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FACULTY OF EDUCATION AND PSYCHOLOGY  
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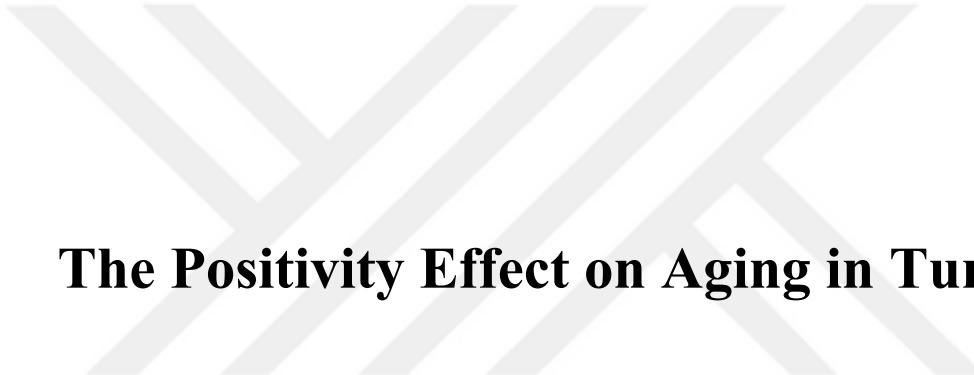


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**Tuna Ece**

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## **The Positivity Effect on Aging in Turkey**

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**Budapest, 2023**



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(a part of the thesis after filled out.)

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I allow the submission of the thesis.

Budapest, 2023.04.17

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## Abstract

The term "positivity effect" describes an aging-related tendency that prioritizes positive stimuli over negative ones while processing information. Older adults are more attentive to and recall more positive information than negative information compared to younger ones. This present study investigates the positivity effect regarding the current economic situation in Turkey and life satisfaction. Older and younger participants completed an attentional task, dot probe, in which they were instructed to respond to a probe presented after seeing emotional stimuli that were happy, angry, and sad. Results showed that older adults did not display a significant positivity effect in their attentional bias compared to younger adults. Furthermore, economic importance did not predict life satisfaction for either age group. Finally, the interaction between economic importance and age did not significantly predict attentional bias towards positive images. These findings suggest that age and economic importance may not be strong predictors of attentional bias and life satisfaction, and that other factors such as personality traits or cultural values may play a larger role ( $p = 0.004$ ).

*Keywords:* aging, positivity effect, emotion, economy, life satisfaction

## 1. INTRODUCTION

Aging is a psychological, social, and biological phenomenon with a process of continuous adaptation (Petrov, 2007), cumulative losses such as physical, sensory, cognitive deficits and personal growth, such as improvements in well-being and emotion regulation (Mikels & Young, 2018). In addition, general health status, life events, social support, and financial resources are some of the elements that contribute to the process of aging (Pandey, 2018). The quality of life of an elderly person is impacted by the loss of some social roles and independence, retirement, deaths of friends and family members, children moving out of the house, growing feelings of loneliness, financial difficulties, and various illnesses that develop as a result of these changes (Güler & Akal, 2009). These biological and contextual changes as a consequence of aging are further discussed in this section.

### 1.1. Attention

Processing speed, attention, memory, language, visuospatial abilities, and reasoning are the domains of cognitive ability. A large amount of research currently demonstrates that older persons have cognitive deficiencies in regard to processing speed, memory, and attention (Ziae & Fischer, 2016). The common description of cognitive impairment in older persons is that it is accompanied by a decline in prefrontal brain areas (Mather & Carstensen, 2005). Both gray matter and white matter exhibit this pattern. In healthy older individuals, prefrontal gray and white matter integrity have both been associated with cognition. Cognitive function may deteriorate as prefrontal cortex (PFC) gray matter levels drop in older adults. Similar to this, attention, working memory, and episodic memory test results frequently show poorer scores when the quantity of PFC white matter hyperintensities rises and/or tract integrity decreases (Davidson et al., 2017). In the scientific literature, cognitive change as a typical aspect of aging has been extensively researched. For example, memory, processing speed and reasoning decrease over time. The capacity to pay attention to and concentrate on particular stimuli is represented by attention (Harada et al., 2013).

On the other hand, according to the socioemotional selectivity theory, emotional goals may affect older individuals' attention and memory in two different ways. The first option is that all information that is essential to their emotional aims is placed to their attention. This emphasis on information that is "emotionally relevant" would skew attention and memory in favor of both good and bad information. The second explanation is that only information that increases emotional fulfillment is preferred. Even though there are costs associated with focusing primarily on such material, this "emotionally rewarding" focus would bias attention and

memory in favor of information that optimizes emotion regulation (i.e., positive material) (Carstensen & Mikels, 2005).

The tendency for a person to instinctively focus selective attention on obvious stimuli is known as attentional bias (Field & Powell, 2007). Posner, Snyder & Davidson (1980) identified three characteristics of attentional bias: orientation toward a stimulus, attentional engagement with the stimulus, and attentional disengagement with the stimulus. The significant impact of aging can be detected in complicated attentional tasks such as selective and divided attention (Harada et al., 2013). One attentional task that accesses overall attentional bias by distinguishing congruent and incongruent trials is the dot-probe task. Using a dot-probe paradigm, Mather and Carstensen (2003) discovered the positive effect among elderly Americans. In different experiments, researchers found pairs of faces of younger and older adults—one happy or sad or angry and the other neutral—along with a dot probe that appeared behind one of the faces. They discovered that older adults responded to the dot probe more quickly when it was presented on the side with a neutral face as opposed to a negative face. This bias was not present in younger adults. Moreover, it is necessary to further discuss emotional processing in older adulthood.

