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Time Perspective and Self-Esteem: Negative Temporality Affects the Way We Judge Ourselves

Abstract

Time Perspective is the process by which people categorize, archive and recover personal and social experiences through temporal frames (past, present, and future), influencing various aspects of human behaviour and cognition. It was proposed that it is related to self-esteem, though until now the main approach when exploring this relation was correlational. In this study, we explore a structural equation model of Time Perspective's association with Self-Esteem. The sample was composed of 474 undergraduate students with a mean age of 19 years. The final model presented a high predictive power of Self-Esteem ($R^2 = .39$, $p < .001$) and good fit indices ($x^2/df = 2.1$, CFI = .94, GFI = .91, RMSEA = .05) with two temporal dimensions entering the model: Past Negative ($\beta_{\text{Self-Esteem.PastNegative}} = -.52$, $p < .001$) and Future-Negative ($\beta_{\text{Self-Esteem.FutureNegative}} = -.17$, $p < .001$) showing that negative affects of time dimensions (rather than positive ones) are more related to Self-Esteem. Results are discussed in relation to Self-Esteem and TP literature.

Keywords: time perspective, self-esteem, motivation, structural equation modelling

Perspektywa czasowa a samoocena: wpływ negatywnej temporalności na sposób oceniania samego siebie

Streszczenie

Perspektywa czasowa jest procesem, dzięki któremu ludzie kategoryzują, archiwizują oraz odzyskują doświadczenia osobiste i społeczne z wykorzystaniem ram temporalnych (prze-szłych, teraźniejszych i przyszłych) mających wpływ na różne aspekty ludzkiego zachowania i poznania. Dotychczas postulowano już istnienie związku między perspektywą czasową a sa-mooceną, jednak metodologia poznawania go miała głównie charakter korelacyjny. W niniej-szym badaniu zgłębiono model równań strukturalnych w odniesieniu do związku między per-spektywą postrzegania czasu a samooceną. W skład próby badawczej weszło 474 studentów o średniej wiekowej 19 lat. Wypracowany model końcowy pokazał istotną predyktywność wysokiej samooceny ($R^2 = .39$, $p < .001$) oraz wskaźniki dobrego dopasowania ($x^2/df = 2.1$,

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CFI = .94, GFI = .91, RMSEA = .05) w powiązaniu z dwoma wymiarami temporalnymi wchodzącymi do modelu: Przeszłością Negatywną ($\beta_{\text{Samoocena.PrzeszłośćNegatywna}}$ = -.52, p < .001) oraz Przyszłością-Negatywną ($\beta_{\text{Samoocena.PrzyszłośćNegatywna}}$ = -.17, p < .001). Wskazano, iż negatywne afekty wymiarów czasu (w przeciwieństwie do pozytywnych) są bardziej związane z samooceną. Wyniki zostały omówione zarówno w odniesieniu do zagadnienia samooceny, jak i literatury dotyczącej perspektywy postrzegania czasu.

Słowa kluczowe: perspektywa czasu, samoocena, motywacja, modelowanie strukturalne

Introduction

Time has been fascinating humans since time immemorial, as it has an enormous potential for structuring all human experiences (Kant, 1997). Mankind has tried to understand, capture, and recreate time and its influence on our daily lives through literary and artistic work, but also through our "newly formed" sciences. In this context, Time Perspective has been claimed as one of the most influential determinants of human motivation, so its relations with other psychological constructs have been explored. Nevertheless, the relationship with one of the most popular psychological constructs, Self-Esteem, remains unexplored in a systematic way. Which of the time frames influences our Self-Esteem more or which dimensions of Time Perspective should be preferentially targeted for intervention in Self-Esteem programs are questions with no clear response until now.

Time Perspective

Time Perspective (TP) is a construct that has Kurt Lewin as one of its most prominent precursors. Lewin (1965) introduced a model of psychological time which ruptured from the dominant paradigm at the time: behaviourism. He considered that the analysis of the subjective temporal frames of past and future have a central importance in the explanation of human cognition and behaviour, as they are always active in the present. He postulated TP as "the totality of the individual's view of his psychological future and psychological past existing at a given time" (Lewin, 1965, p. 75). During recent decades, research in TP based on Lewin's assumptions has surged, now also considering how TP shapes groups and societies. For instance, Zimbardo and Boyd (1999) defined TP as the non-conscious process through which personal and social experiences are placed in categories or temporal frames, which helps individuals give order, coherence and meaning to these experiences.

