

**BAŞKENT UNIVERSITY  
INSTITUTE OF SOCIAL SCIENCES  
DEPARTMENT OF PSYCHOLOGY  
MASTER'S IN SOCIAL PSYCHOLOGY**

**TESTING AND COMPARING THREE DIFFERENT  
MORTALITY SALIENCE MANIPULATIONS**

**BY**

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**MASTER'S THESIS**

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**ANKARA-2020**



**BAŞKENT ÜNİVERSİTESİ**  
**SOSYAL BİLİMLER ENSTİTÜSÜ**

**YÜKSEK LİSANS / DOKTORA TEZ ÇALIŞMASI ORJİNALLİK RAPORU**

Tarih: 18/08/2020

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Anabilim Dalı: Psikoloji Anabilim Dalı  
Programı: Sosyal Psikoloji Tezli Yüksek Lisans Programı  
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Tez Başlığı: Testing and Comparing Three Different Mortality Salience Manipulations

Yukarıda başlığı belirtilen Yüksek Lisans/Doktora tez çalışmamın; Giriş, Ana Bölümler ve Sonuç Bölümünden oluşan, toplam 77 sayfalık kısmına ilişkin, 18 / 08 / 2020 tarihinde şahsım/tez danışmanım tarafından Turnitin adlı intihal tespit programından aşağıda belirtilen filtrelemeler uygulanarak alınmış olan orijinallik raporuna göre, tezimin benzerlik oranı %6'dır.

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Onay

24/08/2020

Öğrenci Danışmanı Unvan, Ad, Soyad,

Dr. Öğr. Üyesi İlker Dalgar

*To my dear brother Yusuf Çavuşođlu, who passed away*

*during the preparation of this thesis...*

## ACKNOWLEDGMENTS

I would like to extend my gratitude to Dr. İlker Dalgar. The completion of this thesis would not have been possible without his helpfulness and guidance. I feel lucky to be able to work with an encouraging advisor like him.

I would like to express my thanks to my thesis jury members, Dr. Beril Türkoğlu Demirel and Dr. Burcu Tekeş for their kind and encouraging attitude in criticizing my thesis. Their comments improved my perspective.

I would like to offer my thanks to Buse Sezer for being with me in every important step of my life. Her support in my thesis process was invaluable. I would like to offer my thanks to Bengisu Çayan for every moment she improved my morale in the thesis process. I would like to express my thanks to Seren Mendeş for her helpfulness and psychological support when I deal with my thesis. I would like to express my thanks to Fatih Bayrak for his willingness to help and encouragement throughout the thesis process. I would like to offer my thanks to Murat Tümer for his support throughout my graduate education. It's a great chance to have a friend like him. I would like to offer my sincere thanks to Ayşenur Soykan. She is one of the best friends you can make in this world.

I would like to extend my special thanks to Samah Obeid. Her critical suggestions, which she shared with great generosity, broadened my horizon during the thesis process. I am grateful that she made working on the thesis more enjoyable for me.

I would like to offer my deep-felt appreciation to my family members for their support in writing my thesis. My parents, Zehra Saçaklı and Refik Saçaklı, made me feel their understanding always with me. My sisters, Ayşe Saçaklı and Arzu Saçaklı İmiş, made me feel their presence when I needed their encouragement and responsiveness. My brother, Ahmet İmiş, made me feel his presence whenever I needed help. My nephew, Demir İmiş, made me feel the stress-relieving power of love when I was overwhelmed by my thesis.

I would like to present my huge thanks to my grandfather, Mehmet Saçaklı for being my real hero in my difficult times and good times.

## ÖZET

Dehşet Yönetimi Kuramına göre, ölümlü olma bilinci önemli bir anksiyete tetikleyicisidir. Ölümün kaçınılmazlığı ile yüzleşmek, insan motivasyonunun altında yatan nedenleri açıklayan önemli faktörlerden biri olarak kabul edilir. Bu teori, 30 yılı aşkın süredir sosyal psikoloji literatüründe bulunmaktadır ve dünyanın farklı yerlerinden pek çok araştırmacı tarafından çalışılmaktadır. Orijinal sonuçların tekrar edilememesiyle sonuçlanmış olan güncel replikasyon girişimleri özellikle sosyal psikoloji dünyasında güveni zedeleyen büyük bir etki yaratmıştır. Dehşet yönetimi literatüründen bazı bulgular, büyük ölçekli çalışma ekipleri tarafından replike edilememiştir. Bu çalışmada, başarısızlıkla sonuçlanan replikasyon girişimleriyle ilişkili olabilecek metodolojik faktörlerden birine, manipülasyon yöntemine, odaklanması planlanmıştır. Bu tezde, çalışıp çalışmadıklarının ortaya çıkarılması için, geçmiş dehşet yönetimi çalışmalarında kullanılmış olan 3 farklı manipülasyon yönteminin test edilmesi ve birinin diğerlerinden daha iyi çalışıp çalışmadığının ortaya çıkarılması için, bu üç manipülasyon yönteminin karşılaştırılması amaçlanmıştır (N = 534). Sonuçlar, ölümle ilgili düşünceler doğrudan sorulduğunda tüm manipülasyon yöntemlerinin çalıştığını ancak dolaylı olarak sorulduğunda hiçbir manipülasyon yönteminin çalışmadığını göstermiştir. Ayrıca, manipülasyon yöntemleri arasında etkililikleri bakımından önemli bir fark bulunmamıştır. Bu bulguların olası nedenleri, mevcut çalışmanın sınırlılıkları ve gelecek çalışmalar için öneriler tartışılmıştır.

**Anahtar Kelimeler:** Dehşet Yönetimi Kuramı, Ölüm Anksiyetesi, Replikasyon Krizi

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## **ABSTRACT**

According to Terror Management Theory, awareness of being mortal is a serious anxiety trigger. Facing the inevitability of death is regarded as one of the important factors which clarify underlying reasons for human motivation. This theory has existed in social psychology literature for over 30 years and has been worked by many researchers from different countries around the world. The recent replication attempts which failed to replicate original findings created a replication crisis which makes an overwhelming impression that damages trust, especially in the social psychology world. Some results from terror management literature could not be replicated by large-scale research teams. This study was planned to focus on one of the methodological factors which may be related to failed replication attempts, which is the manipulation method. This thesis aimed at testing three different manipulation methods that were used in previous terror management research to test whether they would work and comparing these methods to if one of these methods works better than others (N = 534). The results showed that when asked directly about death, all manipulation methods worked, but when asked indirectly, no manipulation method worked. There were no substantial differences across three manipulations in terms of their effectiveness. Possible reasons for these findings, limitations of the current study, and suggestions for future studies were discussed.

**Keywords:** Terror Management Theory, Death-Anxiety, Replication Crisis

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## **LIST OF ABBREVIATIONS**

DTA	Death-Thought Accessibility
PANAS	Positive and Negative Affect Scale

# CHAPTER I

## INTRODUCTION

### 1.1 Introduction to the Thesis

Knowing the inevitability of death for each living being, individuals try to deal with it by attributing different meanings to death through their worldview. Terror Management Theory (Solomon et al., 1991) focuses on the awareness that humans have on the inevitability of death. Accordingly, terror management theory asserts that the realization of life's finiteness leads human beings to the experience of a great terror, which must be eliminated to survive (Solomon et al., 1991).

The three decades of research on terror management theory accumulated substantial evidence on the social motivational effects of death anxiety. However, more recently the effectiveness of death anxiety, but more importantly the quality of research in theory's framework has been questioned. In this "replication crisis" period (i.e., a crisis that many psychology research cannot be replicated with the same/similar effect sizes due to various practices; Yaffe, 2019). Many researchers around the world acknowledged the problem and make extensive efforts to test the replicability of some classical or influential studies (Bakker et al., 2012; Morawski, 2019; Maxwell et al., 2015; Open Science Collaboration, 2015; Rodgers & Shrout, 2018; Wiggins & Chrisopherson, 2019).

In the midst of the replication crisis, different groups of researchers from different labs tried to replicate classical manipulation and basic assumptions of terror management theory (Klein et al., 2019; Rodriguez-Ferreiro et al., 2019; Sætrevik & Sjøstad, 2019; and Wissink et al., 2016). None of these attempts successfully replicated the so-called terror management theory studies. We believe that examination of the possible reasons which are associated with the failed replication results for terror management theory findings are important for social psychology, because (1) there are substantial empirical supports for the terror management theory postulates; (2) it has provided a comprehensive explanation for human beings' social motivation (Greenberg et al., 2008) for over thirty years; and (3) the theory still attracts very much attention from different fields of behavioral and social sciences (for instance, searching "terror management theory" on Google Scholar results in

10800 results that were cited to the theory just in 2020.

The main objective of this thesis is the examination of one of the possible method-related reasons which may be related to the non-replicability of the original terror management theory findings: manipulation method. In this thesis, three different manipulation methods that are used by terror management theory researchers in previous studies will be tested in three online experiments and compared. By testing the manipulation methods, it is aimed to find out whether the manipulation methods are working. By comparing the methods, it is aimed to find out whether one manipulation method works better than the others. If one of the manipulation methods works better than others, future research can use the manipulation for online studies.

In the following sections, firstly Terror Management Theory (terror management theory) and its basic research will be discussed. Then, the replication crisis and the attempts to replicate the terror management theory will be discussed. At last, the rationale of the current study will be presented.

### ***1.1.1 Terror Management Theory***

The most dramatic reality of existence can be its nature, which is finite. Death is placed in the core of life. By means of Öktem's (2010) book, *Ölüm Kitabı*, which consists of fundamental ideas about death, it is possible to notice that many written works being ranging from early written to more currently written indicates that death and concepts about death such as the fear of death and death-related anxiety have been thought by humankind for thousands of years.

Ernst Becker (1924-1974) who is a cultural anthropologist and writes the book of *The Denial of Death* (1973) is one of the people who was influenced by the owners of those fundamental thoughts on death like Kierkegaard and Freud. In *The Denial of Death*, Backer emphasizes the role of two contradictory facts which are realizing the absoluteness of being mortal and having a strong urge not to be mortal in the motivation of humankind (Becker, 1973). According to Becker (1973), thanks to evolution, human beings have sophisticated cognitive skills, so they can engage in complicated thinking processes

differently from other living beings like nonhuman animals. It makes human beings feel as if they are supreme beings which are characterized as eternal but, also, they realize that eternity is not possible for them. This case makes the nature of being a human be full of severe terror and therefore human beings have to deal with this inherent part of their existence by means of creating some deceptions like culture. Culture provides human beings with endlessness which makes people feel that superior to nature itself. It is possible to observe the endeavor of human beings to be able to cope with existential anxiety in all of their acts which are ranging from collective to individual (Becker, 1973). It can be summarized that Becker, in *The Denial of Death*, indicates that people have a strong tendency to reject their own nature, which is inseparable from the reality of death via creating some unnatural or fictional concepts.

The thoughts of Becker (1962, 1973, 1975) play a crucial role in the development of Terror Management Theory (terror management theory; Greenberg et al., 1986; Solomon et al., 1991). Terror management theory (Solomon et al., 1991) highlights the basic similarity and difference between human and nonhuman animals. Similarly, both human and nonhuman animals have a strong tendency to protect themselves from dangers, which jeopardize their lives. Differently, only human animals are conscious about the finiteness of their lives because human animals but not nonhuman animals have higher level cognition-related characteristics which make this awareness possible. Both the intense impulse to remain alive and the cognizance of that it is impossible to survive forever pose serious anxiety, which must be extinguished for the human animal. According to the suggestions of the theory, it is possible to extinguish this drastic anxiety by means of *self-esteem* and *cultural* worldview which comprise the parts of cultural anxiety buffer (Solomon et al., 1991)

The significance of terror management theory stems from its attempt to interpret the behaviors of human beings in the social world by feeding on very rich information that comes from many different fields although there was no extensive theory in the social psychology literature at the time this theory was first created (Solomon et al., 1991). According to terror management theory, being in a struggle for death anxiety is the primary motivational root for social behaviors (Greenberg et al., 2008). There is a large amount of evidence to support that the lives of human beings are under the strong

influence of the awareness of mortality, in that, being aware of the fact that they are mortal creatures make the social behaviors of the human beings predictable in many different aspects of life such as romantic relationships (Mikulincer et al., 2004), altruism (Hirschberger et al., 2008), social curiosity (Fitri et al., 2020), and risk-taking (Miller & Taubman-Ben-Ari, 2004).

In terror management theory literature, there is an emphasis on *the dual-process model* (Pyszczynski et al., 1999) which is important to be able to anticipate what kind of output the mortality input will turn into. According to this model (Pyszczynski et al., 1999), human beings cope with the idea of mortality which results in death-related anxiety through two defensive ways which are *proximal* and *distal*. If individuals are aware of their mortality in the conscious level and/or non-subliminally exposed to death-related input, they take advantage of *the proximal defense*. In this case, individuals tend to deny their mortality directly with an effort. Individuals' tendency to change the subject while talking about traffic accidents involving death can be an instance of that. If individuals are not aware of their mortality at the conscious level, in other words, if they are unconsciously aware of their mortality, they take advantage of *the distal defense*. This condition can be regarded as the main focus of the terror management theory. In this case, individuals cannot deal with their death anxiety directly with an effort because they do not know what they will endeavor to deal with and/or subliminally exposed to death-linked input. They draw advantage from the *cultural anxiety buffer* which is proposed by terror management theory. This buffer to cope with death anxiety which is at the unconscious level of the human mind consists of being involved in cultural worldview and striving for self-esteem (Arndt et al., 1997).

#### **1.1.1.1 Importance of Cultural Worldview for Terror Management Theory.**

Although developed cognitive qualities of human beings make them vulnerable in the face of the inevitableness of mortality, they also help them to cope with that via creating a culture (Solomon et al., 1991). Greenberg et al. (1997) stated that cultural worldviews are some kind of principles which consist of the constrictions of people and sprawled by people. These principles were linked with the concept of truth which was common for people belonging to that certain culture. According to terror management theory, being involved in their own cultural worldview plays an essential role in the process of dealing



with death anxiety for individuals (Solomon et al., 1991). How does being involved in cultural worldview aid individuals overcome death-related anxiety? To answer this question, Greenberg et al. (1986) gave an example via drawing attention to the relationship between the meaning of parents for the child and the meaning of culture for adults. To clarify, children think that their parents are so powerful and they can provide security for them under all conditions. When children grow up and become adults, they start to discern that there are some inevitable facts in the world like death and their parents are not enough to protect them in the face of death. In the presence of being mortal, culture strengthens individuals. By means of culture, individuals may tend to perceive worlds as neat, have a sense of predictability regarding the world, find the world purposeful and regard the world as imprescriptible (Greenberg et al., 1986). The power of culture which makes individuals strong against mortality may emerge from its attributions which make the lives of human beings more straightforward or grounded.

Solomon et al. (1991) indicated that upholding their own cultural worldview enables individuals to have some sort of endlessness, in that, if a person maintains his/her cultural worldview, s/he can reach two types of immortality, which are *literal* and *symbolic*. Some cultural values such as religious beliefs make people think that there is no exact mortality, in that, even if individuals' physiological functions stop and their existence in the world ends, it is believed that there is life after death so there is no complete annihilation. That can be regarded as an example of literal mortality which was provided by being involved in cultural worldview. Immersing themselves in their own cultural worldview makes individuals think that they are members of precious integrity and this membership makes the death of an individual insignificant owing to its inclusive transcendence.