## 1.2. Emotions and Aging

Emotions can be described as complex, whole-body reactions that involve coordinated adjustments in the fields of subjective experience, behavior, and peripheral physiology. By using a variety of emotion regulation techniques, people can alter their emotional experiences and expressions. Emotion regulation refers to the deliberate or involuntary efforts made by individuals to manage their emotional experiences, including the timing, intensity, and expression of their emotions (Mauss et al., 2007). The process model of emotion regulation by Gross (1998) classifies emotion regulation technique into antecedent- and response-focused techniques. Cognitive reappraisal is an example of antecedent-focused emotion regulation. It aims to change the environment before an emotion is really triggered and assists the person in intentionally avoiding the experience and behavioral display of negative emotions. Negative emotions are prevented from emerging behaviorally when they are controlled by response-focused emotion regulation techniques like suppression (Carstensen, 1992; Carstensen, Gross & Fung, 1997; Gross & John, 2003).

The paradox of aging refers to the conflict between maintenance or enhancement of wellbeing and deterioration in cognitive and physical aging (Carstensen et al., 2006). Age does not affect emotional control, in contrast to the decreases shown in cognitive control (Mather & Carstensen, 2005). Moreover, older people showed increased emotional control and maturity in

changing their moods compared to younger people (Carstensen et al., 2000; Lawton et al., 1992). Getting older has been linked to stronger regulatory control over the internal emotion of rage as well as enhanced regulatory control over the outward display of happiness and sorrow (Gross et al., 1997). In the study by Carstensen et al., (2000), about the temporary level of pleasant and negative mood among the people aged 18-94, its findings revealed that older persons had more persistent positive emotional states than younger adults, indicating that older adults are better able to sustain happy emotions once they have been evoked. Older participants recovered from negative mood states more quickly than younger adults, despite the level of negative feeling experienced being equivalent across age groups.

Indeed, it appears that, with regard to attention and memory functions, there is a correlation between advancing age and a bias to prioritize positive information over negative information (Wernher et al., 2015). This finding is known as the "positivity effect" and was extensively discussed by Mather and Carstensen (2005), it is defined as a developmental phenomenon in which an excessive preference for negative information in adolescence changes during adulthood to an excessive preference for positive information in later life (Carstensen et al., 2006). The postulates of Socioemotional Selection Theory, a life-span theory of motivation, were initially examined in order to discover the positive effect (Carstensen, 1993, 2006; Carstensen et al., 1999). The Dynamic Integration Theory (DIT; Labouvie- Vief, 2003, 2005, 2009; Labouvie-Vief, Grühn, & Mouras, 2009), and the socio-emotional selectivity theory (SST; Carstensen, Isaacowitz & Charles, 1999; Carstensen & Mikels, 2005; Mikels et al., 2005) are two cognitive-affective aging models that could help to explain the positivity effect. The socioemotional selection theory states that as people age, they start to view the time they have left in life as being more restricted. Older people prioritize obtaining emotional gratification as a result of their shorter attention and memory spans, which leads to enhanced performance (Barber et al., 2016). In detail, the theory claims that individuals emphasize long-term purposes like gathering knowledge and expanding their social networks when future time horizons are seen as broad, as is typical in adolescence. As people get older and their time horizons become shorter and they regard their future time as being more restricted, they tend to concentrate on goals that are significant to the present. This change in motivation is believed to cause people to prioritize emotionally fulfilling and positively valenced experiences during social interactions and anywhere else (Mikels & Young, 2018). Furthermore, people are motivated to seek emotional fulfillment when time is viewed as restricted, which is frequently the case in later life. They make investments in certain things, strengthen their current connections, and enjoy life. In these circumstances, people are less interested in banking-related information and

devote more time and energy to emotion regulation (Carstensen et al., 2006). According to the socioemotional selectivity theory, people prefer to control their emotions as they become older by applying more antecedent-focused but less response-focused techniques (Carstensen et al., 1999).

The DIT (Labouvie-Vief, 2003) is a comprehensive model of emotional development designed to explain the pattern of gains and losses in cognitive affective functioning throughout the period of a person's lifetime. According to DIT, positive emotional development represents a dynamic harmony between optimization (i.e., a focus on good emotional experiences) and differentiation (i.e., the capacity to deal with mixed emotions in order to keep a realistic perception of the world and the self) (Mikels & Young, 2018). Moreover, according to the DIT, older people struggle to manage the cognitive-affective complexity because of their age-related cognitive resource limitations.

Both theories of SST and DIT attribute the positivity effect mostly to mechanisms of attention. Both hypotheses predict age-related changes in the processing of emotional content, with the processing of positive information remaining stable or even improving with age while the processing of negative information decreases (Gronchi et al., 2018).

### 1.3. Life Satisfaction

A complex construct, important in this period of life is life satisfaction which is an individual's overall assessment of life dimensions like their health, socioeconomic status, education, employment, self-esteem, and interpersonal connections (Michalos, 1991; Efkilede et al., 2003, Fagerström et al., 2007). A measure of one's quality of life, subjective well-being includes cognitive (life satisfaction) and emotional (positive and negative affect) components (Diener et al., 1999). Given the close connection between cognition and emotion, many researchers highlight cognitive control as a crucial component of emotional well-being in later age. The development of life satisfaction may be impacted by a number of life events that could occur or frequently do so as people age. Life satisfaction is thought of as more of a cognitive appraisal that is influenced by both the ambitions, expectations, and hopes of the individual as well as social comparisons with group norms (Caner, 2016).