Initially, the model proposed by Zimbardo and Boyd (1999) contained 5 temporal dimensions: the Past-Negative, related to feelings of anxiety, depression, anger, and repulsion towards the past; the Past-Positive, related to an affectionate, sentimental, pleasant, and enthusiastic view of the past; the Present-Fatalist, which represents a feeling of hopelessness or lack of control over the various events happening today; the Present-Hedonistic, which refers to a perspective entirely oriented towards the search for emotions, sensations, and novelty, with disregard for possible consequences; the Future, the temporal spectrum in which the individual's

cognitions and behaviours describe an intent to define and pursue projects in the medium/long term. This model has been quite prolific in the quantity and diversity of studies that have been produced around it. For example, it was found that Future Time Perspective is positively associated with adaptive and functional situations, such as: various types of pro-environmental behaviours (Corral-Verdugo, Fraijo-Sing & Pinheiro, 2006; Milfont & Gouveia, 2006); academic achievement (Bembenutty & Karabenick, 2004; Boniwell & Zimbardo, 2004); and vocational development (Janeiro, 2010; Paixão, 2004). In the same way, higher scores in dimensions like the Present-Fatalistic, Past-Negative and Present-Hedonistic are associated with behaviours that can undermine a healthy developmental trajectory like, for example, risky driving (Zimbardo, Keough & Boyd, 1997), smoking and alcohol consumption (Keough, Zimbardo & Boyd, 1999), cannabis consumption (Apostolidis, Fieulaine, Simonin & Rolland, 2006), and procrastination (Ferrari & Diaz-Morales, 2007) among others.

Currently, there is a sixth temporal dimension that is also being considered, the Transcendental-Future Time Perspective – TFTP (Zimbardo & Boyd, 2008), which explores the individual's beliefs about a possible life after the death of their physical body, their characteristics, and how everyday actions can influence this supposed life *post-mortem*. This dimension differs from the traditional Future Time Perspective – FTP – in the sense that it extends beyond the moment of physical death, while the traditional FTP does not embrace this subjective temporal mark (it includes the near future until the end of physical life). Thus, the Transcendental-Future allows us to expand the Time Horizon, to address a unique and – depending on the subject's beliefs – endless time period. Research using this scale has shown that third year college students have lower scores in Transcendental-Future Time Perspective when compared with first year students (Ortuño, Paixão & Janeiro, 2011b) and that religious students have significantly higher scores in TFTP than non-religious students (Ortuño, Paixão & Janeiro, 2011a).

Also recently, many scholars have claimed that an analysis of subjective time that does not consider the negative affect for the future is incomplete, and new instruments emerged in the last decade to measure and investigate it (Carelli, Wiberg & Wiberg, 2011; Worrell, Mello & Buhl, 2012; Janeiro, 2012). In fact, in Lewin's (1965) description of Time Perspective, fears and anxiety about the future have an important effect on human behaviours and cognitions. Congruently, Trommsdorff (1983) claims that the affective component of Future Time Perspective exerts as much influence on behaviour and motivation as the cognitive component. Taking this into account, a seventh temporal dimension was included in the study. The Future-Negative (or Anxious Future), a dimension related to negative feelings and an external and unstable control locus about the future. In previous studies, the Future Negative Time Perspective has proven to be useful in the understanding of psychological concepts, such as: School Well-Being and Adaptation (Nobre & Janeiro, 2010), Satisfaction with Life and Psychological Well-Being and Emotional Balance (Ortuño et al., in press).

Self-Esteem

The concept of Self-Esteem has attracted great attention from psychologists for decades. It was defined as the positive or negative attitude towards the self, including feelings of self-acceptance, self-respect and worth for one's own self (Rosenberg, 1986). Self-Esteem represents the conjunct of the person's judgments of their own worthiness: in other words, the evaluative part of the self-concept (Heatherton & Wyland, 2003). Self-Esteem is a very popular construct in psychological research because of its predictive power. It has consistently found to be related to personality variables such as extraversion, neuroticism and negative and positive affectivity (Watson, Suls & Haig, 2002) and mental health phenomena such as depression (Fleming & Courtney, 1984; Furr & Funder, 1998; Neiss, Stevenson, Legrand, Iacono & Sedikides, 2009), happiness, life satisfaction, and well-being among different socio-cultural conditions (Diener & Diener, 1995; Gray-Little & Hafdahl, 2000), eating disorders (Peck, 2008), self-concept (Santos & Maia, 2003), and career trajectories (Salmela-Aro & Nurmi, 2007). For this reason, Self-Esteem has been a frequently targeted process in psychological interventions. The antecedents of Self-Esteem were also extensively studied. In general, results show that parental behaviours (especially involvement and acceptance), socio-economic status, gender and other demographic variables affect Self-Esteem. Other determinants of Self-Esteem are acceptance, virtue, influence and achievements (Mruk, 2006). Two main accounts were postulated to explain the origin and function of Self-Esteem: one known as the anxiety buffer in the context of terror management theory, and sociometer theory. In the first theory, Self-Esteem is a buffer which people have against existential fear at the prospect of their own death, serving as a distal defence mechanism. That defence is activated when the person is convinced that he or she acts in a culturally relevant way and are psychologically protected from own death-concerns (Pyszczynski, Greenberg & Solomon, 1999). On the other hand, the sociometer theory postulates that Self-Esteem is a psychological meter to measure the quality of the social life of people and of their relationships with others. This psychological mechanism is conceived in a way so that people can self-control how they are being rejected or accepted by other members of their community (Leary, 1999).