There are empirical studies that provide evidence to support that faith in cultural worldview has a considerable role to deal with death anxiety. The study of Pyszczynski et al. (2006) is one of them which emphasizes the importance of cultural worldview in the context of coping with mortality. In their first study, the sample consists of college students from Iran. The students are exposed to death reminder or control conditions via random assignment method. All students read two different texts. One of them gives countenance to a martyrization-related act of violence toward the United States and the other indicated

the exact opposite of that. When asked which text they support, students from the death reminder condition choose text which vindicates martyrization-related act of violence but students from the control condition choose text which does not vindicate that. Making death salient increases individuals' support towards martyrization-related acts of violence because martyrdom is a concept that is directly linked with immortality so this increase can be regarded as some kind of buffer towards the reality of being mortal. In the second study, the participants are composed of college from America. Like in the first study, students, randomly, are assigned to death reminder and control conditions. The participants are presented with some statements about defending the United States through cruel martial ways even if this case results in the death of a crowded civilian population and it is asked participants to indicate to what extent you agree with these statements. Unlike the first study, in this study, the political orientations of the participants are measured. The result shows that both being in death reminder condition and having conservative political orientation results in being supportive of the severest military lunge although it causes the death of many innocent people. Making death salient increases conservative-oriented individuals' supportiveness towards country protective military acts which can bring about terrifying results for innocent people because their country is likely to provide that individuals with some kind of eternity so they can run the risk of the death of innocent civilians to defend their own country. The research of Pyszczynski et al. (2006) is important because, by means of two studies, it highlights that reminding individuals of their mortality influences their opinions in conformity with their cultural worldview although this influence makes their opinions considerably extreme.

The research of Greenberg et al. (2001) emphasizes the relationship between making mortality salient and discrimination based on skin color. More specifically, it remarks that making mortality salient increases the favorableness of individuals towards their ingroup. This research consists of three studies and all participants have a white skin color. According to study one and study two, when an individual with white skin color and an individual with black skin color mention that they are proud of their own race in a brief text, being in the condition of mortality salience makes participants (who have white skin color) perceive the individuals with white skin color as favorable and regard their racial segregation as less. In the condition of control which does not include mortality reminder, the opposite of this case emerge, in that, in the control condition, participants tend to do

approach to individuals with black skin color positively and regard their racial segregation as less. According to study three, if mortality is made salient, participants regard the racism degree of an individual with white skin color as too little although their racism degree is considerably high. In a similar vein with the above-mentioned result, the opposite of this case emerges in the control condition. The findings of (Greenberg et al. 2001) are important because they emphasize that people have a strong tendency to develop faith in the values which make themselves and develop a negative attitude toward others in the face of mortality. It can be suggested that individuals who have different worldviews than them create a problem for human beings in the face of death because the existence of different worldviews may wreak damage on their own realities and human beings need to root their realities which are associated with their cultural worldviews when they face with death so negativity against dissimilarities can be some kind of validation effort for human beings to protect their own realities (Greenberg et al., 1997).

**1.1.1.2 Importance of Self-Esteem for Terror Management Theory.** It can be remarked that terror management theory is a self-esteem focused theory because it is an attempt to make sense of the social behaviors of human beings in the light of why individuals are in a strong need of self-esteem (Greenberg et al., 1986). Terror management theory claims that individuals can deal with death-related anxiety to increase their own self-esteem (Solomon et al., 1991). To explain how death anxiety can be overcome by means of reinforced self-esteem, Greenberg et al. (1986) focus on the relationship between conditionality of parents' positive attributions to children and conditionality of cultures' positive attributions to adults. To clarify, when a child starts growing, s/he notices that her/his parents provide her/hem with positive attributions such as caring and protection as long as they comply with the rules which are established by their parents, in other words, benefiting from positive aspects of having a parent depend on behaviors of the child which is accepted by her/his parents. It can be claimed that if a child regards herself/himself as good or acceptable, s/he also regards herself/herself as being deserving of positive results, and if a child regards herself/herself as bad or unacceptable, s/he also regards herself/himself as beings deserving of negative results. Greenberg et al. (1986) suggest that this case clarifies why individuals have a strong need to perceive themselves as significant, in other words, it answers the question of "why does having self-esteem is important for individuals?" possible. Having self-esteem enables individuals to

deal with negative aspects of being alive that pose a terror; being mortal.

As stated by Greenberg et al. (1986), death-related terror alleviator function of having self-esteem based on whether (1) individuals believe in culture and (2) individuals perceive themselves as valuable in the eyes of this culture. Culture provides individuals with the reality that strengthens individuals against existential problems and leading a life consistent with this reality makes individuals feel that their self is vulnerable. In accordance with the terror management theory, the existence of self-esteem is directly linked with culture. It is impossible to mention the concept of self-esteem without mentioning culture because individuals are able to perceive themselves as worthy after they assess to what extent they fulfill the norms which were determined by culture. Individuals can decide “what is good/bad?” or “what will make them feel valuable/worthless?” by means of standards set by culture? (Greenberg et al., 1986; Pyszczynski et al., 2003).

Some researches focus on revealing death anxiety decreasing the role of self-esteem. The research of Harmon-Jones et al. (1997, study 1 & study 2) highlights that high self-esteem alleviates defensive reactions of individuals against being mortal. In the first study, researchers manipulate half of the participants to have high self-esteem by means of positive feedback about a task that is completed by them individually. For the other half of the participants, the nature of the feedback is neutral. After participants are manipulated with death (or control), it is concluded that individuals from high self-esteem manipulation condition show less defense than individuals from other condition. In the second study, the self-esteem level of participants is measured and only participants with high or moderate levels of self-esteem are accepted for the study. The result of the study is consistent with the first study, in that, inducing death manipulation (or control) brings about less defensiveness. This research (Harmon-Jones et al., 1997) is important because it provides strong evidence to support that self-esteem bolstered through manipulation or boosted by itself can be regarded as death-anxiety soothing.

The study of Goldenberg, McCoy et al. (2000) interested in whether making mortality salient increase individuals' concern regarding self-esteem strengthening or reducing sources for them. The first study remarks that if individuals have high-level

esteem regarding their own body, this case results in the increment of body-linked identification when they are manipulated into death. The second study states that making mortality salient raises the interest of individuals regarding the physical aspect of sexual intercourse for individuals with high-level esteem regarding their own bodies. The third study highlights that if individuals have some kind of beliefs about physical aspects of body and appealingness are integral in terms of the sense of self and perceive herself/himself as inadequate in terms of meeting that beliefs, being manipulated into mortality result in a decline about controlling their physical appearance when they are induced by mortality salience. This research (Goldenberg et al., 2000) shows that mortality salience increases individuals' sensitivity about concepts which are regarded as self-worth resources for them, in that, when individuals face death, they tend to come close to self-esteem elevatory roots and tend to move away from self-esteem impairing roots.

#### **1.1.1.3 Importance of Close Relationships for Terror Management Theory.**

The concept of close relationships was not presented at fundamental terror management theory articles as one of the critical death anxiety shielders like cultural worldview and self-esteem (e.g. Greenberg et al., 1986; Solomon et al., 1991). In consideration of many findings, however, it is possible to claim that close relationships have an important function which enables individuals to deal with the anxiety of being mortal (Plusnin et al., 2018; Cox et al., 2019).

The importance of close relationships for human beings through underlying that close relationships are critical in increasing the chances of individuals to overcome survival-directed and reproduction-directed problems are stressed from the perspective of *Evolutionary Theory* (Buss & Schmitt; 1993; Pillsworth & Haselton, 2005). Death-anxiety alleviator aspects of close relationships can be comprehended by means of approaching close relationships from the context of Bowlby's *Attachment Theory* (Mikulincer, 2018). *Attachment Theory* suggested that the quality of close relationships which is established with the infant's caregiver play a vital role in the life experience of the infant, in that, the ability to cope with stress-related struggles is directly linked with this relationships, in that, the infant is able to learn how to deal with stress by the aim of this relationship (Bowlby, 1969). The relationship between the caregiver and the infant (where needs are met and

where relief is provided for the infant) is always needed by individuals and when the infant grows up, a similar version of that relationship is established with a romantic partner (Hazan & Shaver, 1987). Also, all of them make the investigation of whether romantic relationships can be regarded as a death-anxiety buffer important for terror management theory literature.

The research of Florian et al. (2002) provides evidence to support that a romantic relationship can act as a death-anxiety alleviator. Their research consists of three studies. Participants of the three studies consist of individuals who are currently in a romantic relationship. The first study indicates that being manipulated into death makes individuals more committed to their romantic partners in comparison with control conditions. The second study remarks that if individuals are induced to think about their commitment towards their romantic partners, this case results in fewer cultural worldview-related defense which is suggested to be linked with alleviating death-anxiety (Greenberg et al., 1989) than the control condition. The last study shows that making individuals think of thoughts that are detrimental to their commitment such as problems in the relationships increase their accession of death-related cognitions by comparison with control groups. All of these findings highlight that individuals benefit from close relationships to deal with their mortality.

By means of their research, Cox and Arndt (2012) show that (Study 2) emergency of death anxiety buffer aspect of close relationships is based on the subject of the close relationship, in that, only the close relationship which is established by a romantic partner is able to protect individuals from death anxiety. This finding emphasizes the importance of romantic relationships in the terror management theory context.

**1.1.1.4 Hypothesis of Terror Management Theory.** It is claimed that testing the terror management theory is possible through three hypotheses. These three hypotheses are *mortality salience hypothesis*, *anxiety buffer hypothesis*, and *death-thought accessibility hypothesis* (Schimel et al., 2019; Plusnin et al., 2018; Pyszczynski et al., 2015)

Firstly, *the mortality salience hypothesis* means that the induction of death-related

concepts increases the tendency of individuals to approach structures which are helpful to deny or overcome mortality. More specifically, with the pre-acceptance that culture and self-esteem play an active role in dealing with death anxiety, it can be hypothesized that facing with death will make individuals committed to their own cultural worldview and looked for ways to enhance their own self-worth (Burke et al., 2010; Plusnin et al., 2018).

Secondly, the *anxiety buffer hypothesis* means that the consolidation of structures that enable individuals to tackle death anxiety catalyzes the process of dealing with death anxiety. To clarify, with the pre-acceptance that culture and self-esteem play an active role in dealing with death anxiety, it can be hypothesized that the strengthening of individuals' faith on their own cultural worldview and boost of individuals' self-worth will result in an efficient death denial or preserve individuals from death anxiety (Plusnin et al., 2018; Schimel et al., 2019).

Lastly, the *death-thought accessibility hypothesis* means that threats to structures that efficiently make overcoming death-related anxiety possible bring about higher death-relevant cognitions. To make it clear, with the pre-acceptance that culture and self-esteem play an active role in dealing with death anxiety, it can be hypnotized that the undermining of individuals' own cultural worldview and damaging to individuals' self-worth will give rise to an increase in the access of death-associated cognitions (Plusnin et al., 2018; Schimel et al., 2019).

### ***1.1.2 Replication Crisis in Psychological Science***

In the history of psychological science, some crisis-like cases bring the trueness of psychological findings into disrepute (Pashler & Wagenmakers, 2012; Rodgers & Shrout, 2018; Shrout & Rodgers, 2018; Stroebe, 2019). Although the field of psychological science is familiar with situations that decrease the credence of individuals about psychological findings, the most recent case is "replication crisis" (Rodgers et al. 2018). The research experience of Brian A. Nosek and Matt Motyl which stated in the work of Nosek et al. (2012) can be regarded as one of the important steps which make the concept of replication a currently focused issue. As it is stated by Nosek et al. (2012), these two researchers and their lab members run a study which provides strong evidence which is

consistent with the current literature but the strangeness of their finding makes them think that they need to replicate their study. The result of their replication study provides an exactly conflicting finding with their original study. This case makes the researchers question many notions that are dominant in the scientific world. Whether the number of publishing is worthier than the trueness of publishing and whether researchers should pay regard to reach truth or what requested from them although the focus of the requests is not truth but being novel are some of that notions. Nosek et al. (2012) argue that the strong encouragements, which are ranging from earnings to name, for novel findings rather than attempts to verify existing findings make the importance of replication studies for science unworthy and make the consideration of the possibility of publishing researches preponderate over the testing of the accuracy of the research findings.

Along with the important role of encouragement in the underestimation of replication which is important to be able to mention the scientific value of research (Rosenthal & Rosnow, 1984), Nosek et al. (2012) emphasize the cruciality of being accountable for the good of science. According to Nosek et al. (2012), bolstering the scientific value of research is possible by means of making the access of (1) data which is collected in the context of the research, (2) materials which are used in the research, and (3) workflow which is pursued while running the research should be open. Also, they present the website of *Open Science Framework* ([www.openscienceframework.org](http://www.openscienceframework.org)) as a useful opportunity for researchers in order that they are able to accomplish the above-mentioned open research procedure besides other opportunities.

Open Science Collaboration (2012) is convened to realize *The Reproducibility Project: Psychology*, which is based on voluntariness. The constitution of this project is fulfilling the need of well-attended teamwork to be able to run a high number of replication studies which are important to have a claim about the possibility of the replication of a finding in accordance with the procedures of being accountable while pursuing science (Open Science Collaboration, 2012). The set studies of Open Science Collaboration (2015) that are run by the effort of 270 researchers in an attempt to replicate 100 studies which are selected from three psychology journal provide evidence to regard the concept of replication as a crisis for psychology because the result of the study claim that the replicable studies are composed of 36% of the selected studies.



Like *The Reproducibility Project: Psychology*, *The Many Labs* is another comprehensive project with the focus of replication (Christensen & Miguel, 2018). Although both are interested in replication and trustworthiness of science, they differ from each other in term of methodology, in that, the results of *The Reproducibility Project: Psychology* team are gained via the replication effort of only one lab but the results of *The Many Labs* team via the efforts of many different labs (Forsell, 2019). Through The Many Labs 1, whether 13 studies from the psychology literature can be replicated or not is tested and the result which is obtained from 6344 participants highlights that unreplicable studies are composed of 3 of all studies (Klein et al., 2014). In The Many Labs 2, the replication of 28 psychology studies was conducted with the participation of 15305 individuals, and the result remarks that replication of half of the studies results in failure (Klein et al., 2018). The project of The Many Labs 3 which is an attempt to examine the replicability of 10 psychology findings remarks that 3 of the all tested findings can be regarded as replicable but the other 7 are not (Ebersole et al. 2016). With the aim of the attempt of The Many Labs 4 (Klein et al., 2019), it is emphasized that obtaining results of the original studies thorough replication attempts can result in failure although the researchers of the original study are involved in the attempt by their research-related recommendations.

**1.1.2.1 Terror Management Theory in Replication Crisis.** The impact of the replication crisis makes many researchers encourage examining the replicability of high impact psychology experiments including experiments of terror management theory. Sætrevik and Sjøstad (2019) are one of them. The research of Sætrevik and Sjøstad (2019) consists of two different studies to replicate the influence of making death salience on individuals both directly and theoretically. The sample of the first study, which is conducted in the lab environment, includes Norwegian individuals. The sample of the second study, which is conducted online, includes American individuals. Through the research, (experiment 1 and experiment 2) whether being exposed to death increase individuals' patriotic tendency, (experiment 1) whether being exposed to death increase the tendency to support the prevailing opinion in individuals' country (e.g. being democratic for Norwegian), (experiment 2) whether being exposed to death increase the tendency to integrated with their ingroup identity and (experiment 1 and experiment 2) whether being exposed to death increase individuals' philanthropy tendency, (experiment 1) whether being exposed to death increase the time needed by individuals to react death-related

stimuli, (experiment 1) whether being exposed to death is associated with higher negative feeling-related outcome (e.g. low level of “*heart rate variability*” which is suggested as the indicator of negative feelings) than other condition are tested in experimental designs. After death manipulation, the increase in those points means terror management theory is confirmed. To clarify the manipulation procedure, while the mortality salience condition is presented with two death-related questions (e.g. “*Briefly describe what feelings the thought of your own death arises in you*”, “*Continuously write down what you think will happen to you when your body dies, and after the body is dead. Be as specific as you can*”) with a space to answer that, the control condition is presented with the same questions pertaining to dental pain. The studies are in conformity with the necessities of openness in the research process. Neither the first study with 101 participants nor the second study with 784 participants is able to replicate the anticipated effect for the terror management theory context. Interestingly, the results of the philanthropy tendency indicated a finding that contradicts the terror management literature. Norwegian individuals’ philanthropy-related inclination increases when they are manipulated into death but this increase does not have statistical significance. American individuals’ philanthropy-related inclination decrease when they are manipulated into death.