An individual's overall evaluation of their life satisfaction is based on a comparison of what they currently have and what they hope to achieve in the future. Various facets of well-being, including happiness and morale, are addressed by life satisfaction. It is a person's emotional response or attitude toward his or her life at work, in his or her free time, and in other situations (Neugarten et al., 1961).

Older people may have more freedom than ever before to pursue the activities and hobbies they are passionate about and design a life that feels meaningful and true to themselves because they are no longer constrained by expectations and obligations (Baumann et al., 2020). An important sign of healthy aging is thought to be life satisfaction (Gana et al. 2013). Age-related life satisfaction is influenced by both subjective and objective factors. Components like social security and economic income are considered objective variables (Beyaztas et al., 2012). The most prevalent social issues involving the elderly are poverty and low income, adjustments to social security rules, an increase in the number of elderly people, living alone, unsuitable living arrangements, declines in family care, negative attitudes toward old age, and difficulties accepting positive roles.

#### **1.4. Economy**

The nature of the relationship between emotion and other motivations may be the most intriguing aspect of the emotions from the perspective of economic theory (Elster, 1998). A person receives constant input on how things are going through positive and negative emotions and moods. The fact that emotions and moods reflect current assessments of events causes them to shift quickly (Diener & Seligman, 2004). The factors that define one's existence, such as their financial and educational resources and their perceived social status, are typically taken into account when determining their socioeconomic status (SES). SES can significantly influence the relationship between emotion control and psychological well-being because people from different SES backgrounds live in distinct social environments. This suggests that SES can be a potent moderator of this relationship, according to research by Kraus, Piff, Mendoza-Denton, Rheinschmidt, and Keltner (2012). Having the ability to regulate one's emotions effectively can be crucial, especially in lower-SES settings where environmental control tends to be more limited. According to Chen and Miller (2012), Forsythe and Compas (1987), Folkman (1984), and Park, Folkman, and Bostrom (2001), people in lower-SES situations may have more control over their emotions than they do over their environment. However, the importance of efficient emotion regulation may be less significant, or possibly harmful, for psychological health in higher-SES contexts where individuals have direct control over their circumstances.

Undoubtedly, the ongoing economic crisis in the European Region has led to an increase in social exclusion of several vulnerable groups, including low-income individuals, those who are near the poverty line, children, young adults, single-parent households, the unemployed, ethnic minorities, immigrants, and the elderly (WHO, 2009).

Turkey can serve as an example of a country that has faced economic and political difficulties in the past decade. The country's macroeconomic indicators started declining in

2011, became evident in 2013, transformed into apparent authoritarianism in 2016, turned into an economic crisis in March 2018, and culminated in a severe depression in March 2020 due to the pandemic's impact on the global economy (Kubilay, 2022). When the COVID-19 pandemic emerged in early 2020, a sudden and severe financial shock spread worldwide, causing external economic conditions to worsen (Kubilay, 2022). Research indicates that individuals often react more strongly to how their current situation compares to a reference point than to the objective qualities of the situation itself (Helson, 1964).

This research aims to investigate the presence of the positivity effect and its relationship to older adults' emotional control in Turkey, which is a novel study in Turkey. The positivity effect would be identified in older adults compared to young adults in emotional processing control supported by Socioemotional Selection Theory and The Dynamic Integration Theory. Hence, based on the previous studies, the following hypotheses are here assumed: (1) to indicate the presence of positivity effect in older adults compared to young adults using an attentional task; (2) Older individuals giving importance to the economic situation are more likely to report higher levels of life satisfaction than younger individuals. In other words, for the elderly, as the importance given to the economic situation increases, life satisfaction also increases; (3) Importance to the economic situation and aging predicts attention bias towards positive images. In other words, people that give more value to the economic situation in Turkey and are older display more attention to happy images.

## 2. METHODOLOGY

The current research has a cross-sectional design in the form of a survey. It requires participants to use a computer to perform a main task and complete standardized questionnaires via the Psytoolkit platform (Stoet, 2010, 2017), which is an online experiment platform in the field of psychology. The Institutional Ethical Board of Eötvös Loránd University (ELTE), Faculty of Pedagogy and Psychology, approved the study under the number 2021/581. The data collected will be kept confidential and in accordance with national laws and regulations. Participation in the study was voluntary, anonymous, and cannot be traced back to any individual.

### 2.1. Participants

The participants were recruited via the Internet and by acquaintances. The inclusion criteria of this study are the people's age range between 18-30 and 60-90 years old, Turkish language speakers, individuals that have normal or corrected to normal vision, without major

motor skill problems, nor psychiatric or neurology history. In this case, 109 Turkish younger and older participants completed the study. However, 11 participants were excluded due to the age criteria, and 11 participants were excluded due to psychiatric history, which brings our sample size to 87 participants.