Time Perspective & Self-Esteem

Very few studies directly addressed the relationship between Time Perspective and Self-Esteem, despite there being some data provided by correlational analyses in the context of validation studies. For example, Zimbardo and Boyd (1999) found negative correlations of the Past-Negative and Present-Fatalist (r = -.48 and r = -.28 respectively), and positive with Past-Positive (r = .28) with Self-Esteem measured by the Rosenberg Self-Esteem Scale (RSES). In another validation study, the Greek version of the ZPTI showed the same pattern of correlations with Past-Negative and Present-Fatalist being negatively correlated (r = -.58 and r = -.23 respectively) and positively with Past-Positive but to a lesser extent (r = .19) (Anagnostopoulos & Griva, 2012). In addition, a study involving Italian adolescents (Laghi, Baiocco,

D'Alessio & Gurrieri, 2009) established that severe suicidal ideation is mostly explained by a function including these variables: psychopathological symptoms, Self-Esteem and Past-Negative and Present-Fatalist using the ZPTI. Suicide ideators[2] had lower Self-Esteem and score higher in Past-Negative and Present-Fatalist than non-ideators. Although values of correlations are not reported in this study, this function provides validity to the idea of association between Self-Esteem and Time Perspective.

One study has addressed the relationship between TP and Self-Esteem using neither the ZPTI nor the RSES. Janeiro (2010) investigated career attitudes and maturity, Time Perspective (using the Time Perspective Scales – TPS), and Self-Esteem (using the Self-Esteem Inventory – SEI) among Portuguese adolescents from grade 9 and 12. Correlations were found of general Self-Esteem of .35 with Future Time Perspective, of -.19 with past orientation and -.30 with Future-Negative among 9th-graders. Similarly, among 12th-graders significant correlations were of .39, -.24 and -.33, respectively. These results show a systematic pattern of association between Self-Esteem and different components of Time Perspective. Lastly, also in the Portuguese context, it was found that Past-Negative (β = -.44, $p < .001$), Present-Hedonistic (β = .15, $p < .05$) and Future-Negative (β = -.27, $p < .001$) were significant predictors of Self-Esteem (R^2 = .40, $p < .001$) entering the Stepwise Regression model with RSES Self-Esteem as a criterion (Ortuño, Paixão & Janeiro, 2013a).

The present study

The results reported previously suggest that Self-Esteem and Time Perspective are related to an important extent, but the lack of integrated and comprehensive statistical analyses leave unresolved issues about how these processes are related. Despite being used as a variable for external validation of scales, very few explanations were given about how these processes could be related. We consider that the relationship between Time Perspective and Self-Esteem is given by parental care, involvement and reasonable expectations; peer acceptance is conducive to a high Past-Positive and on the contrary, the lack of these elements to a Past-Negative perspective. Furthermore, low levels of Self-Esteem should be related to Present-Fatalist in the way that failure, rejection from peers and social groups, and the feeling of guilty about some events is conducive to looking at the present with hopelessness or a negative attitude. Low Self-Esteem is possibly related to a negative vision of the future. As we have stated before, studies with the ZTPI Future scale show moderate to low correlations, probably due to the fact that this scale asks more about planning and a general vision about the future and does not ask about attitudes or affect about the future. The studies of Janeiro (2010) and Ortuño et al. (2013a) give the only clues about how Future-Negative is related to Self-Esteem. Thus, Future-Negative was considered an important element to be further investigated in adult samples.