Another attempt to replicate findings from the terror management theory context comes from The Many Labs 4 (Klein et al., 2019). This research effort is conducted with the help of 21 different labs to examine whether experiment 1 of the Greenberg et al. (1994) can be replicated. In experiment 1 of the Greenberg et al (1994), which was intended to replicate, whether the manipulation of mortality salience is not easy to recognize (or very obvious) and whether the subject in the manipulation of death is the participant’s own (or participant’s loved one) play an important role in the expected terror management effect, which is a more positive evaluation of the essay praising their own country (than disparaging their own country) and the authors of these essay (than the author of the other essay, who have negative opinions towards participant’s own country) are examined. The original experiment consists of 5 conditions (not obvious, or as in the original study “subtle”, death manipulation for participants’ own/participants’ loved one, and very obvious death manipulation for participants’ own/participant’ loved one, and one adaptation of the “subtle” death manipulation technique to watching TV). The results of the original study indicate that although both mortality salience conditions provide

evidence to support that mortality salience manipulation result in higher cultural worldview defense if the subject of the death manipulation is the participant's own (instead of their loved one) and the manipulation technique includes not detailed death-related context (instead of very obvious), the observed the terror management theory effect is stronger. Also, the observed terror management effect is stronger in the positive evaluation of the author of the essay (instead of the essay itself) that supports the cultural worldview of the participants.

In the replication study (Klein et al. 2019), the researchers try to replicate the original study through the manipulation method dependent variable, which provides stronger evidence to defend the theory. In the replication attempt (Klein et al., 2019), participants in the mortality salience condition are presented with two questions as mortality salience manipulation (e.g. *“Please briefly describe the emotions that the thought of your own death arouses in you”*, *“Jot down, as specifically as you can, what you think will happen to you physically as you die and once you are physically dead”*). Participants in the control condition are presented with the same questions with TV watching. Then, it is wanted to evaluate the authors of two different essays, one of which supports the participants' cultural worldview and the other does not.

In the replication attempt (Klein et al., 2019), the labs are divided into two groups with random order and one of the groups receive the recommendations of the authors of the experiment that they are trying to replicate but the other group does not receive any advice from anyone about the conduction of the experiment. The reason for that procedure is revealing whether the involvement of the authors of the replicated experiment brings about any difference or not. The result of the study indicates that the attempt which is made with 2220 participants fails at replicating original findings and whether or not recommendations from original authors are received does not change the outcome of failure.

There are some critiques for the failed replication attempt of Klein et al. (2019). Chatard and colleagues (2020) suggest that the failure of Many Labs 4 researchers' attempt to replicate one of the basic terror management theory findings can be explained by their lack of success in conforming to their pre-registered criteria in terms of sample size and

participant exclusion, in that, Klein et al. (2019) include some labs' data and data of some participants in the analysis although they do not satisfy the pre-registered criteria. When Chatard et al., (2020) re-analyzed the data of Many Labs 4 after following the criteria that is stated in the pre-registration page of the replication attempt, they found that the attempt of Many Labs 4 to replicate one of the basic findings of terror management theory results in success.

In another research, Rodríguez-Ferreiro et al. (2019) made an endeavor to replicate the second experiment of the study of Goldenberg et al. (2001). In the study which is tried to be replicated (Goldenberg et al., 2001), the researchers focus on whether mortality salience manipulation increases individuals' tendency to regard themselves different from other animals to deny the finitude of their existence. In the mortality salience condition of that study, the manipulation method which was mentioned above (two open-ended formatted questions about physical and emotional aspects of the individual's own death) is used. In the control condition, the same questions with tooth-related pain are used. Then, all participants are presented with two essays which were written by different authors. One of the essays emphasized the similarity of human beings with other animals, while the other emphasized the uniqueness of human beings. It is wanted participants to evaluate the authors of these essays. The result of the study indicates that making death salience makes individuals evaluate the author of the essay that highlights the distinctiveness between human beings and other animals more positively than the essay that highlights the opposite.

In the replication attempt of (Rodríguez-Ferreiro et al., 2019), the same manipulation method with the original experiment is used. As a dependent variable, only the essay which consists of ideas that stress the uniqueness of human beings is used. The result of the replication research with 128 participants reveals that the finding of Goldenberg and his colleagues' experiment 2 (2001) is not replicable.

Lastly, Wissink et al. (2016) tried to replicate one of the findings which emphasize the role of close relationships in the terror management context. Their attempt includes the direct replication of the 6. experiment of the study of Cox et al. (2008). In that experiment, the researchers focus on the role of attachment styles in individuals' motivation when they

confront their mortality so they, firstly, measure the attachment styles of the participants. Cox et al. (2008) used the same open-ended death-related questions which were mentioned above to manipulate individuals into death. In the control condition, like in the above stated, the same open-ended question with tooth-pain is used. As a dependent variable, participants are presented with an instruction. In this instruction, they are asked to imagine that they have 100 minutes that they can use to call four people (e.g. “*parent, sibling, romantic partner, and a close friend*”). Participants are asked to indicate how they want to divide these 100 speaking minutes between these four people. The idea is that if a participant divides the most minutes to whom, s/he needs her/him the most to overcome death anxiety. The results indicate that attachment style is important to anticipate participants’ minute division if they are exposed to mortality salience manipulation. Having a secure attachment style is related to dividing more minutes to romantic partner in the face of death. Having an anxious attachment style is linked with the allocation of more minutes to parents in the face of death. Also, if participants have an avoidant attachment style, death manipulation does not increase their tendency to divide more minutes to people from one of the four categories (Cox et al., 2008). In their replication attempt which was made by the participation of 200 individuals, Wissink et al. (2019) acted according to the method of the original experiment. However, the replication attempt results in failure.

### ***1.1.3 Current Thesis***

By means of terror management theory, the literature of social psychology becomes acquainted with the concept of death, so it is possible to think that it is a valuable theory for social psychology (Greenberg & Arndt, 2012). Another importance of the terror management theory for social psychology comes from that it provides a comprehensive explanation for the motivation of human beings (Greenberg et al., 2008). Lastly, the theory still gets lots of citations and there are substantial numbers of research on the terror management theory. Thus, it is important to investigate if there are successful manipulation methods to support terror management theory, even the recent attempts to replicate findings of the theory could not succeed (Klein et al., 2019; Rodríguez-Ferreiro et al., 2019; Sætrevik & Sjøstad, 2019; Wissink et al., 2016). The replication attempts which result in failure bring about a strong need for the examination of the possible reasons for these failures and whether there are beneficial ways to prevent terror management theory

studies from these possible reasons. This examination is vital to the future of terror management theory because drawing a conclusion regarding terror management theory appears to be contingent upon detection and elimination of these possible reasons which cause failed replication efforts.

Hauser and colleagues (2018) emphasize that attempts which result in the failure of replicating original findings increase the focusing on open science-related and statistical concerns, but focusing on research methodology-centered concerns that may cause failed replication is unsatisfying. In consideration of this determination, the current study aims at focusing on one of the methodology-based issues of terror management theory: which experimental manipulation(s) of mortality salience is effectively working. The main reason for this attention towards manipulation is, as it is highlighted by Rubin (1986), the vital role of benefiting from manipulation to be able to establish cause and effect relationship in research with experimental designs.

In terror management theory studies that have an experimental design, many techniques are available to manipulate participants into death (Cox et al., 2019). The meta-analysis of Burke et al. (2010) emphasizes that one of these techniques is more preferred than others by researchers. Rosenblatt et al. (1989) can be regarded as the pioneers of using this manipulation method in terror management theory studies. In this manipulation method, participants presented with two questions that aim to make participants focus on some aspects of death and two blanks to answer these questions. The nature of these questions is open-ended, in that, participants can answer these questions as they wish, with their own sentences without any restraint.

In this study, the examination of whether all of the manipulation techniques successfully work and whether one of these manipulation methods works best in terms of making mortality salient in order to reveal inoperative methods for mortality salience and recommend manipulation that works best (if any). The method which is highly popular among terror management theory researchers (Burke, 2010) is not chosen as one of the techniques to test and compare with other techniques, because it is the manipulation method of the recently conducted, replication studies which result in failure to support findings from terror management theory literature (Klein et al., 2019; Rodríguez-Ferreiro

et al., 2019; Sætrevik et al., 2019; Wissink et al., 2016).

The first manipulation method is selected from the study of Cox et al. (2009). In this study, researchers indicate that (study 1) reading an article which emphasizes that having tanned skin is linked with being allured increases women's aspiration of suntanning if they are exposed to mortality salience manipulation. In the same vein, if the article stresses that having pale skins is associated with being allured, this case results in a decrease in women's aspiration of suntanning when they are manipulated into death. Also, (study 2) women working on the beach give preference to sunblock that provides higher sun protection if they are both exposed to death manipulation and reading articles, which gives point to close relationships between having pale skin color and being allured. The manipulation method which is used in the study (Cox et al., 2009) consists of Templer's Death Anxiety Scale (1970). In the mortality salience condition, it is wanted participants to complete that scale, which consists of 15 death-related sentences by indicating it is "true" or "false" for them. In the control conditions, there is the adaptation of the same sentences to public speaking.

The second manipulation method is selected from the study of Kesebir et al. (2014). This study consists of 4 experiments but the selected manipulation method is used in the first two experiments of the study. Experiment 1 indicates that having the quality of being humble in the high level protects individuals from "*self-serving moral disengagement*". The experiment 2 remarks that when individuals are manipulated into death, their level of humbleness plays an important role in the existence-related anxiety which was experienced by them, in that, if individuals have a low level of humbleness, death-related stimulus brings about more existence-related anxiety and if individuals have a high level of humbleness, death-related stimulus brings about less existence-related anxiety. Moreover, after the control of some characteristics, which may be related to this finding, the same finding is obtained. The manipulation method which is used in the study (Kesebir, 2014) includes searching 3 images on the internet and pasting their addresses to the relevant blanks. In the mortality salience condition, participants are asked to search for three "*graveyard*" images. In the control condition, participants are asked to search for three "*mug*" images.

The third manipulation method is selected from the study of Luo et al. (2014). This study which approaches terror management theory from the neuroscience perspective asserts that making mortality salient results in diminished activity in the brain regions, which are associated with other individuals' painful experiences. The manipulation method which is used in the study (Luo et al., 2014) consists of priming. In the mortality salience condition, 28 sentences regarding death appear on the screen of the participants, one by one, for 7 seconds and disappear. It is wanted participants to press the right or left button on the screen to indicate whether they agree or disagree with the target statement. In the control condition, the only change is in the content of the sentences that appear and disappear on the screen, in that, the sentences are regarding "*negative emotions*" and "*anxiety*". Twenty-eight words about death appear on the screen of the participants one by one for a few seconds and disappear.

It is hypothesized that death-thoughts and death-thought accessibility scores of individuals from mortality salience conditions will be higher than individuals from control conditions in all three manipulation methods.

There is no hypothesis about which manipulation will work best or whether one manipulation will work better than others. The effectiveness of three different manipulation methods will be compared as an exploratory analysis.



## CHAPTER II

### METHOD

#### 2.1 Procedure

We tested and compared three mortality salience manipulations (Cox et al., 2009; Kesebir, 2014; and Luo et al., 2014) in this study. As a first step of the experiment, the approval of the research ethics committee was received. Three of these experiments were formed in Qualtrics and one link was created. Once the participants accepted the informed consent they were randomly assigned to one of the experiments. After the participants were assigned into an experiment, they were again randomly assigned to either mortality salience or control conditions. The experiment lasted around 15 minutes for all participants in all experiments. Once the tasks in the manipulation or control conditions were completed, all participants completed the delay/distraction tasks and manipulation check questions. Then, the participants were asked to participate in another study that investigates their judgments about some vignettes depicting moral transgressions<sup>1</sup>. At the end of the survey participants were debriefed. The flow of the current study is available in Figure 1.

##### *2.1.1 Manipulation Methods*

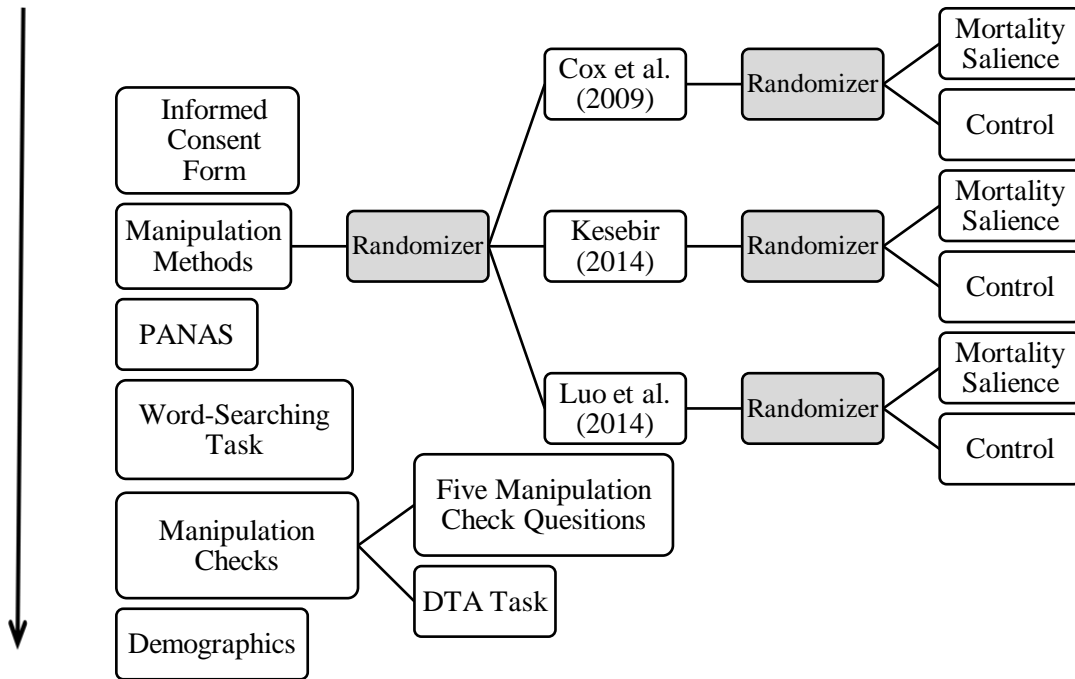
Considering the sample size that we can access within the scope of the study, we decided to work on three manipulation methods. While selecting the manipulation methods, we reviewed the mortality salience manipulation methods used in the recent TMT literature. First, we gave importance to the fact that these methods are not similar to each other. We thought that comparing methodologically different methods of manipulation would help us better understand which types of manipulations are more effective at manipulating death. Secondly, while we chose the manipulation methods, we took into consideration whether the method can be applied online. The methods were listed in alphabetical order of the authors of the original studies. Below we described each experimental method in detail (See figure 2 for manipulation methods and brief information regarding them).

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<sup>1</sup> The data of this second part was not analyzed within the scope of this thesis.

**Figure 1**

*The flow of the Current Study*



**2.1.1.1 The Manipulation Method of Cox et al. (2009).** This manipulation method consisted of one mortality salience and one control condition. Participants were randomly assigned to the conditions. In the mortality salience condition, participants were presented with the *Death Anxiety Scale* which was developed by Templer (1970). This scale consisted of 15 statements (e.g., “*I dread to think about having to have an operation*”, “*I am often distressed by the way time flies so very rapidly*”, “*The sight of a dead body is horrifying to me*”). Participants were asked to indicate whether the target statement was “true” or “false” for them (See the items in Appendix A). Turkish adaptation of this scale is prepared by Şenol (1989). In the control condition, we asked participants to respond to 15 statements on making a public speech in the same way the participants did in the mortality salience condition. These statements were adapted from the Templer’s *Death Anxiety Scale* (1970) (e.g., “*The sight of a crowded audience is horrifying to me*”, “*I dread to think about having to give a speech in front of the audience*”, “*I often think of how difficult it is to impress the audience*”) by the author of this thesis with collaboration with the supervisor and another colleague.

