulties. This finding was also in line with Zimbardo and Boyd's (1999) suggestion that the Past-Negative TP dimension was highly related to depression, anxiety, unhappiness, low self-esteem and aggression. The same study suggested that individuals with the Past-Negative TP dimension had minimal interpersonal relationships (Zimbardo, & Boyd, 1999). Similar to the findings of the current research, several studies suggested that individuals with a high Present-Fatalistic TP dimension reported their current life as dissatisfactory and hopeless for improvement and felt incapable of changing it because it was predestined. Additionally, because Present-Fatalistic TP was found to be significantly associated with major depression, it was suggested that a history of depression may include such a time perspective (Anagnostopoulos, & Griva, 2011; Zimbardo, Sword, & Sword, 2012; Oyanadel, & Buela-Casal, 2014). Additionally, the recent findings supported and confirmed the link between Present-Fatalistic TP and psychopathology (Mioni, Wittmann, Prunetti, & Stablum, 2020; Przepiorka,& Blachnio, 2016).

The findings of the current study did not support hypothesis five, which was that participants who had missing relatives would have higher scores in the Past Negative Time Perspective and Present Fatalistic Time Perspective compared to the participants who had no missing relatives. In other words, the Past-Negative TP and Present-Fatalistic TP scores were not significantly different among individuals who had missing relatives and individuals who had no missing relatives. The empirical evidence in the literature and the current study findings suggested that PTSD was associated with Present-Fatalistic and Past-Negative TP; therefore, it was expected that the sample group with

a high traumatic tendency would have a higher score on these types of TP. Further investigation is required since there is no explanation of the current finding. However, these findings can be related to the loss of a relative and forced displacement in Cyprus due to the political requirements of war. A study by Ergun, Cakici and Cakici (2008), with Turkish Cypriots who had been displaced during the 1963-64 and 1974 conflict, reported significantly higher PTSD symptoms and depression compared to the nondisplaced Turkish Cypriots even after 30 years. In the demographic section of the current study, the participants were not asked whether they were forced to leave their home. As mentioned before, a history of depression, anxiety and PTSD might form a negative TP, such as Past-Negative and Present-Fatalistic TP, as these are the traits that contribute to the symptoms. Moreover, participants with no missing relative during the war were asked if any of their relatives died during the war; however, it was not an exclusion criterion if they had. Thirty-two percent of the participants in this group reported the death of a relative during the war. The PTSD scores were evaluated and the scores significantly differed between the participants who had missing relatives and participants who did not. Present-Fatalistic TP and Past-Negative TP are predictors of psychological difficulties, and psychological difficulties might also predict Past-Negative or/and Present-Fatalistic TP (Anagnostopoulos, & Griva, 2011; Zimbardo, Sword & Sword, 2012; Oyanadel, & Buela-Casal, 2014).

The findings of the current study supported the sixth hypothesis; the results showed that participants who had a missing relative had higher PTSD symptoms compared to the participants who had no missing relative. These findings were in line with those of the existing literature (Barakovic, et al. 2014; Lenferink, van Dendersen, Keijser, Wessel, & Boelen, 2017). It was suggested that process of grieving for a missing relative is more complex and lasts longer than grieving over the death of a loved relative. The main reason is often the uncertainty about what happened to their loved ones and the repetitive thoughts about where their loved ones could be. In addition, they might be challenged with a lack of social and financial support (Barakovic, et al. 2014; Lenferink et al., 2017). Taken together, individuals who have missing relatives are more likely to develop PTSD compared to individuals grieving over a death of a loved one (Barakovic, et al, 2014; Heeke, Stammel, & Knaevelsrud, 2015).

According to Janoff-Bulman's (1992) shattered assumption theory, following a traumatic event, individuals might experience difficulties in assimilating the traumatic experiences with the existing assumptions. Therefore, they might try to reassess the current circumstances and develop new assumptions to adapt themselves to the existing reality. It is not possible to make a clear assumption that individuals with Future-Fatalistic TP and Past-Negative TP are more likely to develop PTSD. Hence, with the current study findings, it is not clear whether individuals with high Past-Negative TP and Present-Fatalistic TP dimensions have increased levels of negative psychological response to a traumatic event or whether being exposed to a traumatic event leads to a modification of their existing TP dimensions. Longitudinal studies may be conducted to provide a causal association. Moreover, future studies are recommended to examine the possible association between the individuals' TP dimensions and PTSD and internal displacement during the war.

In conclusion, although there are some limitations, the current study's findings contributed to the literature. One of the most important contributions of this study is the intergenerational transmission of temporal categories, which were reported and discussed above. Additionally, these two TP dimensions were significant predictors of PTSD and experienced psychological difficulties. These findings highlighted the importance of the alteration of problematic TP orientations, as suggested by Sword, Sword and Zimbardo (2012). The Time Perspective is rooted in family principles, education, religion, socioeconomic status and cultural values, and as suggested, it is a fundamental process that is subject to adjustments throughout an individual's life span (Zaleski, 1994, cited in Keough, Zimbardo, & Boyd, 1999; Lang, & Carstensen, 2002; Ebner, Freund, & Baltes, 2006).

The modification of problematic TP orientations may result in a decrease in PTSD symptoms, anxiety and depression (Stolarski, & Matthews, 2016; Zimbardo, Sword, & Sword, 2012). Interventions can help to change individuals' thoughts about their past traumatic experiences, help them stop ruminating over what happened and why, keep them from having the Present-Fatalistic and Past-Negative attitudes and emphasize a positive future instead.

Additionally, the study could be modified by providing interventions that could promote more functional TP to increase the quality of life throughout the life span. Therefore, the assessment of an individual's TP is crucial and can provide a new treatment strategy for PTSD symptoms and psychological difficulties. Understanding the pervasive power of time on individuals can help professionals deal more effectively with the impact of traumatic events. The findings of the current study may provide effective coping strategies to individuals who have missing relatives in Cyprus by modifying their dysfunctional TP to a more balanced TP. Additionally, such awareness could help break the cycle where dysfunctional TP passes from one generation to the next. At a more general level, the findings of the current study may also be useful for psychological support activities in other postwar countries. Finally, the results can be used as implications for a more positive human development even after experiencing a traumatic event, such as the loss of significant others. The temporal perception can be improved to create a more functional TP from a very early age, which could be beneficial to cope with stressful situations in the future.

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