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[2] Ideator – A person experiencing suicidal ideation

As individual's values are considered an important element to explain Self-Esteem and the relations established with the awareness of mortality, we consider that the Transcendental-Future Time Perspective could be somehow related to it. For example, the belief that we are contributing to the well-being and prosperity of our religious in-group and that actions could make us happier after death, could be an enhancer of the feeling of our own worthiness. Nonetheless, the lack of studies considering the influence of perceptions about life after death on Self-Esteem makes us cautious about making a hypothesis about its inclusion in the model.

All in all, the main goal of this study is to test several dimensions of Time Perspective in a regression model of Self-Esteem, through structural equation modelling in order to determine which temporal variables are strongly associated with Self-Esteem.

Method

Participants

The sample was composed by 473 Portuguese college students (age range: 17 to 61; *M* = 19.67, *SD* = 4.10). 408 (86.1%) were female and 66 (13.9%) male. The participants were recruited in the Faculties of Psychology and Educational Sciences of three Portuguese Universities: 356 (75.1%) are students from the University of Coimbra, 103 (21.7%) from the University of Lisbon, and 15 (3.2%) from the University of Porto. 339 (71.5%) participants are in the first year of their course, 64 (13.5%) in the second year, 54 (11.4%) in the third year, 15 (3.2%) in the fourth year, and 2 (0.4%) in the fifth year.

Instruments

Sociodemographic questionnaire: Created by the authors to collect different information about the participants, including gender, age, level of education, GPA, and religious doctrine.

Zimbardo Time Perspective Inventory – ZTPI (Zimbardo & Boyd, 1999): The Portuguese version of the ZTPI (Ortuño & Gamboa, 2009) was used, which is composed of 56 items (five-point Likert scale) that represent five temporal dimensions: 1) Past-Positive, related to pleasant and warm attitudes towards the past (explained variance = 6.02%, α = .68; 9 items), 2) Past-Negative, which represents an aversive and distressful attitude towards the past (variance explained = 7.85%, α = .80; 10 items), 3) Present-Hedonistic, which represents a tendency to seek immediate pleasure, through exciting and risky experiences (explained variance = 8.37%, α = .79; 15 items), 4) Present-Fatalist, which shows a total defeatist attitude towards life (explained variance = 6.42%, α = .66; 9 items) and 5) Future, which indicates a strong tendency to create and pursue long-term objectives (variance explained = 6.57%, α = .74; 13 items). These 5 temporal dimensions explain 35.25% of the total variance. This factor structure is very similar to that presented by Zimbardo and Boyd (1999) in the original ZTPI, and in several international adaptations (Ortuño et al., 2011a).

Concerning the test-retest validity, the Portuguese ZTPI shows values between .66 and .86 (Ortuño & Gamboa, 2008).

Transcendental-Future Time Perspective Inventory – TFTPS (Boyd & Zimbardo, 1997): The Portuguese TFTPS (Ortuño, Paixão & Janeiro, 2013b) is a one-dimensional scale that consists of 10 items (five-point Likert scale). It is used to assess individual attitudes and beliefs regarding the future, immediately following the imagined death of the physical body. In its original version, it explains 10% of the total variance and it is the factor that explains most variance (in a total of 6 temporal dimensions). It has an internal consistency of .87 and its test-retest stability is .86. To date, efforts have been made to adapt this instrument to several countries, including: Germany, Estonia and Lithuania.

Inventário de Perspectiva Temporal – IPT (Janeiro, 2012; Janeiro, 2006): The Time Perspective Scales – TPS is a Portuguese inventory formed by 32 items (five-point Likert-type scale), grouped in four temporal dimensions: 1) Past Orientation, 2) Present Orientation, 3) Future Orientation and 4) Future-Negative. In this study we used only four items related to the Future-Negative dimension (variance explained = 8%, α = .70; 4 items), which is related to an unpredictable and threatening vision of events yet to come.

Rosenberg Self-Esteem Scale – RSES (Santos & Maia, 2003): Self-Esteem was assessed with a 10-item Portuguese version of the Self-Esteem Scale (Rosenberg, 1965) adapted into Portuguese by Santos and Maia (1999, 2003). The Rosenberg Self-Esteem scale evaluates global Self-Esteem. Participants made their responses about how they generally feel about themselves on a 4-point Likert scale (1 – strongly disagree; 4 – strongly agree). Half of the items are formulated in a positive direction and the other half in a negative direction, which are reverse scored. The range of the scale is 10–40, with higher scores reflecting higher global Self-Esteem. Santos and Maia (1999, 2003) reported with exploratory and confirmatory factor analyses the existence of only one underlying dimension for the 10 items with an internal consistency of .84. The RSES reliability for this sample was .89.