**Figure 2**

*Manipulation Methods and Brief Information regarding Them*

Cox et al. (2009)	Kesebir (2014)	Luo et al. (2014)
<ul style="list-style-type: none"> <li>• <b>Mortality Salience</b> Completing Templer’s Death Anxiety Scale (Templer, 1970)</li> <li>• <b>Control</b> Completing adaptation of the Templer’s Death Anxiety Scale (Templer, 1970) to public speaking</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Mortality Salience</b> Searching three “GRAVEYARD” images on the internet and copying their link to relevant spaces</li> <li>• <b>Control</b> Searching three “MUG” images on the internet and copying their link to relevant spaces</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Mortality Salience</b> Being exposed to 28 death-related statements appearing on the screen one by one and short period of time</li> <li>• <b>Control</b> Being exposed to adaptation of 28 statements mentioning in the manipulation condition to negativity appearing on the screen one by one and short period of time</li> </ul>

**2.1.1.2 The Manipulation Method of Kesebir (2014).** Similar to the manipulation of Cox and colleagues (2009), the participants were randomly assigned to either mortality salience or control conditions. First of all, all participants were presented with an instruction. The instruction stated that a word would come to the screen of the participants. Then, they were asked to search three different website links on the internet and find images that visually depicted the word they were presented. The participants had to copy the links of the image they have found and paste them into the survey. For the experimental condition, The word in the experimental conditions was “GRAVEYARD” and in the control condition, it was “MUG” (See Appendix A for the materials and instructions).

**2.1.1.3 The Manipulation Method of Luo et al. (2014).** Similar to other manipulations, the participants were randomly assigned to experimental and control conditions. In the experimental condition, participants responded to 28 statements related to death (e.g., “I feel suffering that I cannot escape from death”, “I feel anxious when thinking about the day when I die”, “Death would stop my blood flow and my organs would not operate anymore”). Each statement was programmed to appear on the screen for 7 seconds and then to disappear. Participants were asked to indicate either they were “agree” or “disagree” with the statements in the given 7 seconds. In the control condition,

all processes were the same as the experimental condition with the exception of the contents of the statements. In this condition, the 28 statements represented negativity-related feelings (e.g., “I am in despair about life”, “I am always discomposed about matters in life”, “I feel suffering that I cannot escape from life”). You can see all materials in Appendix A.

### ***2.1.2 Delay and Manipulation Checks***

After participants completed their tasks related to mortality salience or control conditions, they were directed to the delay and manipulation check tasks. To provide delay and to distract the participants we used both the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) and the Word-Searching Task (Doğulu, 2012). Then, participants completed two manipulation check tasks. We used Five Manipulation Check Questions (Chen et al., 2019; Lou et al., 2014) and the measurement tool of Death-Thought Accessibility (DTA) (Greenberg et al., 1994) to test if the manipulations were effective. You can see all the material in Appendix A and see the details in the Measures section.

## **2.2 Measures**

After participants completed the required tasks in mortality salience manipulations and control conditions they completed the PANAS, word-searching task, five questions about the manipulations, DTA, demographic questions (See in Appendix A).

### ***2.2.1 Demographic Questions Form***

In the form of the demographic questions, we asked participants to indicate their date of birth, sex, educational and employment status, monthly income, their mother’s educational status, perceived socioeconomic status, and their religious and political orientations.

### ***2.2.2 Positive and Negative Affect Scale (PANAS)***

We used the Positive and Negative Affect Scale (PANAS; Watson et al., 1988;

adapted into Turkish by Gençöz, 2000) as a delay tool and to test the affective state of the participants (Cox et al., 2009; Wisman & Goldenberg, 2005). Delay is needed in terror management theory research because the emergence of the mortality salience effect is related to pushing death-related thoughts out of conscious awareness (Greenberg et al., 2000; Greenberg et al., 1994; Pyszczynski et al., 1999). By means of measuring affect, the possible affect-related difference between mortality salience and control conditions that stem from experimental manipulation can be found out (Cox et al., 2009). PANAS is composed of 20 adjectives. 10 of these adjectives have positivity-related feelings (e.g., “Proud”, “Attentive”, “Inspired”). The other 10 of these adjectives have negativity-related feelings (e.g., “Jittery”, “Irritable”, “Distressed”). Participants rated the adjectives on a 5-point Likert type scale (“1” was “a little” and “5” was “extremely”). Both positive affect (Cronbach’s  $\alpha = .83$ ) and negative affect (Cronbach’s  $\alpha = .86$ ) found to be reliable.

### **2.2.3 Word-Searching Task**

Although using only PANAS as a distraction task to elicit the mortality salience effect would be enough (Routledge & Arndt, 2008), the meta-analysis of Burke and his colleagues (2010) highlighted that prolonging the duration of delay is linked with strengthened mortality salience effect. Thus, we added Word-Searching Task, a second distraction task, which was also used by Cox et al. (2008), Cox et al. (2009), and Kesebir (2014). The Word-Searching Task was developed by Doğulu (2012) and adapted to be used in online experiments and shortened by Kısa (2015). It was composed of a 12 x 12 anagram puzzle. Seven words were randomly hidden in the word template. The list of these 7 words was presented to the participants. The participants were asked to indicate the coordination of each word via options such as “from left to right” or “from top to bottom”. Participants have 5 minutes to complete the task. If they couldn’t finish the task in 5 minutes the survey automatically proceeded to the next task. End of the task, the participants reported how difficult the task was on a 9-point scale (“1”: “very easy”, “9”: “very difficult”).

### **2.2.4 Manipulation Checks**

In this study, two different manipulation checks were used as two different

dependent variables of the study: Five Manipulation Check Questions (Chen et al., 2019; Lou et al., 2014) and Death-Thought Accessibility (Greenberg et al., 1994). We used two checks because we wanted to see both conscious and unconscious effects of the manipulation methods on individuals.

**2.2.4.1 Five Manipulation Check Questions.** We presented 5 questions that Luo et al. (2014) and Chen et al. (2019) used in their studies to check if the mortality salience manipulations lead to higher death accessibility compared to control conditions. Three of the questions were related to death-related thoughts (e.g., “*How close do you feel to death after reading all the sentences and making your judgments?*”) and one question assessed annoyance (“*To what extent did you think of your unpleasant feeling after reading all the sentences?*”), and the last question measured fear (“*How fearful do you feel about death after reading all the sentences and making your judgments?*”). Participants rated the scale on a 10-point Likert-type scale (“1”: “*not at all*”, “10”: “*very much*”).

**2.2.4.2 Death-Thought Accessibility (DTA) Task.** Death-thought accessibility (DTA), the method of Greenberg et al. (1994; adapted into Turkish by Doğulu, 2017), is used as the second manipulation check and dependent variable. In this task, participants were asked to complete the missing letters of 25 different words. Eighteen of the words with missing letters could be completed by letters which create death-free words. On the other hand, seven of the words with missing letters could be possibly completed by letters to create both death-free and death-related words. To illustrate, it was possible to complete the word with missing letters (e.g., *c o f f \_ \_*) both death-free (e.g., *c o f f e e*) and death-related (e.g., *c o f f i n*) words. For control conditions of the manipulation methods, it is expected that less death-linked word completing than mortality salience conditions.

## **2.3 Participants**

### **2.3.1 Determination of Sample Size**

To determine the required sample size we estimated the effect size in Luo et al. (2014) as Cohen’s  $d = .79$ . To detect the estimated effect size with the .05 alpha level and 95% power, the analysis with GPower recommended 48 participants per cell. Because the

recent replication attempts of terror management theory failed, we rerun the power analysis for Cohen's  $d = .50$ . The minimum sample size was 105 participants per cell to detect .50 effect size in .05 alpha level and 95% power. Thus, we aimed to recruit at least 630 participants for three mortality salience and three control conditions.

### ***2.3.2 Participant Recruitment***

We distributed the study link on bulletin boards and in different non-psychology classes at the Başkent University. The study link was also shared through social media. To encourage the individuals to participate in the study, the university students got a bonus credit and non-students participants had a chance to get a discount code in an online bookstore.

### ***2.3.3 Inclusion and Exclusion***

Being over the age of 18 was the only inclusion criterion to participate in the study. Univariate outliers were controlled by  $\pm 3.40$  z scores of main variables and all was within the appropriate range. One thousand eight participants started the experiments. Before preceding the analyses, we applied some more data exclusion criteria: The participants who left the survey before completing the PANAS ( $N = 341$ ), participants who completed the survey too slow ( $N = 65$ ; duration  $> +3$  z scores), participants who completed the survey very fast ( $N = 22$ ; duration  $< 10$  minutes), participants who did not complete the manipulation check questions ( $N = 46$ ), and participants who did not follow the instructions in Kesebir (2014) manipulation ( $N = 10$ ) were deleted from the final dataset.

### ***2.3.4 Characteristics of the Participants***

We performed the analyses with 524 (Female = 363, Male = 113, Missing = 48) participants who met the inclusion criteria. Mean age was 25.13 ( $SD = 6.82$ ). Most of the participants had at least a university degree (71.6%). We summarized the participant characteristics in Table 1.

**Table 1***Sociodemographic Characteristics of the Participants*

Variables		N	%
Gender	Female	363	69.3%
	Male	113	21.6%
	Missing	48	9.1%
Education	Lower than undergraduate	14	2.7%
	Undergraduate	305	58.2%
	Higher than undergraduate	70	13.4%
	Missing	135	25.8%
Mother Education	Lower than undergraduate	209	39.9%
	Undergraduate	99	18.9%
	Higher than undergraduate	75	14.3%
	Missing	141	26.9%
Working	Non-student	122	23.3%
	Student	266	50.8%
	Missing	136	26%

*Note.* N = Number of participants.

**2.4 Experimental Design and Analysis Plan**

The design of the study included three manipulation methods and two conditions in each method. Thus, participants were randomly assigned to one of the six possible conditions.

To investigate if overall mortality salience manipulations increased the death-thought accessibility compared to overall control conditions (main effect of mortality salience vs. control conditions) and if there were a difference in the effectiveness of



mortality salience manipulation compared to control conditions between three different manipulation methods (interaction between factors), we conducted two separate 2 (experimental groups: mortality salience vs. control conditions) x 3 (manipulation methods: Cox et al. vs. Kesebir vs. Luo et al.) between participants analysis of variance as the death-thought accessibility and five questions manipulation check scores were the dependent variables.

We also analyzed the data of three manipulation methods separately via *t*-test. In each *t*-test, we compared the mean death-thought accessibility and mean five questions manipulation check scores between mortality salience and control conditions. All analyses were performed in SPSS v.25 and Jamovi v.1.2.2 statistical packages.

## CHAPTER III

### RESULTS

#### 3.1 Descriptive Statistics

The survey was programmed to divide all participants evenly into all conditions. However, due to drop-outs and exclusion criteria, there were differences in the final sample size in manipulation methods. Nonetheless, the participant distribution between mortality salience and control conditions was fairly equal. In the manipulation method of Cox et al. (2009), there were 183 participants. Ninety of them were from the mortality salience condition and 93 of them were from the control condition. In the manipulation method of Kesebir (2014), there were 134 participants. Sixty-six of them were from the mortality salience condition and 68 of them were from the control condition. In the manipulation method of Luo et al. (2014), there were 207 participants. Six hundred of them were from the mortality salience condition and 101 of them were from the control condition. Descriptive information about the distribution of participants to manipulation methods and conditions within these methods can be seen in Table 2.

**Table 2**

*Participants' Distributions to Manipulation Methods and Conditions*

Conditions	Manipulation Methods					
	Cox et al. (2009)		Kesebir (2014)		Luo et al. (2014)	
	N	%	N	%	N	%
Mortality Salience	90	17.2%	66	12.6%	106	20.2%
Control	93	17.7%	68	13%	101	19.9%
Total	183	34.9%	134	25.6%	207	39.5%

#### 3.2 Results Obtained by Analyzing Three Manipulation Method Together

To investigate if one of the mortality salience manipulation methods were more

effective compared to others to increase death-thought accessibility and death-related thoughts, we conducted two separate 2 (experimental groups: mortality salience vs. control conditions) x 3 (manipulation methods: Cox et al. vs. Kesebir vs. Luo et al.) between participants analysis of variance. The five questions manipulation check scores were the dependent variable in the first model and it was the death-thought accessibility scores in the second model. We aimed at examining whether mortality salience conditions result in higher death-related cognitions than control conditions (main effect of the experimental groups) and whether one of the manipulation methods was more effective than others (interaction effect) to result in higher death thought accessibility and death-related thoughts.

### 3.2.1 Results Regarding Death-Thoughts

The results of 2x3 between participants ANOVA indicated the mean death-thoughts were different between mortality salience and control conditions ( $F(1, 517) = 70.631, p = .001, \eta_p^2 = .120$ ) and between three manipulation methods ( $F(2, 517) = 23.471, p = .001, \eta_p^2 = .083$ ), however their interaction was not significant ( $F(2,517) = .379, p = .684, \eta_p^2 = .001$ ) (see Table 3).

**Table 3**

*The Summary Results of ANOVA for Death-Thoughts*

Source of Variance	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
Method	189.403	2	94.702	23.471	.001	.083
Condition	284.991	1	284.991	70.631	.001	.120
Interaction	3.062	2	1.531	.379	.684	.001
Error	2086.049	517	4.035			
Total	6935.167	523				

*Note.* *SS* = Sum of squares, *df* = Degrees of freedom, *MS* = Mean square,  $\eta_k^2$  = Partial eta squared.

As the main effect of experimental groups indicated, the mean death-related thoughts in the mortality salience condition was higher compared to the mean death-related

thoughts in the control condition across three manipulation methods (see the means in Table 4 and Figure 3). Post hoc comparisons with Bonferroni correction revealed that the highest average death-related thoughts score was in Cox et al. (2004) manipulation ( $M = 3.646$ ,  $SD = 0.149$ ), followed by Luo et al. (2014) ( $M = 2.704$ ,  $SD = 0.140$ ) and Kesebir (2014) ( $M = 2.128$ ,  $SD = 0.174$ ) manipulations, respectively. . .

**Table 4**

*Means and Standard Deviations within Manipulation Methods for Death-Thoughts*

Manipulation Method	Conditions	N	M	SD
Cox et al. (2009)	All	183	3.646	2.402
	Mortality Salience	90	4.413	2.437
	Control	93	2.878	2.121
Kesebir (2014)	All	134	2.128	1.844
	Mortality Salience	68	2.772	2.251
	Control	66	1.482	1.000
Luo et al. (2014)	All	206	2.704	2.085
	Mortality Salience	105	3.542	2.263
	Control	101	1.864	1.461

*Note.* N = Number of participants, M = Mean, SD = Standard deviation

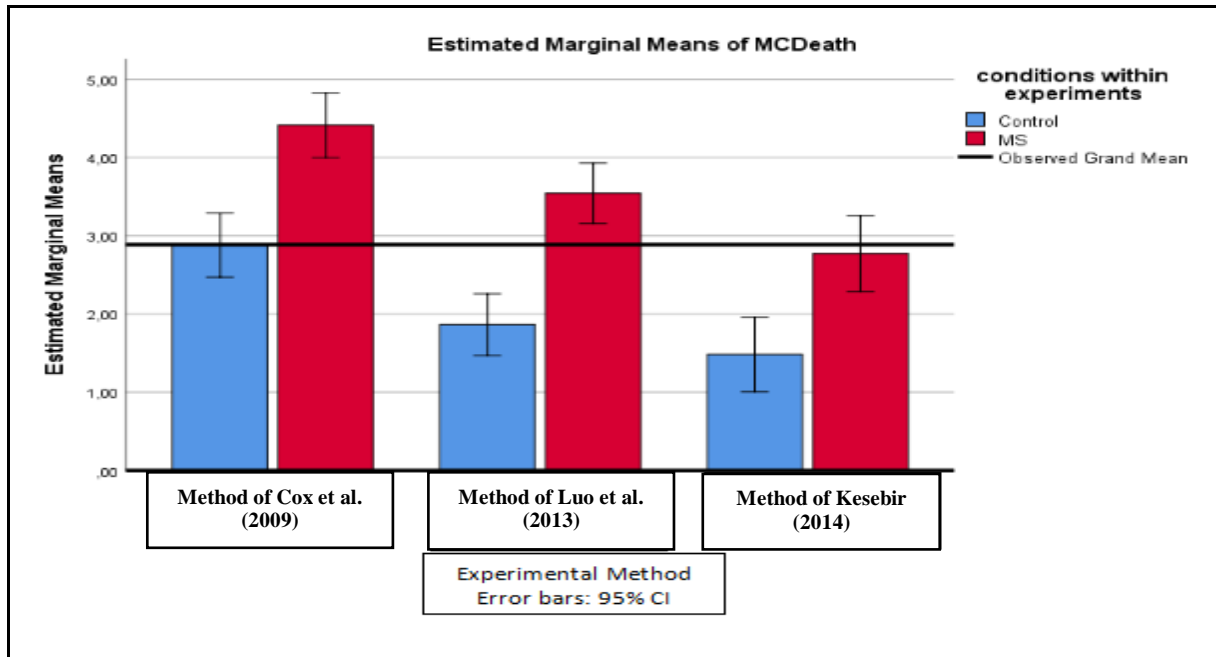
Distribution of the means of death-thoughts scores classified by conditions is available in Figure 3.