## 2.2. Materials and Measures

### 2.2.1. Dot Probe Task

A dot-probe task was utilized to examine the positivity effect phenomenon. The Dot Probe Task is seen as a valid test to assess attentional biases, which was first introduced by MacLeod, Mathews, and Tata (1986). In the task of dot-probe, a dark screen with a central fixation cross appears first, then two facial images are presented simultaneously to the left and right of the cross for 500 milliseconds. Finally, a white dot appears in the same location as one of the images (left or right). When the dot appears, the participants must react as quickly and precisely as they can by pressing one of the following keyboard keys: 'A' for a left-side dot, and 'L' for a right-side dot (Mather & Carstensen, 2003). The interfering emotional expressions affect how quickly people react. To determine which stimulus attracts more attention, researchers often calculate the attentional bias score by subtracting the average reaction time of congruent trials from the average reaction time of incongruent trials (MacLeod, Mathews & Tata, 1986).

Response time (RT) measurements of attentional biases have been extensively studied over the past ten years, and numerous research utilizing a variety of stimuli have demonstrated that biases in the dot-probe task have low internal reliability. To put it another way, individuals do not consistently demonstrate a bias toward (or against) emotional stimuli from trial to trial (Chapman, Devue & Grimshaw, 2017). Despite the individual level inconsistencies, the task may still be a valuable tool at the group level for comparing groups (van Rooijen, Ploeger & Kret, 2017).

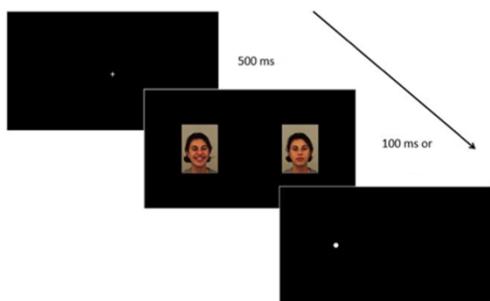


Figure 1. Dot-probe task trial illustration.

### 2.2.2. *Demographics*

The demographic questionnaire included questions about their level of education, age, gender, health condition, religiousness, economic status, visual and motor abilities, and happiness level. This was set up based on necessary important information for inclusion criteria, and using research conducted by Hughes and colleagues (2016) as a reference, who aimed to develop questions that were more inclusive and objective. One additional aspect in this respect is Turkey's current negative economic state making it an important piece of information to investigate (Kubilay, 2022). A study conducted to find out our society's perspective on the most important issues facing Turkey, 1615 responses were provided to the question addressed to the sample group. In this context, 33.1% of the participants stated that the country's priority problem was the 'economic crisis', followed by 'political instability' (24.5%) in the second place and 'inflation' (21.7%) in the third place. Thus, more than half of the population believes that the economy is Turkey's biggest challenge (Kamil, 2002). Therefore, in the present study participants were asked the following questions: 'What is your current socioeconomic status in your country?', and 'By thinking about the current economic situation in Turkey, could you indicate how important it is in your life?', containing four possible answers which include 'Not at all important', 'Not very Important', 'Rather important', 'Very Important'.

### 2.2.3. *Satisfaction with Life Scale (SWLS)*

The perception and cognitive processing of information may be influenced by an individual's evaluation of their own life, including their level of satisfaction with it (Diener et al., 1985). To measure overall life satisfaction, the Turkish version of the Satisfaction with Life Scale (SWLS) is used in this study. The SWLS is a five-item scale that allows participants to subjectively evaluate their life in different areas and rate their level of agreement with each statement on a 1 to 7 scale. The higher the total summed points of a participant the higher the life satisfaction. Its reliability is reported by the original study as .82. According to Durak et al. (2010), the Turkish version of the SWLS demonstrates adequacy to be used with this population, including an internal consistency coefficient of .89 when assessing an elderly population.

## 2.3. Procedure

The data collection was done individually and online on a typical computer through a Psytoolkit link; therefore, an internet connection was necessary to complete the study. Before data collection began, participants agreed with the Informed Consent and Description of the Research (Appendix A). After, individuals completed the dot-probe task. The demographic questionnaire that includes questions about their level of education, age, gender, health

condition, religiousness, economic status, and happiness level was the next step. Finally, the standardized questionnaires were filled out. The entire procedure takes approximately 20 minutes for young adults and 30 minutes for older adults.

#### 2.4. Data Analysis

The primary measure used in this study was the Reaction Time (RT) in all conditions of the dot-probe task. To exclude invalid RTs referring to an unwanted automatic response, RTs below 200ms were deleted, as well as overthought responses, RT above 2000ms were also excluded (Koster et al., 2004). All practice and incorrect trials were also removed. The RTs were averaged in R per conditions and congruency: happy, sad, angry, and neutral their congruency level (congruent and incongruent). Additionally, attentional bias score (ABI), which is an index of stimulus bias created by Mather and Carstensen (2003), was adopted. The ABI was calculated by subtracting the RT of congruent trials from the RT of incongruent trials in all three emotional conditions for each participant. A positive score indicates that participants spent more time on incongruent trials (dot after neutral images), indicating attention towards the emotional image, while a negative score indicates that they spent more time on congruent trials (dot after emotional images), indicating attention away from the emotional image.