Procedures and statistical analysis

All data was collected at the Faculties of Psychology and Educational Sciences of the Universities of Coimbra, Porto and Lisbon. The instruments were always applied collectively during day-time classes. The teachers of these classes were previously asked for permission in order to collect the data. At the beginning of each data collection all participants were informed of the study's goals as well as the voluntary and anonymous nature of their participation. There was no form of remuneration, financial or otherwise, for the participants. For data analysis, the *IBM SPSS Statistics* v20 and the *IBM SPSS AMOS* ver. 20 were used. Multiple imputations using the Expectation-Maximization – EM algorithm were used to replace isolated missing values in the data set (representing less than 1.5% of the responses for each item). In order to assess the direction and intensity of the associations between the variables a correlational analysis (Pearson Coefficient) was performed. Then,

a structural equation modelling was developed with the objective of evaluating the effects of Time Perspective on Self-Esteem.

Two initial proposed hypothetical models (see Fig. 1) are tested. Model 1 is formed by all 7 temporal dimensions originally used in this study (Past-Positive, Past-Negative, Present-Hedonistic, Present-Fatalist, Future, Future-Negative, and Transcendental-Future) as exogenous variables and Self-Esteem as an endogenous variable. In Model 2 (see Fig. 1), the exogenous variables are Past-Positive, Past-Negative, Present-Fatalist, and Future-Negative and again Self-Esteem as an endogenous variable. This last model was previously defined taking into account the main results present in the literature about the relation between Time Perspective and Self-Esteem.
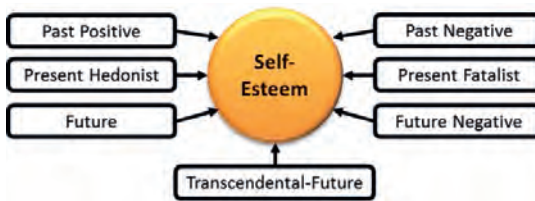
Model 1

Model 2

Fig. 1. Initial Tested Models

Results

Preliminary analysis

All the variables presented a normal univariate distribution ($sk < 3$; $ku < 10$). The multivariate normal distribution was not achieved ($ku = 243.99$), yet it was not considered as a problem, due the utilization of Maximum Likelihood method. No multicolinearity problems were found, since all the exogenous variables presented acceptable VIF values (VIF < 5; Marôco, 2010).

In Table 1 descriptive statistics and Pearson correlations between the investigated variables are presented. RSES scores are significant and negatively correlated to Past- Negative, Future-Negative, and, to a lesser extent, with Present-Fatalist. All the ZPTI variables are correlated in the expected fashion. TFTPS shows mild positive correlations with all other TP variables except for Future-Negative. Future-Negative is moderately correlated with Past-Negative and Present-Fatalist ZPTI scales.

Tab. 1. Means, Standard Deviations and Correlations of RSES, ZTPI, TFTPS and TPS (n = 473)

		M	S.D.	1	2	3	4	5	6
1.	Self-Esteem (RSES)	30.80	4.90	-					
2.	Past-Positive (ZTPI)	3.72	.56	.08	-				
3.	Past-Negative (ZTPI)	2.73	.65	-.55**	-.08	-			
4.	Present-Hedonistic (ZTPI)	3.57	.45	.04	.25**	.13**	-		
5.	Present-Fatalist (ZTPI)	2.39	.54	-.18**	.14**	.38**	.30**	-	
6.	Future (ZTPI)	3.60	.43	.08	.14**	-.06	-.27**	-.25**	-
7.	Transcendental-Future (TFTPS)	2.84	.80	-.02	.20**	.14**	.17**	.20**	.16**
8.	Future-Negative (TPS)	8.54	4.76	-.36**	-.09*	.39**	.10*	.23**	-.18**

** p < .01; * p < .05

Primary analysis

An exploratory predictive model (Mod. 1) using structural equation modelling with Maximum Likelihood estimation was employed to examine the relations between seven Time Perspective variables and Self-Esteem. The initial proposed Model 1 (see Fig. 1) failed to achieve acceptable fit indices (CFI = .73, GFI = 73; more information in Tab. 2). As a consequence, it was decided to test a second model, theoretically more robust.