Our findings suggested that the mortality salience manipulations across three methods resulted in higher death-related thoughts. However, even the pairwise comparisons showed higher mean death-related thoughts in Cox et al. (2009) manipulation compared to Luo et al. (2014) and Kesebir (2014) (See Figure 3), since the interaction between experimental groups and manipulation methods were non-significant, we did not

interpret these differences as strong support for the advantage of the mortality salience manipulation method of Cox et al. (2009).

**Figure 3**

*Mean Death-Related Thoughts Scores by Conditions.*



*Note.* The post hoc comparisons with Bonferroni adjustment indicated differences in mean death-related thoughts between mortality salience manipulations indicating there were variations in the effectiveness of mortality salience manipulations. However, since the interaction between experimental groups and manipulation methods were non-significant, we didn't interpret these differences.

### 3.2.2 Results Regarding DTA

To test the mean differences in death-thought accessibility scores, we conducted the same analysis as the DTA scores were the dependent variable. The results of 2x3 between participants ANOVA (Table 5) indicated that the only mean difference was between experimental groups, ( $F(1, 505) = 6.247, p = .013, \eta_p^2 = .012$ ). The main effect of the manipulation method ( $F(2, 505) = 23.471, p = .375, \eta_p^2 = .001$ ) and the interaction effect were non-significant ( $F(2,505) = .569, p = .567, \eta_p^2 = .002$ ).

**Table 5**

*The Results of Two-Way ANOVA for DTA*

Source of Variance	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
Method	1.063	2	.532	.376	0.687	.001
Condition	8.838	1	8.838	6.247	0.013	.012
Interaction	1.609	2	.804	.569	0.567	.002
Error	714.428	505	1.415			
Total	1405	511				

*Note.* *SS* = Sum of squares, *df* = Degrees of freedom, *MS* = Mean square,  $\eta_p^2$  = Partial eta squared.

The mean DTA scores in the mortality salience conditions ( $M = 1.290$ ,  $SD = 1.296$ ) across all manipulation methods were higher than the mean DTA scores in control conditions ( $M = 1.020$ ,  $SD = 1.066$ ) (See Table 6 and Figure 4).

**Table 6**

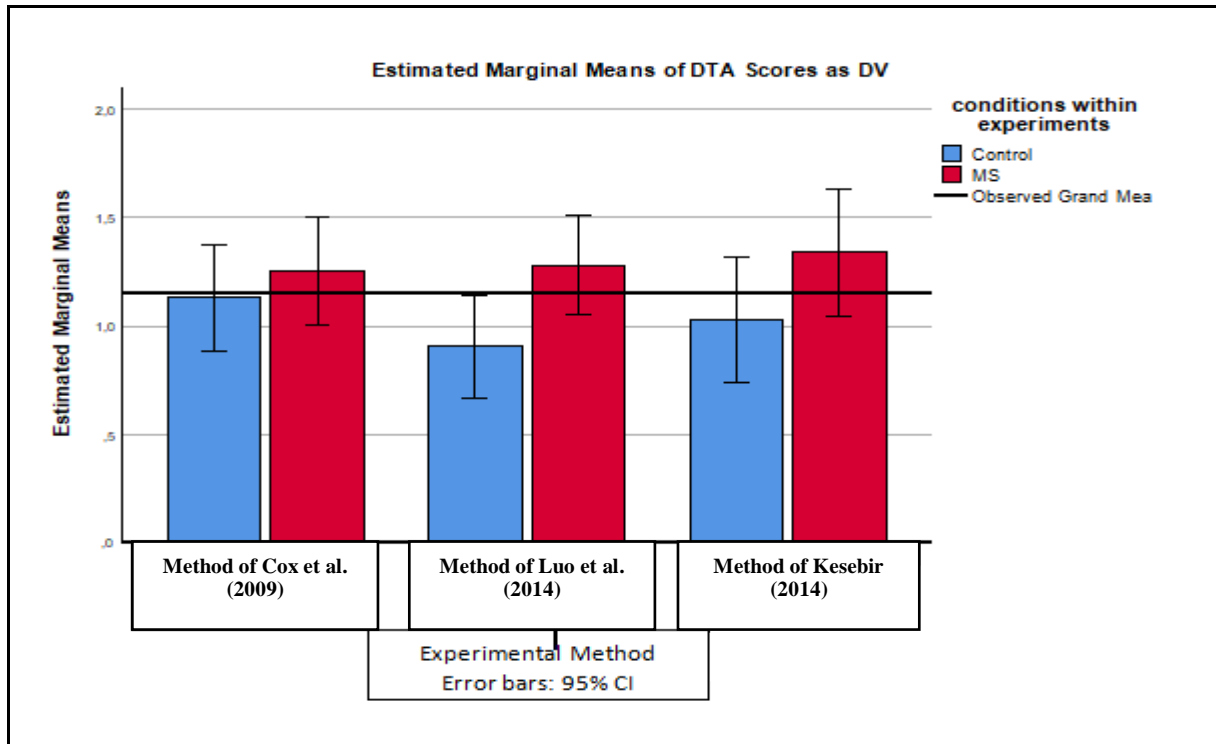
*Means and Standard Deviations within Manipulation Methods for DTA*

Manipulation Method	Conditions	N	M	SD
Cox et al. (2009)	All	180	1.888	1.213
	Mortality Salience	88	1.250	1.243
	Control	92	1.130	1.188
Kesebir (2014)	All	131	1.183	1.214
	Mortality Salience	65	1.338	1.372
	Control	66	1.030	1.022
Luo et al. (2014)	All	200	1.100	1.165
	Mortality Salience	103	1.281	1.302
	Control	97	.907	.969

Note. N = Number of participants, M = Mean, SD = Standard deviation.

**Figure 4**

*Mean DTA Scores by Conditions.*



We assumed the mortality salience and control groups will not differ in terms of PANAS scores since both mortality salience conditions and control conditions were supposed to increase negative affect. Similarly, we didn't expect any difference in the difficulty of the distraction/delay task.

Finally, we tested the difference between experimental groups in death-related thoughts (i.e., death-thoughts, fearfulness, unpleasantness - computed from the five manipulation check questions) and death thought accessibility. For each manipulation method, we repeated five independent samples *t*-tests on the dependent variables, thus we applied Bonferroni correction to the alpha level to keep Type 1 error rate at 5%, ( $\alpha = (.05 / 4) = .0125$ ). We will evaluate the statistical significance of all comparisons between experimental groups on dependent variables with the alpha level of .0125.

### 3.3 Results Obtained by Analyzing Three Manipulation Method Separately

#### 3.3.1 The Method of Cox et al. (2009)

**3.3.1.1 Results Regarding Manipulation Checks.** The independent samples *t*-test revealed that participants in the mortality salience manipulation ( $M_{positive\ affect} = 2.972$ ,  $SD_{positive\ affect} = .819$ ;  $M_{negative\ affect} = 2.220$ ,  $SD_{negative\ affect} = .695$ ) and control condition ( $M_{positive\ affect} = 3.025$ ,  $SD_{positive\ affect} = .743$ ;  $M_{negative\ affect} = 2.341$ ,  $SD_{negative\ affect} = .844$ ) did not differ from each other in their negative ( $t(181) = -1.060$ ,  $p = .291$ , Cohen's  $d = .104$ ) and positive affect ( $t(181) = -.462$ ,  $p = .644$ , Cohen's  $d = .192$ ) scores. There was no difference between mortality salience ( $M = 3.659$ ,  $SD = 1.632$ ) and control conditions ( $M = 3.806$ ,  $SD = 1.469$ ) in terms of how difficult they found DTA task ( $t(179) = -.639$ ,  $p = .525$ , Cohen's  $d = -.098$ ). The participants also rated similar difficulty levels for the anagram puzzle in mortality salience ( $M = 3.241$ ,  $SD = 2.011$ ) and control conditions ( $M = 3.271$ ,  $SD = 1.732$ ,  $t(166) = -.104$ ,  $p = .917$ , Cohen's  $d = -.015$ ).

There was a difference between mortality salience ( $M = 4.412$ ,  $SD = 2.437$ ) and control conditions ( $M = 2.878$ ,  $SD = 2.121$ ) in their mean death-thoughts scores, ( $t(181) = -4.548$ ,  $p = .001$ , Cohen's  $d = .690$ ). So, the death-thoughts score of the mortality salience group was higher than the control condition (see Table 7 for summary statistics).

**Table 7**

*T-test Comparisons by Conditions within the Method of Cox et al. (2009)*

Variable	Conditions	N	M	SD	<i>t</i>	<i>p</i>	Cohen's <i>d</i>																
Death-Thoughts	Mortality Salience	90	4.413	2.437	4.548	.001	.690																
	Control	93	2.878	2.121				Fearfulness	Mortality Salience	90	3.733	2.591	.836	.404	.137	Control	93	3,419	2.490	Unpleasantness			
Fearfulness	Mortality Salience	90	3.733	2.591	.836	.404	.137																
	Control	93	3,419	2.490				Unpleasantness															
Unpleasantness																							



	Mortality Salience	90	4.133	2.801	.145	.885	.023
	Control	93	4.075	2.621			
DTA	Mortality Salience	88	1.250	1.243	.660	.510	.100
	Control	92	1.130	1.188			

Note. N = Number of participants, M = Mean, SD = Standard Deviation.

The difference between mortality salience ( $M = 3.733$ ,  $SD = 2.591$ ) and control conditions ( $M = 3.419$ ,  $SD = 2.490$ ) in terms of the mean fearfulness scores, ( $t(181) = -.836$ ,  $p = .404$ , Cohen's  $d = .137$ ) was statistically non-significant. Similarly, participants in mortality salience condition ( $M = 4.133$ ,  $SD = 2.801$ ) and participants in control condition ( $M = 4.075$ ,  $SD = 2.621$ ) reported similar unpleasantness scores after they completed the experimental task ( $t(181) = -.145$ ,  $p = .885$ , Cohen's  $d = .023$ ).

Finally, the mortality salience ( $M = 1.250$ ,  $SD = 1.243$ ) and control ( $M = 1.130$ ,  $SD = 1.188$ ) conditions did not differ in their mean death-thought accessibility (DTA) scores, ( $t(178) = -.660$ ,  $p = .510$ , Cohen's  $d = .100$ ).

### 3.3.2 The Method of Kesebir (2014)

**3.3.2.1 Results from Manipulation Checks.** The independent samples  $t$ -test revealed that participants in the mortality salience manipulation ( $M_{positive\ affect} = 3.063$ ,  $SD_{positive\ affect} = .952$ ;  $M_{negative\ affect} = 2.201$ ,  $SD_{negative\ affect} = .850$ ) and control condition ( $M_{positive\ affect} = 2.902$ ,  $SD_{positive\ affect} = .941$ ;  $M_{negative\ affect} = 2.120$ ,  $SD_{negative\ affect} = .837$ ) did not differ from each other in their negative ( $t(132) = .553$ ,  $p = .581$ , Cohen's  $d = .104$ ) and positive affect ( $t(132) = .984$ ,  $p = .327$ , Cohen's  $d = .192$ ) scores. There was no difference between mortality salience ( $M = 3.584$ ,  $SD = 1.413$ ) and control conditions ( $M = 3.597$ ,  $SD = 1.404$ ) in terms of how difficult they found DTA task ( $t(130) = -.051$ ,  $p = .960$ , Cohen's  $d = -.008$ ). The participants also rated similar difficulty levels for the anagram puzzle in mortality salience ( $M = 3.644$ ,  $SD = 2.107$ ) and control conditions ( $M = 2.967$ ,  $SD = 1.698$ ,  $t(111.396) = 1.938$ ,  $p = .055$ , Cohen's  $d = .351$ ).

The difference between mortality salience ( $M = 2.772$ ,  $SD = 2.251$ ) and control conditions ( $M = 1.482$ ,  $SD = 1.000$ ) was statistically significant (Welch's  $t(89.120) = -4.263$ ,  $p = .001$ , Cohen's  $d = .580$ ), in that, the death-thoughts score of the mortality salience condition was higher than the control condition. The homogeneity of variance assumption, which was tested by means of Levene's test, could not be met ( $p = .001$ ), thus, Welch's test was preferred (see Table 8 for summary statistics).

**Table 8**

*T-test Comparisons by Conditions within the Method of Kesebir et al. (2014)*

Variable	Conditions	N	M	SD	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
Death-Thoughts	Mortality Saliance	66	2.772	2.251	4.263	.001	.580
	Control	68	1.482	1.000			
Fearfulness	Mortality Salience	66	2.257	1.963	1.582	.116	.215
	Control	68	1.764	1.631			
Unpleasantness	Mortality Salience	66	3.166	2.703	2.331	.021	.381
	Control	68	2.220	1.914			
DTA	Mortality Salience	65	1.338	1.372	1.456	.148	.258
	Control	66	1.030	1.022			

*Note.* N = Number of participants, M = Mean, SD = Standard Deviation.

There is statistically non-significant difference between mortality salience ( $M = 2.257$ ,  $SD = 1.963$ ) and control ( $M = 1.764$ ,  $SD = 1.631$ ) conditions ( $t(132) = -1.582$ ,  $p = .116$ , Cohen's  $d = .215$ ) in terms of fearfulness score so it can be suggested that the levels of fear reported by mortality salience condition was similar to control condition.

Participants in mortality salience condition ( $M = 3.166$ ,  $SD = 2.703$ ) and

participants in control condition ( $M = 2.220$ ,  $SD = 2.703$ ) reported similar unpleasantness scores after they completed the experimental task (Welch's  $t(116.833) = -.233$ ,  $p = .0214$ , Cohen's  $d = .381$ ). The homogeneity of variance assumption, which was tested by means of Levene's test, could not be met ( $p = .005$ ). Thus, Welch's test was preferred.

The difference between mortality salience ( $M = 1.338$ ,  $SD = 1.372$ ) and control conditions ( $M = 1.030$ ,  $SD = 1.022$ ) was not statistically significant in terms of DTA scores (Welch's  $t(118.282) = -1.456$ ,  $p = .148$ , Cohen's  $d = .258$ ). It means that DTA scores of the participants do not vary depending on the condition they were assigned to. The homogeneity of variance assumption, which was tested by means of Levene's test, could not be met ( $p = .035$ ). Thus, Welch's test was preferred.