The analysis was run in SPSS (IBM Corp, 2017) and Jamovi softwares (Jamovi Project, 2021). First, a descriptive analysis of all variables was performed, and a normality test was conducted, which revealed that the data was not normally distributed. To address this issue, log transformation was performed. An independent t-test was done to compare ABS scores among groups using Student's t test, since the homogeneity of variances is not violated. Bootstrapping was also selected due to slight normality issue. Additionally, the researchers conducted a second independent t-test to compare the means of all seven conditions (happy, sad, and angry congruent and incongruent and neutral) since the YA group had a violation on the test of normality. Furthermore, engagement and disengagement scores were also calculated using the RT of neutral and emotional trials. Based on Deroost and Cserjesi's (2018) method, to obtain the engagement score, the reaction time (RT) of emotionally congruent trials was subtracted from the RT of neutral trials. A positive value suggests that participants paid attention to emotional faces, while a negative value suggests otherwise. The disengagement score, on the other hand, was computed by subtracting the RT of neutral trials from the RT of incongruent trials. A positive score implies that attention was directed toward emotional faces. A positive score for engagement indicates attention toward emotional faces while a negative score suggests the opposite. Conversely, a positive score for disengagement represents attention to emotional faces. Finally, a repeated measure ANOVA with 3 levels of emotional faces, and 2 levels of

congruency, between subjects (YA and OA) was performed by adding different covariates: socioeconomic status, gender, and education level.

We also conducted a comprehensive analysis using MANCOVA to explore the impact of covariates. To further investigate significant findings, two linear regression analyses with SWLS and ABI Happy as dependent variables were performed. These analyses included age group and economic situation as independent variables in both cases.

### 3. RESULTS

Due to invalid results and outliers, 20.18% of our sample was discarded, summing a total of 87 participants, 43 OA (13 males) and 44 YA (24 males). The mean age of the OA group is 67.9 years old ( $SD = 7.26$ ), and YA is 25.4 years old ( $SD = 3.57$ ).

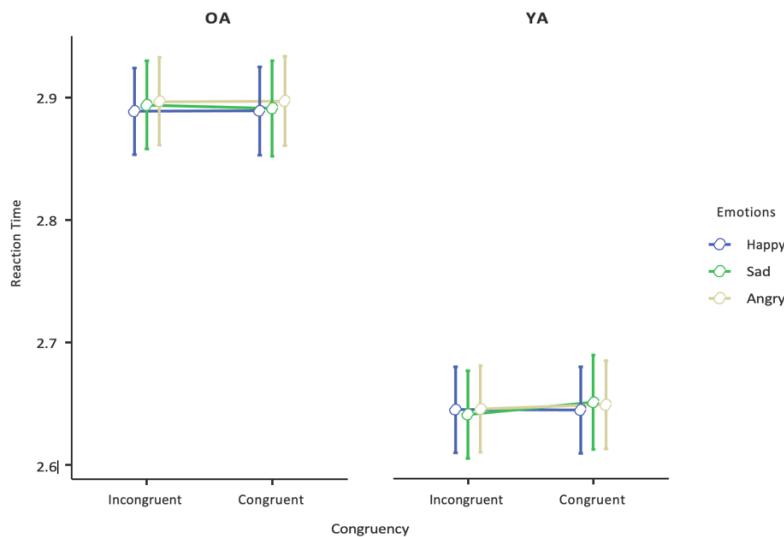
The results of ABI scores between both groups did not indicate significant differences in Table 1 below, meaning an absence of attentional bias for younger and older participants in all three emotional conditions. This was also corroborated by not finding significant disengagement and engagement results between both populations. For engagements happy, angry, and sad the following results were found respectively:  $U = 880, p = .58, r = .06$ ;  $U = 927, p = 0.87, r = .02$ ;  $U = 889, p = .69, r = .04$ . And for disengagements happy, angry, and sad the following results were found respectively:  $U = 850, p = .41, r = .10$ ;  $U = 881, p = .58, r = .06$ ;  $U = 900, p = .70, r = .04$ .

**Table 1.** Independent Samples T-Test of ABI scores for every emotion condition between OA and YA groups.

Independent Samples T-Test

		Statistic	p	Effect Size	
ABI happy	Mann-Whitney U	899	0.694	Rank biserial correlation	0.0497
ABI angry	Mann-Whitney U	886	0.615	Rank biserial correlation	0.0634
ABI sad	Mann-Whitney U	835	0.350	Rank biserial correlation	0.1173

Repeated Measures ANOVA with three levels of emotions and two levels of congruency have presented significant results only regarding overall RT between OA and YA groups ( $F (1) = 97.0, p < .001, \eta^2 = 0.521$ ), as possible to visualize in figure 1. This indicates that OA were overall slower during the task in comparison to YA. Post Hoc tests were not indicative of differences between RT of emotional conditions among both groups.



**Figure 2.** Performance between groups (OA = Older Adults, YA = Younger Adults) comparing response time of different emotion conditions and congruency of trials.

A univariate MANCOVA was conducted to investigate the effects of group, gender, socioeconomic importance status, and SWLS on ABI sad, ABI happy, and ABI angry conditions. The results showed that gender had a significant effect on ABI sad ( $F(1, 82) = 4.660, p = .034$ ). Moreover, socioeconomic importance status had a significant effect on ABI happy ( $F(1, 82) = 10.162, p = 0.002$ ), and SWLS had a significant effect on ABI happy ( $F(1, 82) = 5.345, p = 0.023$ ). Group was not significant factor here, indicating that life satisfaction (SWLS) and socioeconomic importance status had an effect in happy conditions, while gender showed an effect in sad conditions.

In Table 2, a linear regression model explained 4.3% of the variance in the outcome variable, which is life satisfaction ( $R^2 = .043, F(2, 84) = 1.89, p=0.158$ ), which did not indicate a lack of statistically significant relationship between life satisfaction and the importance of the economy for older people.

**Table 2.** Summary of Linear Regression Model for predicting life satisfaction based on the importance of economy and aging.