Tab. 2. Fit Indices and Model Comparison

	Model	X^2	df	ΔX^2	Δdf	X^2df	AIC	MECVI	CFI	PCFI	GFI	PGFI	NFI
1.	Model 1	6336.81	3040	-	-	2.08	6736.81	14.42	.73	.70	.73	.69	.59
2.	Model 2	1985.94	797	4350.87	2243	2.49	2197.94	4.69	.82	.76	.82	.72	.73
3.	Model 3	510.16	242	5826.65	2798	2.11	626.16	1.34	.94	.83	.91	.74	.89

** p < .01; * p < .05

Note: ΔX2 compared with the initial seven dimensions model

Therefore, the modified model (Mod. 2, Fig. 1) using four temporal dimensions (Past-Positive, Past-Negative, Present-Fatalist, and Future-Negative), predicts a considerable amount of Self-Esteem variance (R^2 = .39, p < .001). This model presented better fit indices compared with the previous Model 1. Still, in absolute terms the fit indices of Model 2 were barely acceptable (x^2/df = 2.5, CFI = .82, PCFI = .76, GFI = .82, PGFI = .72, RMSEA = .06). Regarding the trajectories of the exogenous variables regarding the endogenous variable, two are statistically significant: `PN → SE´ ($\beta_{Self\text{-}Esteem.PastNegative}$ = -.52, p < .001) and `FN → SE´ ($\beta_{Self\text{-}Esteem.FutureNegative}$ = -.18, p < .001). The other two trajectories are not statistically significant, with neither presenting an expressive magnitude: `PP → SE´ ($\beta_{Self\text{-}Esteem.PastPositive}$ = .06, p = .36) and `PF → SE´ ($\beta_{Self\text{-}Esteem.PresentFatalist}$ = .09, p = .13).
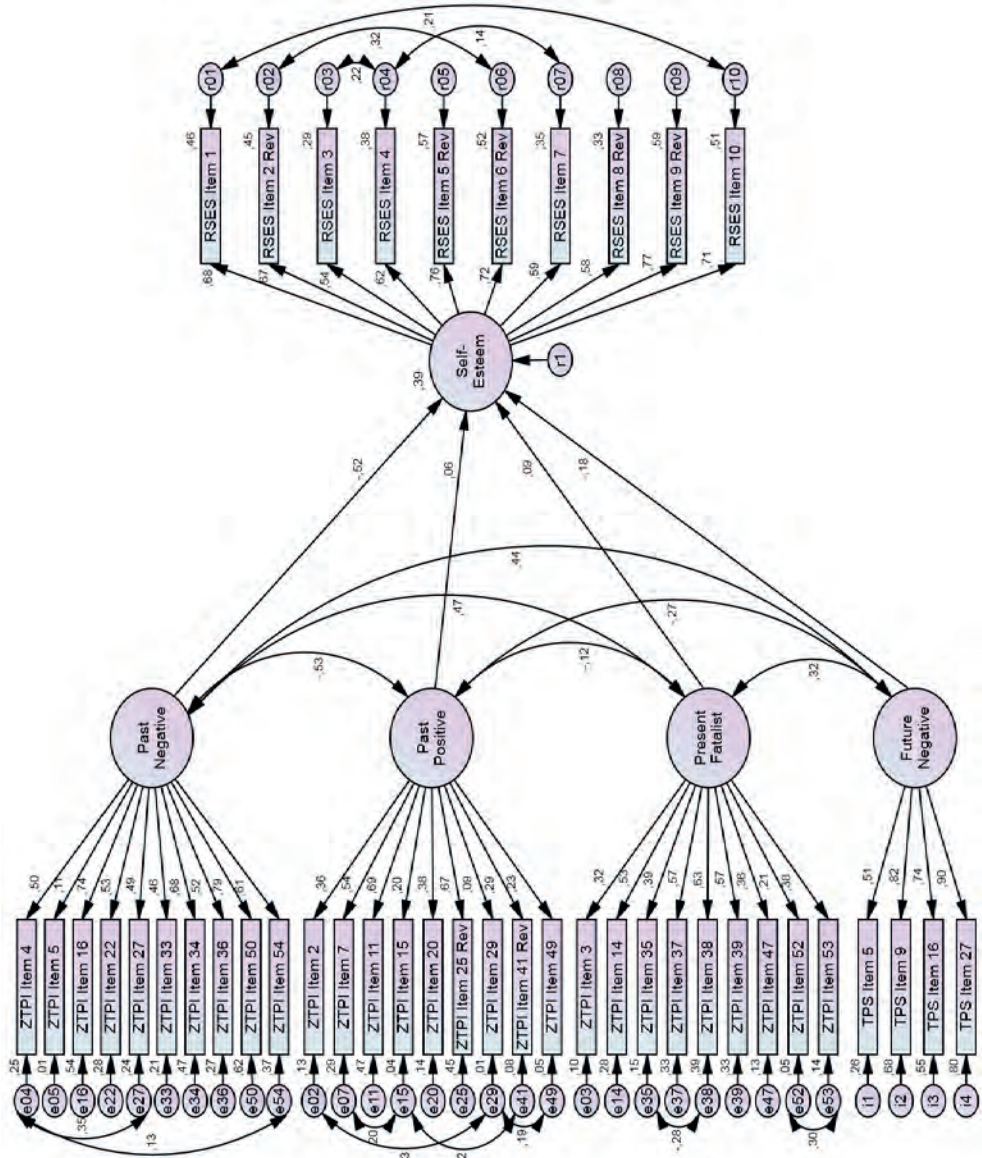
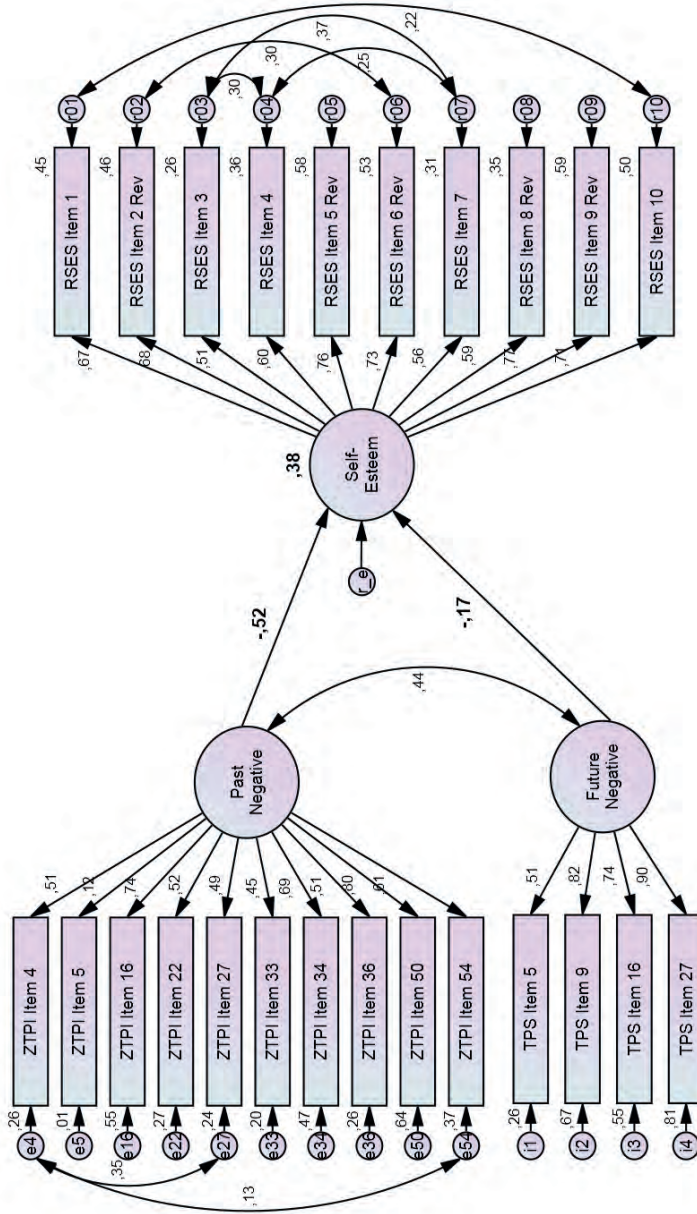**Fig. 2.** Model 2 path-diagram (standardized estimates)