### 3.3.3 The Method of Luo et al. (2014)

**3.3.3.1 Results from Manipulation Check.** The independent samples  $t$ -test revealed that participants in the mortality salience manipulation ( $M_{positive\ affect} = 3.089$ ,  $SD_{positive\ affect} = .814$ ;  $M_{negative\ affect} = 2.155$ ,  $SD_{negative\ affect} = .710$ ) and control condition ( $M_{positive\ affect} = 3.122$ ,  $SD_{positive\ affect} = .804$ ;  $M_{negative\ affect} = 2.092$ ,  $SD_{negative\ affect} = .724$ ) did not differ from each other in their negative ( $t(205) = .630$ ,  $p = .526$ , Cohen's  $d = .081$ ) and positive affect ( $t(205) = -.299$ ,  $p = .765$ , Cohen's  $d = -.040$ ) scores. There was no difference between mortality salience ( $M = 3.457$ ,  $SD = 1.563$ ) and control conditions ( $M = 3.500$ ,  $SD = 1.452$ ) in terms of how difficult they found DTA task ( $t(201) = -.202$ ,  $p = .840$ , Cohen's  $d = -.028$ ). The participants also rated similar difficulty levels for the anagram puzzle in mortality salience ( $M = 3.457$ ,  $SD = 1.910$ ) and control conditions ( $M = 3.447$ ,  $SD = 2.020$ ,  $t(188) = .033$ ,  $p = .973$ , Cohen's  $d = .004$ ).

In terms of death-thoughts scores, there was a statistically significant difference between mortality salience ( $M = 3.542$ ,  $SD = 2.263$ ) and control ( $M = 1.864$ ,  $SD = 1.461$ ) conditions (Welch's  $t(178.752) = -6.345$ ,  $p = .001$ , Cohen's  $d = .754$ ), in that, the death-thoughts score of the individuals in the mortality salience condition was higher than the individuals in the control condition. The homogeneity of variance assumption, which was tested by means of Levene's test, could not be met ( $p = .001$ ). Thus, Welch's test was preferred (see Table 9 for summary statistics).

**Table 9***T-test Comparisons by Conditions within the Method of Luo et al. (2013)*

Variable	Conditions	N	M	SD	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
Death-Thoughts							
	Mortality Salience	105	3.542	2.263	6.345	.001	.754
	Control	101	1.864	1.461			
Fearfulness							
	Mortality Salience	106	3.075	2.295	2.831	.005	.357
	Control	101	2.257	1.847			
Unpleasantness							
	Mortality Salience	104	3.230	2.328	2.451	.015	.288
	Control	101	2.514	1.830			
DTA							
	Mortality Salience	103	1.281	1.302	2.316	.022	.313
	Control	97	.907	.969			

*Note.* N = Number of participants, M = Mean, SD = Standard Deviation.

There was a statistically significant difference between mortality salience ( $M = 3.075$ ,  $SD = 2.295$ ) and control conditions ( $M = 2.257$ ,  $SD = 1.847$ ) in terms of the means of fearfulness scores ( $t(205) = 2.816$ ,  $p = .005$ , Cohen's  $d = .357$ ), in that, fearfulness score of the mortality salience condition was higher than the control condition.

There was no statistically significant difference between mortality salience ( $M = 3.230$ ,  $SD = 2.328$ ) and control conditions ( $M = 2.514$ ,  $SD = 1.830$ ) in terms of the means of unpleasantness scores ( $t(203) = 2.442$ ,  $p = .015$ , Cohen's  $d = .288$ ). It means that unpleasantness reported by individuals did not vary with the assigned condition.

The difference between mortality salience ( $M = 1.281$ ,  $SD = 1.302$ ) and control conditions ( $M = .907$ ,  $SD = .969$ ) was statistically non-significant in terms of the DTA

scores (Welch's  $t(188.151) = -2.316$ ,  $p = .022$ , Cohen's  $d = .313$ ). It can be suggested that being exposed to different conditions did not influence the DTA scores of the individuals. The homogeneity of variance assumption, which was tested by means of Levene's test, could not be met ( $p = .002$ ). Thus, Welch's test was preferred.

## **CHAPTER IV**

### **DISCUSSION**

#### **4.1 Overview of the Results**

The analyzes of the data indicate that there is no interaction between being assigned to one of three manipulation methods and being assigned to one of two condition levels in terms of a statistically significant increase in death-related dependent variables. For death-thoughts scores, there are main effects of both manipulation method and condition level. Both the mortality salience condition and control condition of the method of Cox et al. (2009) results in statistically higher death-thoughts than other conditions. The mortality salience condition of the method of Kesebir (2014) results in statistically lower death-thoughts. For DTA, mortality salience conditions result in statistically higher scores than control conditions but comparisons within manipulation methods indicate that there is no statistically significant difference between mortality salience and control conditions.

For all manipulation methods, mortality salience conditions result in a statistically higher death-thoughts score than control conditions and there is no statistically significant difference between mortality salience and control conditions in terms of DTA score. In terms of fearfulness, the mortality salience condition of Luo et al. (2014) results in a statistically higher score than its control conditions. For the manipulation method of Cox et al. (2009) and the manipulation method of Kesebir (2014), there is no statistically significant difference between mortality salience and control condition in terms of fearfulness score. In terms of unpleasantness, there is no statistically significant difference between mortality salience and control conditions of all manipulation methods. Also, for all manipulation methods, there is no statistically significant difference between mortality salience and control conditions in terms of DTA task difficulty scores, delay difficulty scores and PANAS scores.

#### **4.2 Analyzes of Three Manipulation Methods Together**

In this part, 2 (condition I, condition II) x 3(manipulation method I, manipulation method II, and manipulation method III) factorial ANOVA results of three manipulation

methods on death-thoughts and DTA variables will be discussed.

Two-way ANOVA, results indicate there is no interaction effect between the levels of conditions and manipulation methods on death-thoughts. However, condition levels and manipulation methods are individually important factors that create differences in terms of gaining death-thoughts scores. The condition level, which results in a statistically higher death-thoughts score is the mortality salience condition. The manipulation method, which results in a statistically higher death-thoughts score is the method of Cox et al. (2009). Although one of one manipulation methods, which is the technique of Cox et al. (2009) results in statistically higher death-related thoughts than other conditions, the control condition of this method, also, results in statistically higher death-thoughts. It means that it is not possible to conclude that one of the conditions works better than others.

Two-way ANOVA (condition I, condition II x manipulation method I, manipulation method II, and manipulation method III) results indicate there is no interaction effect between condition level and manipulation method on the manipulation method is not an important indicator of DTA score differences between individuals. Condition level is found as an important factor for DTA score differences, in that, DTA scores of mortality salience conditions are statistically higher than control conditions. This finding is consistent with the finding of death-thoughts score analysis which is about the effect of condition level. However, this finding was not reached in manipulation methods, in that, there is no difference between mortality salience and control conditions of one of the manipulation methods.

### **4.3 Analyzes of Three Manipulation Methods Separately**

In this part, independent samples *t*-test results of each group's mortality salience and control conditions will be discussed.

For all three manipulation methods, mortality salience conditions result in statistically higher scores than control conditions in terms of death-thoughts. It means that all manipulation methods succeed in manipulating participants into mortality.

This result is consistent with the result of other studies that use the variable of death-thoughts (e.g. Chen et al., 2019; Luo et al., 2014; Wang et al., 2018), in that, the death-thoughts score of the mortality salience condition higher than the control condition.

For all three manipulation methods, there is no statistically significant difference between mortality salience and control conditions in terms of DTA scores. The DTA scale, which is used as a manipulation check, pointed out that mortality salience manipulation worked in some studies (e.g., Doğulu, 2017; Gerber & Anaki, 2019). However, in some studies, it indicated that manipulation did not work successfully (e.g., Brimbal, 2016; Jones, 2014). The results of the current study for the DTA variable are consistent with the results indicating that the manipulation did not work, in that, none of the three manipulation methods were successful in manipulating participants into death.

There are some possible explanations for the result of the current study regarding the DTA variable. Firstly, this result may stem from the DTA task itself, in that, the DTA task may be insufficient to find the effect of the variable experimentally being manipulated. In this study, the Turkish version of the DTA task, which was prepared by Doğulu (2017) was used as one of the two manipulation checks. Because of the fact that the original author of this version did not report and no study tries to do in the literature, it can be suggested that the validity or reliability of the DTA task for the Turkish sample is unavailable. Thus, this task may not be able to accurately and consistently measure whether mortality salience manipulation methods work.

Furthermore, the original author of the Turkish version of the DTA task did not specify the cognitive and linguistic logic behind the preparation process of this version in detail. Koopman et al. (2013) listed a structural plan to generate a word-fragment completion task. It is suggested that following this structural plan enables researchers to create word-fragment completion tasks with higher reliability and validity characteristics (Koopman et al., 2013). It is not satisfactorily certain if points in this framework, which includes cognition-related and language-related components, were taken into account when creating this task. To illustrate, it is not clear whether words' frequencies in the target language were taken into consideration when choosing words for the task and it is not clear whether variance related differences arise from different word-fragments created for the



same word were taken into consideration when developing word-fragments. These unclearnesses decrease the power of the DTA task to measure the effectiveness of mortality salience manipulations.

Lastly, this result may be explained by the dual-process model of terror management theory which was emphasized by Pyszczynski and his colleagues (1999). Increasing in the availability of mortality linked cognitions is based on whether the concept of death can be removed from focal attention or not (Pyszczynski, 1999). In this study, 5 manipulation check questions, which include 3 direct questions about death, were presented to the participants before the DTA task. This case may have caused the concept of death to enter focal attention or conciseness. This case may have resulted in inhibition of increased death-related cognitions on the DTA task for experimental cognitions.

For all manipulation methods, also, there is no difference between mortality salience and control conditions in terms of how difficult participants found the DTA task. This finding highlights the invalidity of difficulty related explanations for DTA-related findings in this study.

For the method of Cox et al. (2009) and the method of Kesebir (2014), there is no statistical difference between mortality salience and control conditions in terms of fearfulness score. This finding is consistent with the finding of Wang et al. (2018), which remarks that the difference between mortality salience and control conditions is not statistically significant on feeling fearful. The control condition of the method of Cox et al. (2009) consists of public speaking anxiety-related content. The control condition of the method of Kesebir (2014) contains natural content.

For the method of Luo et al. (2014), the mortality salience condition results in a statistically higher fearfulness score than the control condition. This result is consistent with the result of Chen et al. (2019), which remarks that the fearfulness score of the mortality salience condition is statistically higher than the control condition. Of the three methods of manipulation, only the items of the control condition in this manipulation method condition have both fear and anxiety-related context. Also, the items of this method's mortality salience conditions have a fear of death-related items. The difference

which is found in this method may be explained by the contextual difference of this method's items. Moreover, this finding can be regarded as the existence of a confounding variable, which decreases the power of the causal relationship between the manipulation method and the results of the check. Another possible explanation for this difference between the mortality salience and control conditions of this method is mentioned below.

For all manipulation methods, there is no statistically significant difference between mortality salience and control conditions in terms of unpleasantness score. This finding is consistent with some findings (e.g. Chen et al., 2019; Wang et al., 2018), which remark that the difference between mortality salience and control conditions in terms of unpleasant feelings is not statistically significant. This finding provides evidence to support that the results cannot be explained by the effect of unpleasant feelings.

For all manipulation methods, there is no difference between mortality salience and control conditions in terms of negative and positive PANAS questions. These findings confirm the finding of other studies in the terror management theory literature (e.g. Dong et al., 2019; Major et al., 2016; Mandel & Smeesters, 2008). The main point of these findings is that the observed effect of mortality salience manipulation on dependent variables cannot be explained via the role of negative affect or positive affect.

Although the PANAS results of all manipulation methods emphasize that the effect of mortality salience condition on the dependent variable is not related to mood-related differences between conditions, it is, also, found out that there are possible emotion-related confounding variables for one of the three manipulation methods. To clarify, there is a statistically significant difference between mortality salience and control conditions of the method of Luo et al. (2014) in terms of feeling fearful which can be identified as "negative high-arousal emotion" (Balconi & Pozzoli, 2003). This finding is in contradiction with the findings of PANAS.

The study of Lambert et al. (2014) brings a possible explanation for these conflicting findings. Lambert and his colleagues (2014) suggest that mortality salience conditions of manipulation techniques that aim at manipulating participants into death cause different affective arousals than control conditions. Also, using PANAS may not be

a good choice for researchers to decide whether the effect of mortality salience manipulation results from a confounding affective state because of the fact that this scale is not sensitive enough to determine mood-related differences between mortality salience and control conditions (Lambert et al., 2014).

#### **4.4 Contributions**

The main contribution of the current study is drawing attention to the methodological factors which may be related to failed replication attempts in terror management theory literature: manipulation method to manipulate individuals into death. The strength of the manipulation method is important for experimental designs because, like it is emphasized by Baumeister and Vohs (2014), the examination of research hypotheses is not possible through manipulation methods that are not successful enough in terms of manipulating the variable which is investigated. Creating opportunities from the current replication crisis is possible with this type of research.

The second contribution of the current study is pointing out that more studies are needed to determine whether manipulation methods are working. In this study, although one of the manipulation checks shows that manipulations do not work, other check shows that manipulation does work. This difference between manipulation check results is an important contribution to the future of terror management research because researchers will decide whether they will continue their study according to the result of the manipulation check.

The third contribution of the current study is drawing attention to the need for more research for the examination of the affect-related influence of mortality salience manipulation like it is emphasized by Lambert et al. (2014). Although the scale which is used for the detection of whether the effect of mortality salience manipulation can be explained by affect arousal indicates that there is no mood-related difference between mortality salience and control conditions for all manipulation methods, there is a difference between control and manipulation conditions in terms of specific fearfulness variable for one of three manipulation methods. The examination of the difference between manipulation methods and conditions within this method is important because these

differences may create a confounding variable.

The fourth contribution of the current study is pointing out the need for validity and reliability analysis for DTA task. This task is used as a dependent variable (e.g., Mikulincer et al., 2002) and manipulation check (e.g., Rutjens, 2009) in terror management theory literature. However, no research aims at testing validity and reliability. It is an important deficiency.

The fifth contribution of the current study arises from its emphasis on the importance of cognitive and linguistic elements of word-stem completion tasks. The consideration of some cognition and target language-related factors is important to create a word-fragment completion task and it is not clear if the DTA task should be prepared with these points in mind.

The last contribution of the current study is related to the characteristics of the study sample. Attention is paid to ensure that the majority of the participants are not students of the psychology department because of the fact that they are more likely to be aware of the terror management theory. To prevent the majority of the study sample from being composed of psychology students, the chance to earn bonus points in the case of completing the experiment was offered to students who are not from the psychology department. Also, the poster with the experiment announcement was not hung on the bulletin board in the faculty where the psychology department was located.

#### **4.5 Limitations and Suggestions for Future Directions**

In this study, three mortality salience manipulation methods are tested and compared. However, there are many mortality salience manipulation methods that have been used in terror management literature<sup>2</sup>. Future studies can focus on all of them to test their effectiveness and decide the most powerful method or methods.

Before the beginning of data collection, the necessary sample size for this study

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<sup>2</sup> Many mortality salience manipulation methods used in terror management theory literature can be reached by the paper of Cox et al. (2019).

was detected as 650 by means of GPower analysis. The data collection process of this study was ended after reaching the number of 1009 participants. After the data exclusion steps, however, the number of participants was 524. It was lower than the maximum number for participants. The study may be replicated with reaching enough sample size despite dropout rates.

Also, after the application of exclusion steps, the number of participants per method was out of balance. This unbalance was largely caused by the method of Kesebir (2014). The reason for this case is not clear. In this study, there was no question to understand how difficult or complex it was perceived by the participants to comply with manipulation/control instructions. However, if it was, those in this method would probably score high on this question because many participants from the method of Kesebir (2014) were excluded from the dataset due to being unsuccessful in following mortality salience or control condition instructions. To clarify this issue, the question of how difficult or complex it is to follow the instructions can be included in future studies. This technique may not be a good option for online studies because of the fact that it results from many exclusions.

Validity and reliability analysis of the DTA task, which was used in this study, were not performed so there is a strong need for this analysis. Future studies must focus on making this analysis.

The rationale behind the development of the Turkish version of the DTA task used in this study was not clearly stated. In future research, this task can be redeveloped by focusing on the considerations when creating a word completion task<sup>3</sup>. Owing to the fact that there are cognitive (e.g. priming) and linguistic (e.g. corpus analysis) points that need to be taken into account when developing a word-fragment completion task, we recommended that this task be developed with the help of multidisciplinary research collaborations.