#### Model Summary<sup>b</sup>

Mod el	R	Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,207 <sup>a</sup>	,043	,020	3,578	,043	1,886	2	84	,158

a. Predictors: (Constant), socioeconomic\_status1, group

b. Dependent Variable: SWLS

An ANOVA table (Table 3) was used to assess the significance of this linear regression model. The F-statistic for the model was found to be 1.89 with degrees of freedom of 2, 84, and the associated p-value was 0.158. Together, the model explained 43.0 % of the total variation in life satisfaction.

**Table 3.** ANOVA results for linear regression model predicting life satisfaction based on the importance of the economy and aging.

ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48,294	2	24,147	1,886	,158 <sup>b</sup>
	Residual	1075,361	84	12,802		
	Total	1123,655	86			

a. Dependent Variable: SWLS

b. Predictors: (Constant), socioeconomic\_status1.1, group

The next table (Table 4) displays the coefficient for the predictor variable which is the life satisfaction. The constant was found to be a significant predictor of the dependent variable ( $B = 19.4$ ,  $SE = 2.5$ ,  $t = 7.78$ ,  $p = 0.000$ , indicating that the dependent variable differs significantly from zero when all predictors are equal to zero. However, aging group ( $B = -0.87$ ,  $SE = 0.77$ ,  $t = -1.14$ ,  $p = 0.259$ ) and the importance of the economic situation ( $B = -1.02$ ,  $SE = 0.67$ ,  $t = -1.54$ ,  $p = 0.128$ ) were not found to be significant predictors in this context.

**Table 4.** Regression Analysis results of life satisfaction, the importance of the economy and aging.

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	t
1	(Constant)	19,362	2,488		7,781 ,000
	group	-,872	,768	-,121	-1,136 ,259
	importance.of.economy	-1,022	,665	-,164	-1,536 ,128

a. Dependent Variable: SWLS

Table 5 displays the relationship between the importance of the economic situation and aging based on the happy image, where a correlation analysis was conducted among aging group, the importance of the economic situation and happy images. Results revealed a significant negative correlation between the importance of the economic situation and ABI happy images ( $r = -345$ ,  $p < 0.05$ , one-tailed), as this is a negative correlation, it indicates that

while giving more value to the economic situation increased, participants' ABI scores to the happy images decreased, which means a direction of attention to the congruent happy images. However, no significant correlations were found between ABI happy and aging group, and the importance of the economic situation and aging.

**Table 5.** The importance of the economic situation, aging and happy image correlations.

Correlations

		LOGabihappy	group	importance.of.economy
Pearson Correlation	LOGabihappy	1,000	,006	-,354
	group	,006	1,000	,033
	importance.of.economy	-,354	,033	1,000
Sig. (1-tailed)	LOGabihappy	.	,478	,000
	group	,478	.	,379
	importance.of.economy	,000	,379	.
N	LOGabihappy	87	87	87
	group	87	87	87
	importance.of.economy	87	87	87

The following linear regression model explained 10.4% of the variance in the outcome variable (ABI happy image) ( $R^2 = .104$ ,  $F(2, 84) = 6.02$ ,  $p = 0.004$ ), where importance of economy and group were predictors (Table 6).

**Table 6.** Summary of Linear Regression Model for predicting the ABI happy image based on the importance of economy and aging.

Model Summary

Model	R	R Square	Adjusted R Square	Change Statistics				
				Std. Error of the Estimate	R Square Change	F Change	df1	df2
1	,354 <sup>a</sup>	,125	,104	,048	,125	6,017	2	84

a. Predictors: (Constant), importance.of.economy, group

An ANOVA was used to assess the significance of the before mentioned linear regression model (Table 7). The F-statistic for the model was found to be 6.02 with degrees of freedom of 2, 84, and the associated p-value was 0.004, indicating significant. Together, the model explained 13% of the total variation in the ABI happy score.

**Table 7.** ANOVA results for linear regression model predicting the happy image based on the importance of the economy and aging.

ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
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1	Regression	,028	2	,014	6,017	,004 <sup>b</sup>
	Residual	,195	84	,002		
	Total	,223	86			

a. Dependent Variable: LOGabihappy

b. Predictors: (Constant), importance.of.economy, group

Table 8 displays the coefficient for the happy image as a predictor variable. The constant was found to be a significant predictor of the dependent variable ( $B = 0.100$ ,  $SE = 0.033$ ,  $t = 3.000$ ,  $p = 0.004$ , indicating that the ABI happy differs significantly from zero when all predictors are equal to zero. The importance of the economic situation ( $B = -0.031$ ,  $SE = 0.009$ ,  $t = -3.45$ ,  $p = 0.001$ ) was found to be significant predictor of the happy image. However, aging group ( $B = 0.002$ ,  $SE = 0.010$ ,  $t = 0.176$ ,  $p = 0.861$ ) was not found to be significant predictors of the dependent variable.

**Table 8.** Regression Analysis results of the happy image, the importance of the economy and aging.

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients			Standardized Coefficients	
	B	Std. Error	Beta	t	Sig.
1	(Constant)	,100	,033	2,998	,004
	group	,002	,010	,176	,861
	importance.of.economy	-,031	,009	-,354	-,3,469

a. Dependent Variable: LOGabihappy

#### 4. DISCUSSION

The current study was designed to investigate the positivity effect in Turkey in older adults compared to young adults regarding the importance of the economic situation and the life satisfaction. Previous studies have shown that older people demonstrated an attentional bias for positive information that was missing in younger people (Isaacowitz, 2006). The positivity effect is explained by the Socioemotional Selectivity theory (Carstensen, Isaacowitz, & Charles, 1999) and Dynamic Integration Theory (Labouvie-Vief, 2003).