Fig. 3. Model 3 path-diagram (standardized estimates)

Considering these results, the exogenous variables without significant statistical predictive power ($p < .05$) were removed (Past-Positive and Present-Fatalist) in order to test a new model, composed only of Past-Negative and Future-Negative as predictor variables.

This last model (Mod. 3, see Fig. 3) still predicts a considerable amount of Self-Esteem variance ($R^2 = .39$, $p < .001$) using only two temporal dimensions: Past-Negative ($\beta_{\text{Self-Esteem.PastNegative}} = -.52$, $p < .001$) and Future-Negative ($\beta_{\text{Self-Esteem.FutureNegative}} = -.17$, $p < .001$). The fit indices of Model 3 exceed previous models fit indices ($x^2/df = 2.1$, CFI = .94, PCFI = .83, GFI = .91, PGFI = .74, RMSEA = .05).

Model comparison

Via Akaike's Information Criterion analysis – AIC and Modified Expected Cross-Validation Index – MECVI in all three models (see Tab. 2), Model 3 was considered as the most parsimonious, as well as the most stable in the studied population (Marôco, 2010), as it presented the lowest values in those estimates (AIC = 626.16, MECVI = 1.34). Also, considering the differences in the X^2 estimate compared with the original Model 1 (Model 3 $\Delta X^2 = 5826.65 >$ Model 2 $\Delta X^2 = 5136.77$), Model 3 appears as the best model.

Discussion

The objective of this study was to determine which temporal dimensions are related with Self-Esteem. In order to achieve that, three models were tested. The first one (Model 1), formed by seven temporal dimensions, showed good predictive power but failed to show good fit indices. Model 2, composed of four temporal dimensions, still presented good predictive capabilities and also presented better fit indices, but it was still not acceptable. The last model tested (Model 3) not only showed good fit indices, but also presented practically the same predictive power of the previous models. Thus it was considered as the most parsimonious of the three tested models.

The direction of the relation of the two exogenous variables of Model 3 regarding the endogenous variable was expected. Past-Negative and Future-Negative presented a negative relation with Self-Esteem, in the same way they presented negative relations with other adaptive psychological constructs, such as: Emotional Stability and Impulse Control (Zimbardo & Boyd, 1999), Altruistic Values (Milfont & Gouveia, 2006), Big Five Agreeableness (Dunkel & Weber, 2010), and Satisfaction with Life (Boniwell, 2005) in the case of Past-Negative. Also School Well-Being and Adaptation (Nobre & Janeiro, 2010), Satisfaction with Life, Psychological Well-Being and Emotional Balance (Ortuño et al., in press), in the case of Future-Negative. Moreover, results with Model 3 are similar to those presented by Ortuño et al. (2013a) in a regressional study, since Past-Negative and Future-Negative were also strongly and significantly associated with Self-Esteem. The only difference was regarding Present-Hedonistic Time Perspective, which was not relevantly associated

with Self-Esteem in this study, nor was it significantly correlated in Zimbardo and Boyd's (1999) study. We suppose that striving for hedonism could be present both in individuals with high and low Self-Esteem. Also the lack of relevance of Present-Hedonistic could be related to the sample composition, since it is formed only by college and female students, who are known to present lower values in this temporal dimension. Contrary to what could be expected by the terror management theory, belief in a transcendental life could function as an anxiety buffer promoting Self-Esteem, but our data does not match with this idea. No correlations or effects were found, thus giving some additional support to the sociometer theory. Past-Positive, Present-Fatalistic, and Future ZPTI scales were also found to have no consistent effects on Self-Esteem. In general, our findings support the idea that depression, negative affect and Self-Esteem belong to a common temperamental core (Neiss et al., 2009; Watson et al., 2002). Low levels of global Self-Esteem imply general negative affect and a more negative vision of the future, which is also a symptom of clinical depression. Negative evaluations about one's own past are also considered to produce a self-depletion state that reduces the evaluation of one's own worthiness.

We would like to alert readers to some potential limitations of this study. Even though the sample size was large enough to successfully develop the proposed statistical analyses, the composition of the sample was very homogeneous: mainly female university students. It is important to replicate this study with more heterogeneous samples in order to know if the reported associations between Time Perspective and Self-Esteem exist in the same way in participants of different ages and occupations. Likewise, following studies about Time Perspective and Self-Esteem should include other constructs that are proven predictors of Self-Esteem, in order to determine if Time Perspective could mediate or moderate their relations. For example, a future study could include analyses with variables such as depression symptoms, personality variables and negative emotionality to explore how the time dimensions could be included in the description of the temperamental core (Neiss et al., 2009). We should note that there are other facets of TP not in the scope of this study, such as temporal extension or temporal density that could also be related to Self-Esteem.

Considering the obtained results regarding Self-Esteem, which is an important variable of the individual's psychological functioning, Time Perspective should be pondered as a keystone in the creation of a new generation of therapeutic programs, in which the subjective notions of time have a central role in the modification of cognitions and behaviours – as for example the Time Perspective Therapy (Sword, Sword, Brunskill & Zimbardo, 2013). Finally, we consider that more investigation should be carried out to determine in a more systematic fashion which other constructs can be affected by the Time Perspective.

Conclusions

This study brings an important contribution to the scientific literature regarding the association of Time Perspective with an important psychological phenomenon such as Self-Esteem, but also sheds light on the predictive power of the former over the latter, using a robust statistical technique. From the several temporal dimensions tested, those related with a negative valence were those presenting a greater role in the prediction of Self-Esteem. We encourage researchers to consider Time Perspective as a relevant variable in the understanding of Self-Esteem.

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