For the examination of possible reasons for the null finding of the DTA task, the

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<sup>3</sup> In creating a word-fragment completion task regarding death, the structural plan, which was emphasized by Koopman et al. (2013) can be followed.

DTA task and 5 question checks can be presented in random order so that revealing whether the current DTA task result can be clarified via dual-process (Pyszczynski et al., 1999) explanation.

Mortality salience and control conditions of the method of Luo et al. (2014) differ from each other in terms of the fearfulness variable. They can be confounding variables so there is a need to test this method again to reveal whether this result is replicable or not for this method. If further studies reach the same result, this method may not be preferred in future studies.

In this study, there were two types of incentives, which are bonus points for students who are accepted to receive bonus points by the instructor if they participate in the study and discount voucher raffle for everyone. It is problematic for experimental designs that are aimed at making all variables constant except induced variables. If the participants were asked with a question about why they participated in this study, it would be possible to examine whether there is a difference between those who participate in the study for different purposes.

The current study was web-based. Because of the fact that laboratory studies will probably provide a much more controlled environment than online studies, it can be much better to run the study in a lab in terms of creating a controlling environment for participants.

#### **4.6 Conclusion**

Testing and comparing three different mortality salience manipulations from terror management theory literature is aimed at the current study because it was thought that manipulation method may be one of the key factors that responsible for the non-replicability of some terror management theory findings so revealing whether manipulation methods work and whether there is an effective way for death manipulation were regarded as important. Results from comparison indicate that one method is not superior to the others in terms of manipulating death much better. Results from testing contradict each other, such that while all manipulation methods work according to one manipulation check,

no method works according to the other manipulation check. Results from affect-related variables are contradictory for one of the methods, such that while there is no affect-related difference between conditions within each method, there is a difference between conditions for one method's fearful feelings.

This study is important as it draws attention to the manipulation method for non-replicating terror management theory studies. The fact that some results are consistent with the literature and some are inconsistent shows that this issue is worth studying because there are still questions waiting to be explained. Further studies are needed to examine how critical the manipulation method is for non-replicable terror management theory studies.

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## APPENDIX

### APPENDIX A

#### Ethics Committee Approval



**Sayı** : 62310886-604.01.01/ 1999  
**Konu** : Aslı Saçaklı'nın Etik Onay Başvurusu  
Hk.

17/01/2020

SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜNE

**İlgi** : 31/12/2019 tarih ve 45884 sayılı yazınız.

Enstitünüz Sosyal Psikoloji Tezli Yüksek Lisans Programı öğrencisi Aslı Saçaklı'nın Dr. Öğretim Üyesi İlker Dalgar'ın danışmanlığında yürütmekte olduğu "Ölümlülüğün Belirginleştirilmesi İçin Uygulanan Üç Farklı Manipülasyon Yönteminin Tespit Edilmesi ve Kıyaslanması" başlıklı yüksek lisans tez çalışması, Sosyal ve Beşeri Bilimler ve Sanat Araştırma Kurulunda değerlendirilmiş ve bilgilerinize ekte sunulmuştur.

**e-İmzalıdır**  
Prof. Dr. M.Abdülkadir VAROĞLU  
Kurul Başkanı

Ek : Değerlendirme Formu

**Bu belge 5070 sayılı Elektronik İmza Kanununun 5. Maddesi gereğince güvenli elektronik imza ile imzalanmıştır.**

Başkent Üniversitesi Bağlıca Kampüsü Fatih Sultan Mahallesi Eskişehir Yolu 18. Km 06790

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Bilgi İçin: Gamze SONBAY

Unvan: Koordinatör

Telefon No: 246 66 66 / 2078



Sayı : 17162298.600-313  
Konu : Tez Çalışması


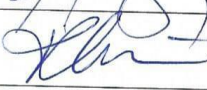


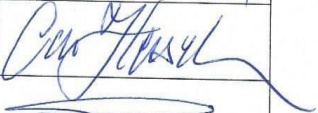
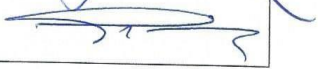
7 OCAK 2020

### İlgili Makama

Üniversitemiz Sosyal Bilimler Enstitüsü Sosyal Psikoloji Tezli Yüksek Lisans Programı öğrencisi Aslı Saçaklı'nın, Dr. Öğretim Üyesi İlker Dalgar'ın danışmanlığında yürütmekte olduğu "Ölümlülüğün Belirginleştirilmesi İçin Uygulanan Üç Farklı Manipülasyon Yönteminin Tespit Edilmesi ve Kıyaslanması" başlıklı yüksek lisans tez çalışması değerlendirilmiş ve yapılmasında bir sakınca olmadığı tespit edilmiştir.

Bilgilerinize saygılarımızla sunarız.

### Başkent Üniversitesi Sosyal ve Beşeri Bilimler ve Sanat Araştırma Kurulu

Ad, Soyad	Değerlendirme	İmza
Prof. Dr. M. Abdülkadir Varoğlu	Olumlu/ <del>Olumsuz</del>	
Prof. Dr. Kudret Güven	Olumlu/ <del>Olumsuz</del>	
Prof. Ali Sevgi	Olumlu/Olumsuz	
Prof. Dr. Işıl Bulut	Olumlu/ <del>Olumsuz</del>	
Prof. Dr. Sadegül Akbaba Altun	Olumlu/ <del>Olumsuz</del>	
Prof. Dr. Can Mehmet Hersek	Olumlu/ <del>Olumsuz</del>	
Prof. Dr. Özcan Yağcı	Olumlu/ <del>Olumsuz</del>	

Prof. Dr. Sadegül Akbaba Altun, Sosyal Bilimler Enstitüsü Sosyal Psikoloji Tezli Yüksek Lisans Programı öğrencisi Aslı Saçaklı'nın Dr. Öğretim Üyesi İlker Dalgar'ın danışmanlığında yürütmekte olduğu "Ölümlülüğün Belirginleştirilmesi İçin Uygulanan Üç Farklı Manipülasyon Yönteminin Tespit Edilmesi ve Kıyaslanması" başlıklı yüksek lisans tez çalışmasının yapılabileceği ve ilginç bir çalışma olduğu görüşündeler.

## **Informed Consent Form**

Bu araştırma, Başkent Üniversitesi, Psikoloji Bölümü'nde Dr. Öğretim Üyesi İlker Dalgıç danışmanlığında; Sosyal Psikoloji Yüksek Lisans programı öğrencisi Aslı Saçaklı tarafından yürütülmektedir. Bu araştırmanın amacı, bireysel farklılıklarla ilgili hazırlanacak olan bir ölçek için bilgi toplamaktır. Çalışmaya katılabilmemiz için, 18 yaşını geçmiş olmanız gerekmektedir. Çalışmanın, ortalama olarak, 40-50 dakika sürmesi beklenmektedir. Çalışmaya katılım, gönüllülük esasına dayanmaktadır.

Çalışmada, nasıl hissettiğinizle ilgilenilmektedir. Bu nedenle, cevaplarınızı verirken içten olmanız, fazla düşünmemeniz yani aklınıza ilk gelen yanıtı vermeniz, soruları anlamaya özen göstermeniz önemlidir. Size sunulan yönergeleri takip ederek vereceğiniz cevaplar sonucunda elde ettiğimiz bilgiler, kesinlikle gizli tutulacak ve araştırmacılar tarafından yalnızca bilimsel amaçlarla kullanılacaktır. Elde edilen veri seti, katılımcıların asla ayırt edilemeyeceği bir formatta düzenlenip diğer bilim insanlarıyla paylaşımına açılacaktır. Çalışma süresince herhangi bir sebeple rahatsız hissetmeniz ya da çalışmaya devam etmek istememeniz durumunda, çalışmayı yarıda bırakabilirsiniz.

Çalışma hakkında daha fazla bilgi almak için, [sacakliasli@gmail.com](mailto:sacakliasli@gmail.com) adresi üzerinden Aslı Saçaklı ile iletişime geçebilirsiniz.

Bu çalışmaya tamamen gönüllü olarak katılıyorum. 18 yaşından büyüğüm. Vermiş olduğum bilgilerin, bilimsel amaçlarla kullanılmasına izin veriyorum. İstedğim zaman, çalışmayı bırakabileceğimi biliyorum.

- Evet, onaylıyorum.
- Hayır, onaylamıyorum.

## **Demographic Questions Form**

1. Lütfen, doğum yılınızı 4 rakamlı olacak şekilde yazınız (örn: 1990) \_\_\_\_\_

-----

2. Lütfen, cinsiyetinizi belirtiniz.

- Kadın
- Erkek
- Diğer
- Belirtmek İstemiyorum

3. Lütfen, eğitim durumunuzu belirtiniz? (Eğitiminiz devam ediyorsa devam etmekte olduğunuz eğitim kurumunu. Eğitiminiz devam etmiyorsa, mezun olduğunuz son eğitim kurumunu işaretleyiniz.)

- Ortaokul ya da altı
- Lise
- Üniversite
- Yüksek Lisans ya da Üstü

4. Lütfen, annenizin eğitim durumunu belirtiniz? (Anneniz eğitime devam ediyorsa, devam etmekte olduğu eğitim kurumunu; anneniz eğitime devam etmiyorsa, mezun olduğu son eğitim kurumunu işaretleyiniz.)

- Okula hiç gitmedi
- Ortaokul ya da altı
- Lise
- Üniversite
- Yüksek Lisans ya da Üstü

5. Çalışma durumunuzu belirtiniz.

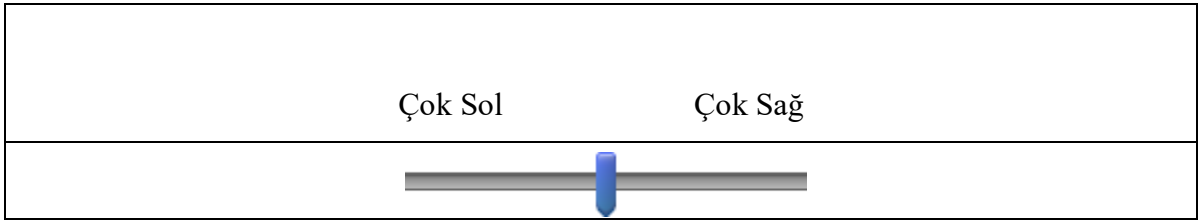
- Çalışan
- Kendi İşim / Serbest Meslek
- Öğrenci
- Emekli

- İşsiz

6. Lütfen, kendinizi ne kadar dindar tanımladığınız belirtiniz.

- Dini inancım yok
- Hiç dindar değilim
- Biraz dindarım
- Orta derecede dindarım
- Oldukça Fazla Dindarım
- Çok dindarım

7. Lütfen kendinizi politik olarak nerede tanımladığınızı aşağıdaki skala üzerinde belirtiniz.



8. Lütfen, evinize giren aylık gelirin aralığını belirtiniz.

- 2350 ₺ ve altı
- 2351 ₺ - 7000 ₺ arası
- 7001 ₺ - 10000 ₺ arası
- 10001 ₺ ve üstü

9. Aşağıdaki merdivenin, Türkiye'deki insanların durduğu yeri temsil ettiğini düşününüz. Merdivenin tepesindekiler, her şeyin en iyisine (en çok para, en iyi eğitim ve en saygın meslekler) sahip olanlardır. Merdivenin en altındakiler ise, en kötü koşullara (en az para, en az eğitim, en az sayılan meslekler ya da mesleksizlik) sahip olanlardır. Bu merdivende daha yüksek bir konuma sahip olmanız en tepedeki insanlara göre daha yakın olduğunuzu; daha aşağıda olmanız ise en alttaki insanlara daha yakın olduğunuzu gösterir.





- 1 (En alt)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (En üst)

### **The Manipulation Method of Cox et al. (2009)**

#### **Mortality Salience Condition**

Lütfen, birazdan karşılaştığınız ifadeleri hayal ediniz ve bu ifadeler üzerlerine dikkatlice düşününüz. Eğer ifadeye katılıyorsanız, "doğru"yu; katılmıyorsanız, "yanlış"ı seçerek belirtiniz.

Ölmekten çok korkuyorum.

DOĞRU	YANLIŞ
-------	--------

Zamanın böyle hızlı geçmesi bana çoğu zaman sıkıntı verir.

DOĞRU	YANLIŞ
-------	--------

Ameliyat olacağımı düşündüğümde çok korkarım.

DOĞRU	YANLIŞ
-------	--------

Sık sık hayatın gerçekte ne kadar kısa olduğunu düşünürüm.

DOĞRU	YANLIŞ
-------	--------

Ölümden sonraki hayat beni büyük ölçüde kaygılandırır.

DOĞRU	YANLIŞ
-------	--------

Kalp krizi geçirmekten gerçekten korkarım.

DOĞRU	YANLIŞ
-------	--------

Bir cesedin görüntüsü bana dehşet verir.

DOĞRU	YANLIŞ
-------	--------

Çıkacak bir dünya savaşından söz edilmesi beni korkutur.

DOĞRU	YANLIŞ
-------	--------

Acı çekerek ölmekten korkarım.

DOĞRU	YANLIŞ
-------	--------

Ölmekten hiç korkmuyorum.

DOĞRU	YANLIŞ
-------	--------

Gelecekte benim için korkulacak hiçbir şey olmadığını hissediyorum.

DOĞRU	YANLIŞ
-------	--------

Kansere yakalanmaktan özel bir korku duymuyorum.

DOĞRU	YANLIŞ
-------	--------

İnsanların ölüm hakkındaki konuşmaları beni tedirgin etmez.

DOĞRU	YANLIŞ
-------	--------

Ölüm düşüncesi beni hiçbir zaman kaygılandırmaz.

DOĞRU	YANLIŞ
-------	--------

Ölüm düşüncesi ara sıra aklıma gelir.

DOĞRU	YANLIŞ
-------	--------

### **The Manipulation Method of Cox et al. (2009)**

#### **Control Condition**

Lütfen, birazdan karşılaştığımız ifadeleri hayal ediniz ve bu ifadeler üzerlerine dikkatlice düşününüz. Eğer ifadeye katılıyorsanız, "doğru"yu; katılmıyorsanız, "yanlış"ı seçerek belirtiniz.

Topluluk önünde konuşmaktan çok korkarım.

DOĐRU	YANLIŐ
-------	--------

Topluluk önünde konuşma düşüncesi nadiren aklıma gelir.

DOĐRU	YANLIŐ
-------	--------

İnsanların, topluluk önünde konuşmak hakkında sohbet etmeleri beni tedirgin etmez.

DOĐRU	YANLIŐ
-------	--------

Seyirciler önünde konuşma yapmak zorunda kaldığıımı düşünmekten korkarım.

DOĐRU	YANLIŐ
-------	--------

Topluluk önünde konuşmaktan hiç korkmam.

DOĐRU	YANLIŐ
-------	--------

Kalabalık bir topluluğun önünde konuşma yapmaya yönelik özel bir korkum yok.

DOĐRU	YANLIŐ
-------	--------

Topluluk önünde konuşma yapma düşüncesi beni asla rahatsız etmez.

DOĐRU	YANLIŐ
-------	--------

Seyirciler önünde ayaĐa kalkmam gerektiğinde sıklıkla endişelenirim.

DOĐRU	YANLIŐ
-------	--------

KonuŐma ya da sunum yaparken mahcup olmaktan korkarım.

DOĐRU	YANLIŐ
-------	--------

Yapmak zorunda olduĐum sunumlardan önce çok kaygılanırım.

DOĐRU	YANLIŐ
-------	--------

Sunum yaparken, söyleyeceĐim Őeyleri unutmaktan gerĕekten korkarım.

DOĐRU	YANLIŐ
-------	--------

Seyircileri etkilemenin ne kadar zor olduĐunu sıklıkla dűŐünürüm.

DOĐRU	YANLIŐ
-------	--------

İnsanların, (bir topluluk önünde) konuŐma yapmaktan bahsettiklerini duyduğumda ürperiyorum.

DOĐRU	YANLIŐ
-------	--------

Kalabalık bir izleyici topluluĐunun görünümü beni dehŐete dűŐürür.