According to the first hypothesis, we aimed to demonstrate the presence of positivity effect in older adults compared to young adults using an attentional task. However, our results indicated that older adults did not display the positivity effect in Turkey as some earlier research has shown a lack of support for the Positivity Effect (Grühn & Baltes, 2005; Fernandes et al., 2008). As seen in the statistics reported, for all three emotional conditions which are happy, angry, and sad both older and younger participants did not show any attentional bias. Contrary

to expectations based on the socioemotional selectivity theory, participants showed higher avoidance for all emotional stimuli rather than just sad and angry faces. This can be explained by Reed et al (2014)'s meta-analysis proposed instructions that limit information processing can suppress the PE, which reduces positive bias in older persons. So, it may be claimed that older adults try to manage and keep a steady level in their emotional state by avoiding all emotional content, even positive information (Demeyer, & De Raedt, 2013). In this study, the results of the reaction time demonstrated that older adults were slow during the task which is a result that does not fit the literature. Mather and Carstensen, (2005) found that when dots appeared behind negative faces as opposed to neutral faces, older adults took longer to specify which side the dots were on, while positive faces as opposed to neutral faces took less time.

On the other hand, the majority of current research has been done in Western nations, namely the US and Europe, and the findings have tended to be remarkably consistent. However, there have been few and conflicting findings from studies done in East Asian societies. Also, the positivity effect has never been investigated in Turkey. In this context, the positivity effect could be a phenomenon that occurs universally across cultures. It is important to take cultural differences in emotion-cognition processing into account (Kang & Kwon, 2021).

Additionally, the Eastern culture of collectivism emphasizes accepting negative emotions and experiencing externally oriented emotions in order to better fit into one's associated group, in contrast to the Western culture of individualism, which seeks positive emotions in order to boost and maintain self-esteem and happiness (Kang & Kwon, 2021). Turkey has a reputation for being a collectivistic society due to its commitment to both the family and the group (Kagitcibasi, 1982, 1996). Cultural differences and the suppression of the instruction's limitation could be a factor to reduce positivity bias in Turkish elderly.

In line with the second hypothesis, we assumed that for elderly, as the importance given to the economic situation increases, their life satisfaction would also increase. However, our findings did not show any significant results. In other words, for elderly, the importance of the current economic situation in Turkey was not a significant predictor of life satisfaction. According to the literature review, socioeconomic status or income status and psychological well-being are positively correlated. This finding is in accordance with the literature, suggesting that contrary to popular belief, older people report generally excellent levels of life satisfaction and emotional well-being (Charles & Carstensen, 2010) and maintain their independence well into their very old age (WHO 2002).

On the other hand, our findings might be explained by the other predictors of the life satisfaction as indicated in the article of Karatas (1990), stating that gender, age, education,

income, socioeconomic status, marital status, health, social network, degree of social activity, and time spent in a nursing home are all variables that influence life satisfaction. Financial conditions are linked to various dimensions of wellbeing. According to recent studies, compared to happiness, life satisfaction is more closely linked with economic aspects like earnings. Happiness is more dependent on interpersonal connections (Diener, 2009; Kahneman & Deaton, 2010). According to the literature review, income plays a significant role in determining happiness in old age and among the impoverished. Moreover, financial limitations are a significant factor in the unhappiness of elderly people (Siahpush, 2008; Hirosaki, 2011; Sumngern 2010)

In addition, crises have a significant impact on people's sense of well-being as well as the financial stability of households. The areas that are reportedly most impacted are wealth and income, work and salary, subjective well-being, and civic involvement. (OECD, 2014). Turkey is an OECD nation where, sadly, the average level of life satisfaction is lower than the OECD average. Despite the country's economy's significant growth over the past few decades, it seems that individuals in Turkey are not very happy with their lifestyles (Caner, 2016). In Turkey, life satisfaction declines with age (Selim, 2008) and it is a popularly accepted view that economic crisis would result in a decline in wellbeing and an increase in mental illnesses (Gudmundsdottir, 2013). With the findings of the literature review above, we aimed that Turkey's current economic situation, financial shock, would predict life satisfaction. But, the effects of economic and political shocks, such as crises, elections, and migration, may vary by province so it should be examined those factors influencing life satisfaction between geographic areas.

In regard to the third hypothesis, we aimed to find that when people give more value to the economic situation in Turkey, elderly display more attention to happy images. In other words, the degree to which individuals prioritize the economic situation in their attentional focus appears to vary by age, with older adults showing a greater inclination towards positive image stimuli. According to our findings, the importance of the economic situation was found to be a significant predictor of the happy image (ABI score). However, age was not a significant predictor of the positive image stimuli as found in the first hypothesis. Having attention bias is consistent with the literature. Based on the socioemotional selectivity theory (Isaacowitz, Charles & Carstensen, 2000), changes in motivation have an impact on cognitive processing. People pay attention to the positive, ignore the unpleasant, and concentrate on the current experience when emotion control is given priority (Carstensen, Fung & Charles, 2003). Moreover, attention bias towards positive emotional stimuli could be explained with personality

traits such as optimism. According to Bruner (1957) attentional bias for positive stimuli improved and attentional bias for negative stimuli decreased as optimism increased. An optimistic person would be more willing to notice and consider both positive and negative characteristics of the circumstances, whereas pessimists are less likely than optimists to find purpose or growth in unpleasant circumstances, and they are more prone to reinterpret negative circumstances in a positive way (Davis, Nolen-Hoeksema & Larson, 1998; Park, 1998; Scheier et al., 1986).