DOĐRU	YANLIŐ
-------	--------

Topluluk önünde konuŐmakta korkulacak bir Őey olmadıĐını hissediyorum.

DOĞRU	YANLIŞ
-------	--------

### **The Manipulation Method of Kesebir (2014)**

#### **Mortality Salience Condition**

Bu aşamada, sistem tarafından size rastgele bir kelime gösterilecektir. Sizden istenen, bu kelimedeki kavramı karşılayan üç ayrı görsel (örn: resim, fotoğraf) bulmanız ve ilgili boşluklara bu görsellerin adreslerini/linklerini yapıştırmanızdır. Size gösterilen kelimeyi karşılayan görselleri bulmak için, istediğiniz arama motorunun görsellerde arama özelliğini kullanabilirsiniz (örn: Google, Yahoo, Bing). Size gösterilen kelimenin anlamını yansıttığından emin olduğuna sürece, istediğiniz görseli seçebilirsiniz.

Görsellerin linklerini/adreslerini yapıştıracağınız sayfayı kaybetmemek için, istediğiniz arama motoru sayfasını yeni bir sekmede/sayfada açmayı unutmayınız.

Sistem tarafından size atanan kelime:

MEZARLIK

Lütfen aşağıdaki boşluklara, MEZARLIK görseli içeren, üç ayrı internet adresi/link'i yapıştırınız.

1.
2.
3.

### **The Manipulation Method of Kesebir (2014)**

#### **Control Condition**

Bu aşamada, sistem tarafından size rastgele bir kelime gösterilecektir. Sizden istenen, bu

kelimedeki kavramı karşılayan üç ayrı görsel (örn: resim, fotoğraf) bulmanız ve ilgili boşluklara bu görsellerin adreslerini/linklerini yapıştırmanızdır. Size gösterilen kelimeyi karşılayan görselleri bulmak için, istediğiniz arama motorunun görsellerde arama özelliğini kullanabilirsiniz (örn: Google, Yahoo, Bing). Size gösterilen kelimenin anlamını yansıttığından emin olduğuna sürece, istediğiniz görseli seçebilirsiniz.

Görsellerin linklerini/adreslerini yapıştıracağınız sayfayı kaybetmemek için, istediğiniz arama motoru sayfasını yeni bir sekmede/sayfada açmayı unutmayınız.

Sistem tarafından size atanan kelime:

K U P A

Lütfen aşağıdaki boşluklara, KUPA görseli içeren, üç ayrı internet adresi/link'i yapıştırınız.

1.
2.
3.

### **The Manipulation Method of Luo et al. (2014)**

#### **Mortality Salience Condition**

Lütfen, birazdan karşılaşacağımız ifadeleri hayal ediniz ve bu ifadeler üzerlerine dikkatlice düşününüz. Eğer ifadeye katılıyorsanız, solu ( $\leftarrow$ ); katılmıyorsanız, sağı ( $\rightarrow$ ) seçerek belirtiniz.

Her ifade, 7 saniye ekranda kalacak, sonra otomatik olarak değişecektir.

Ölümünden sonra bedenim, bir miktar külü kalacak şekilde yakılabilir.

$\leftarrow$	$\rightarrow$
--------------	---------------

Öldüğüm zaman bedenim hiçbir şeye tepki vermeyecek, hareketsiz bir şekilde bir kenara bırakılacak.

←	→
---	---

Eninde sonunda ölüm nedeniyle bedenim tamamen parçalara ayrılacak böylece bedenim sonsuza kadar yok olacak.

←	→
---	---

Ölmüş olsaydım, bedenim morga bırakılacak ve yüzüm soluk görünecekti.

←	→
---	---

Ölüm, kan akışını durduracak ve organlarım artık çalışmayacak.

←	→
---	---

Bedenimin öldüğü günden sonra artık var olmayacağım.

←	→
---	---

Ölmeliyim ve bedenim tamamen ortadan kaybolmalı. Bu, her durumda ortaya çıkacak olan gerçek.

←	→
---	---

Ölümünden sonra, bedenim hala canlıymış gibi dış dünyaya tepki vermeye devam edecek.



←	→
---	---

Bedenim ebedi olarak canlı bir şekilde korunacak ki bu beni ölümden uzak tutacak

←	→
---	---

Bedenim, ölümden sonra bile çürümeyecek.

←	→
---	---

Ölümünden sonra bile, bedenim soğumayacak veya katılaşmayacak.

←	→
---	---

Beni ölümden uzak tutacak bir yol her zaman vardır.

←	→
---	---

Bedenimin fizyolojik fonksiyonları/işlevleri ölümünden sonra da devam edecek

←	→
---	---

Öldüğümde, bedenim hissetmeye yine de devam edecek.

←	→
---	---

Bir gün öleceğim gerçeği beni bunaltıyor.

←	→
---	---

Ölümden kaçamayacağım için acı çekiyorum.

←	→
---	---

Öleceğim günü düşününce endişeleniyorum.

←	→
---	---

Ölüm anını düşünmek içimi korkuyla dolduruyor.

←	→
---	---

Yakın zamanda ölecek olsaydım, parçalanmış hissedirdim.

←	→
---	---

Bir gün ölüp yok olacağımı düşündüğüm zaman yılgın hissediyorum.

←	→
---	---

Ölümüm üzerine düşünmek, her şeyin anlamsız ve umutsuz olduğunu hissettiriyor.

←	→
---	---

Bir gün muhakkak öleceğim gerçeği beni hiç mi hiç üzmez.

←	→
---	---

Ölüm kaderdir ve bunun için kaygılanmıyorum.

←	→
---	---

Birazdan ölecek olsam bile endişe etmezdim.

←	→
---	---

Ölümlle ilgili herhangi bir korkum yok.

←	→
---	---

Ölümümünden sonra artık var olmayacak olsam da bununla ilgili çok rahatım.

←	→
---	---

Ölümden kaçmanın hiçbir yolu yok, fakat bu konuda şimdi de gelecekte de ümitsizliğe sürüklenmem.

←	→
---	---

Yalnız ölecek olsam bile acı hissetmezdim.

←	→
---	---

### **The Manipulation Method of Luo et al. (2014)**

#### **Control Condition**

Lütfen, birazdan karşılaşıcağınız ifadeleri hayal ediniz ve bu ifadeler üzerlerine dikkatlice

düşününüz. Eğer ifadeye katılıyorsanız, solu (←); katılmıyorsanız, sağı (→) seçerek belirtin.

Her ifade, 7 saniye ekranda kalacak, sonra otomatik olarak değişecektir.

Yıllardır kendimi hep suçlu hissettim.

←	→
---	---

Ne olursa olsun başa çıkmak zorundayım ve bu beni üzüyor.

←	→
---	---

Hayattaki her şey beni rahatsız ediyor.

←	→
---	---

Hayattaki önemsiz meselelerle ilgili sıklıkla mutsuzum.

←	→
---	---

Geleceğimle ilgili endişeleniyorum.

←	→
---	---

Yaklaşan sınavlar/işler canımı sıkıyor.

←	→
---	---

Hayat hakkında çaresiz hissediyorum.

←	→
---	---

Hayattan kaçamamanın acısını çekiyorum.

←	→
---	---

Görebildiğim kadarıyla gelecek umutsuz.

Yaklaşmakta olan bir sınavı/işi düşününce yılmış hissediyorum.

←	→
---	---

Gelecek, içimi korkuyla dolduruyor.

←	→
---	---

Hayattaki meseleler beni hep rahatsız ediyor.

←	→
---	---

Hayatta hep pişmanlıklar vardır.

←	→
---	---

Bugünlerde hayat hakkında gerçekten ümitsizim.

←	→
---	---

Yıllardır kendimi hiç suçlu hissetmedim.

←	→
---	---

Hayatta birçok şeyle yüzleşmek gerekiyor ama bununla ilgili hiç kaygılı değilim.

←	→
---	---

Sınavlar/işler yaklaşıyor olsaydı bile endişe etmezdim.

←	→
---	---

Hayatta asla korkmam.

←	→
---	---

Yıllardır hiçbir şey beni pişman etmiyor.

←	→
---	---

Hayat hakkında ne şimdi ümitsizliğe düşerim ne de gelecekte.

←	→
---	---

Hayat hakkında hiçbir korkum yok.

←	→
---	---

Yaklaşan sınavlar/işler canımı sıkamaz.

←	→
---	---

Hayatta asla üzgün hissetmem.

←	→
---	---

Yalnız yaşamak zorunda olsaydım bile hiç acı çekmezdim.

←	→
---	---

Gelecekte korkmuyorum.

←	→
---	---

Şu anda bunalımda hissetmiyorum, gelecekte de hissetmeyeceğim.

←	→
---	---

Gelecekte yaşamla ilgili kaygılanmayacağım.

←	→
---	---

Hayatla ilgili hiç memnuniyetsiz değilim.

←	→
---	---

### **Positive and Negative Affect Schedule (PANAS)**

Aşağıda, farklı duyguları tanımlayan 20 kelime bulunmaktadır. Sizden, bu kelimelerin, şu

an içinde bulunduğunuz duyguları ne kadar yansıttığınızı belirtmeniz istenmektedir. Bunun için, kelimelerin yanında bulunan sayılardan, anlık ruh halinizi en iyi yansıttığını düşündüğünüzü yuvarlak içine alınız.

	Çok az ya da hiç	Biraz	Ortalama	Oldukça	Çok fazla
	1	2	3	4	5
İlgili	1	2	3	4	5
Sıkıntılı	1	2	3	4	5
Heyecanlı	1	2	3	4	5
Mutsuz	1	2	3	4	5
Güçlü	1	2	3	4	5
Suçlu	1	2	3	4	5
Ürkmüş	1	2	3	4	5
Düşmanca	1	2	3	4	5
Hevesli	1	2	3	4	5
Gururlu	1	2	3	4	5
Asabi	1	2	3	4	5
Uyanık (dikkati açık)	1	2	3	4	5
Utlanmış	1	2	3	4	5
İlhamlı (yaratıcı düşüncelerle dolu)	1	2	3	4	5
Sinirli	1	2	3	4	5
Kararlı	1	2	3	4	5
Dikkatli	1	2	3	4	5
Tedirgin	1	2	3	4	5
Aktif	1	2	3	4	5
Korkmuş	1	2	3	4	5



## Word-Searching Task

Aşağıdaki kelime bulmacasında, (soldan sağa, sağdan sola, yukarıdan aşağıya, aşağıdan yukarıya olmak üzere) 7 adet, 4 ve üzeri harfli kelime bulunmaktadır.

A S F K E Ö R P T İ S R  
Y Ş İ V T Ğ E O E S A Ö  
T E L E F O N T K Y R T  
O B M Y Ö C A B A U Z K  
K Ç Z O T S A S Ğ R L A  
N A İ R A Z İ T İ K U N  
I F O M E G S O T K E T  
E C A U L R A Ğ E R S İ  
M Ü Z İ K E K İ T A P E  
Ü H B Ş E S U P O R O S  
S L A M R V F Ö L İ R İ  
A D U J P A Ç S U B A N

Aşağıdaki kelimeleri, yukarıdaki kelime bulmacası içinde bulunuz. Bulduğunuz kelimelerin hangi yönde olduklarını, ilgili kelimenin yanındaki kutucuklardan uygun olanı işaretleyerek belirtiniz. Görevi, 5 dakika içinde tamamlamanız beklenmektedir.

	Soldan sağa	Sağdan sola	Yukarıdan aşağıda	Aşağıdan yukarıya
Telefon				
Müzik				
Film				
Spor				
Bira				
Kağıt				
Aktör				

Lütfen, size göre, bulmacanın zorluk derecesini belirtiniz.

(1=Çok kolay, 5=Orta, 9= Çok zor)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

**Five Manipulation Check Questions for the Methods of Cox et al. (2009) and Luo et al. (2014)**

Lütfen, aşağıdaki soruları cevaplayınız.

(1=Hiç, 10=Çok fazla)

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Verilen cümleleri okuduktan ve değerlendirdikten sonra kendi ölümünüzü ne ölçüde düşündünüz?

Tüm cümleleri okuduktan sonra ne ölçüde korku dolu hisler düşündünüz?

Tüm cümleleri okuduktan sonra ne ölçüde nahoş/tatsız hisler düşündünüz?

Verilen cümleleri okuduktan ve değerlendirdikten sonra kendinizi ölüme ne kadar yakın hissettiniz?

Verilen cümleleri okuduktan ve değerlendirdikten sonra ne ölçüde ölümle ilgili korkular hissettiniz?

**Five Manipulation Check Questions for the Methods of Kesebir (2014)**

Lütfen, aşağıdaki soruları cevaplayınız.

(1=Hiç, 10=Çok fazla)

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Verilen görevi yaptıktan sonra kendi ölümünüzü ne ölçüde düşündünüz?

Verilen görevi yaptıktan sonra ne ölçüde korku dolu hisler düşündünüz?

Verilen görevi yaptıktan sonra ne ölçüde nahos/tatsız hisler düşündünüz?

Verilen görevi yaptıktan sonra kendinizi ölüme ne kadar yakın hissettiniz?

Verilen görevi yaptıktan sonra ne ölçüde ölümle ilgili korkular hissettiniz?

### **Death-Thought Accessibility (DTA) Task**

Aşağıda, bazı eksik harfleri alt tire işareti ( \_ ) ile ifade edilmiş kelimeler bulunmaktadır. Sizden, eksik harfleri tamamlayarak, kelimeyi yeniden yazmanız istenmektedir. Kelimelerdeki her bir alt tire, bir eksik harf anlamına gelmektedir. Her bir kutucuğu, aklınıza ilk gelen kelimeyi tercih ederek doldurunuz.

Örn: M \_ \_ A MASA

\_ E \_ E N

K \_ L \_ U K

\_ E \_ C E R \_

\_ İ Ş \_

\_ \_ Ü M

Ç \_ \_ E K

B \_ \_ A

\_ Ö M \_ E K

A J \_ \_ D A

K E \_ \_

\_ A S \_ I K

M E \_ A \_

O \_ U \_

P \_ A \_ T İ K

\_ A Ş \_ K

\_ \_ P R A K  
M A \_ \_ S  
Y \_ \_ E K  
T A \_ \_ T  
\_ \_ V Ş \_ N  
\_ L A \_ Y E  
O T \_ \_ Ü S  
\_ E \_ A Z \_  
D E \_ T \_ R  
K \_ H \_ E

Lütfen, çözmüş olduğunuz kelime tamamlama bulmacasının zorluğunu belirtiniz.

- Çok kolay
- Kısmen kolay
- Biraz kolay
- Ne kolay ne zor
- Biraz zor
- Kısmen zor
- Çok zor

### **Debriefing From**

Sayın katılımcı,

Deneyin sonuna gelmiş bulunmaktasınız. Katılımınız için teşekkür ederiz.

Bu çalışmada, Dehşet Yönetimi Kuramı bağlamında, ölümlülüğün belirginleştirilmesi için uygulanan üç farklı manipülasyondan hangisinin daha etkili olduğu test edilmiştir. Bu kurama göre, hayatta kalmaya yönelik güçlü bir evrimsel koda sahip olan ve ölümlülüğünü idrak edecek bilişsel gelişmişlikte olan insan için bu iki durum, acilen giderilmesi gereken bir endişe oluşturur. Bu endişenin üstesinden gelme, insan davranışları için önemli bir motivasyon kaynağıdır. Konuyla ilgili daha fazla bilgi edinmek için, buraya (<https://www.psikolog.org.tr/tr/yayinlar/dergiler/1031828/tpy1301996120150000m000067>).

pdf) tıcklayabilirsiniz. Deneyle ilgili bir sorunuz ya da öneriniz olması durumunda, sacakliasli@gmail.com adresi üzerinden bizimle iletişime geçebilirsiniz.

Lütfen, aşağıdaki linklerden size en uygun olana tıcklayınız. Tıckladıktan sonra, yeni sayfaya yönlendirileceksiniz.

- Öğrenciyim, bonus puan kazanmak istiyorum.
- Hediye çekilişine katılmak istiyorum.
- Doğrudan deneyin sonlanmasını istiyorum.