The importance of the economic situation was found to be a significant predictor of the happy image can be clarified with the relationship between stressor and attentional bias towards positive stimuli. Nineteen studies demonstrated that the economic crisis was a significant stressor with a detrimental effect (Mucci et al., 2016). By reducing negative emotional reactions to stressors and enhancing reward direction, an attentional bias toward positive stimuli may support adaptive stress control (Dandeneau, 2007). Individuals who showed an attentional bias towards a happy image may be more resilient to the negative effects of economic stressors and therefore more likely to attend to positive stimuli.

#### 4.1. Limitations

The results of this study may consist of some limitations. Firstly, having a small sample size. With a small sample size, the study results may not be representative of the larger population, it leads to limit the generalizability of the positivity effect. One of the limitations of this study was to collect data from the elderly, since most of them do not have a computer and due to the difficulties, they face due to their age. Moreover, the question related to the importance of the economic situation might lead to complexities such as the abstract meaning of the concept of importance and not taking this question from any scale. Lastly, the dot probe task may not be the most sensitive paradigm to this investigation as this concept is so complex and a mixed method approach would be preferable to tackle other aspects such as memory, decision making or even a mixed qualitative and quantitative type of data collection as well.

### 5. CONCLUSION

The objective of this study was to investigate whether older individuals had a positivity effect in relation to economic importance and life satisfaction compared to younger individuals. However, the study results did not support this hypothesis, as there was no evidence of a positivity effect in older adults in the attentional task compared to younger adults. Moreover, the study did not find any evidence to support the notion that older adults

who place more importance on the economic situation have higher levels of life satisfaction than younger individuals. Lastly, the hypothesis that importance to the economic situation and aging predicts attention bias towards positive images was also not supported. These findings suggest that the relationship between economic importance, attentional bias, and life satisfaction is more intricate than previously thought. Further research is required to gain a better understanding of the underlying mechanisms and explore other potential factors that may influence these relationships. Nonetheless, this study contributes to the existing literature on the interplay between cognitive and emotional processes in the context of economic stressors and aging.



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## Appendix A

### Informed Consent and Description of Research

Dr. Renata Cserjesi tarafından koordine edilen bir araştırmaya katılacaksınız. Araştırma, Psikoloji doktora öğrencisi Raissa de Oliveira Negrao, yüksek lisans öğrencisi Ece Tuna tarafından yürütülmektedir.

Bu çalışmanın amacı, farklı kültürlerde Pozitiflik Etkisinin (dikkat ve bellekte pozitif bilgiye yönelik bir yanılık) varlığını ve bunun duygusal düzenleme ve yaşılanmaya yönelik tutumla ilişkisini belirlemektir.

Bu araştırmada, bir dikkat görevi gerçekleştirmeniz ve duygusal düzenleme ve yaşılanmaya karşı tutumla ilgili birkaç anket doldurmanız istenecektir. Bu işlem yaklaşık 30 dakika sürecektir.

Katılım tamamen isteğe bağlıdır. Görevi gerçekleştirmenin ve anketleri doldurmanın herhangi bir zararlı etkisi yoktur. Yorucu olmaması için katılımı askıya almak mümkündür. Ayrıca, herhangi bir zamanda katılımı sonlandırmak ve herhangi bir gerekçe göstermeksızın soruları yanıtlamayı reddetmek de mümkündür. Katılım için para ödenmez.

Bu çalışmanın sonuçları daha sonra yayılarda kullanılacak ve bilimsel konferanslarda da sunulacaktır. Talep edilmesi halinde bu etkinlikler hakkında yazılı veya sözlü bilgi verilecektir.

Çalışma sırasında veriler isimsiz olarak toplanacak ve başka hiçbir kişisel veri elde edilmeyecektir.

Araştırma sürecinde toplanan tüm bilgiler kesinlikle gizli tutulacaktır. Araştırma sırasında elde edilen veriler, güvenli bir bilgisayarda kodlanmış bilgi olarak saklanır. Bireysel kodlar, sorumlu asistan tarafından sağlanır ve bunlara yalnızca kendisi tarafından erişilebilir ve bilinir. Araştırmanın verileri istatistiksel olarak analiz edilir ve bu sırada herhangi bir kişisel tanımlama mümkün değildir.

Çalışmanın sonuçları hakkında herhangi bir tıbbi veya laboratuvar raporu düzenlenmeyecektir.

Devam ederek, şahsınız hakkında toplanan - şahsına ait olduğu tespit edilemeyen - verilerin araştırma amacıyla kullanılabileceğini ve bunların diğer araştırmacılar tarafından erişilebilir olacağını kabul etmekteiniz. Katılımımı istedigim zaman sonlandırma hakkım saklıdır, bu durumda şahsına ait verilerin silinmesi gereklidir.

Raissa de Oliveira Negrao, psikoloji alanında doktora öğrencisi

Renáta Cserjesi, psikoloji bölümünde (PPK) öğretim görevlisi

Tüm araştırmacılar Eötvös Loránd Üniversitesi'ne (ELTE) bağlıdır.

Lütfen bu ankete katılmak istedığınızı onaylayın. Bilgileriniz (bilgisayar IP'si dahil) saklanacak ve araştırma için kullanılabilir.

Araştırmamıza katıldığınız için teşekkür ederiz!