SEEING WITH THE MIND'S EYE: HOW THE SCENE CHANGES WITH COGNITIVE AVOIDANCE AND EMOTION REGULATION DIFFICULTIES

by

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This one is for all the women who flourish everyday in science and in life despite everything trying to hold us back, and the lives that were taken from us.

Abstract

Autobiographical memory (AM) has certain qualities that change depending on mood, cognitive capacity, age, and organic brain function. One of those qualities, episodic detail, is studied extensively in the aging literature and in relation to different types of medial-temporal lobe distortions. On the other hand, AM specificity is highly investigated in mood and anxiety disorders. Additionally, phenomenological qualities of AM, such as vividness and vantage point, are influenced by neurological and psychiatric disorders. Although traditionally studied separately, these qualities seem to be regulated by the same underlying mechanisms which are similarly affected in both functional distorsions that accompany affective problems and structural damages that occur as a result of neurological disorders or healthy aging. The clinical science literature focuses on avoidance of negative affect as a mechanism affecting changes in memory characteristics, however, the transdiagnostic changes might be better explained by a core dysfunction that is observed in psychiatric problems more broadly. This study aimed to investigate difficulties with negative emotion regulation and avoidance in relation to AM characteristics. Data collected from 96 undergraduate students revealed that emotion regulation difficulties predicted increase in emotional details in both positive and negative memories. However, avoidance was not related to a shift in vantage point, number of episodic details or memory specificity during the recall of personal memories. These findings provide new insights into how subclinical levels of cognitive and affective processes are related to the experience of autobiographical remembering.

Keywords: emotion regulation, episodic detail, vantage point, vividness, overgeneral memory, autobiographical memory, cognitive avoidance

Özetçe

Otobiyografik bellek duygudurum, bilişsel kapasite, ve organik beyin fonksiyonlarından etkilenen çeşitli özelliklere sahiptir. Bu özelliklerden biri olan episodik detay, medial-temporal lob hasarlarıyla ilişkilendirilerek, yaşlanma literatüründe sıklıkla çalışılmıştır. Diğer bir bellek özelliği olan spesifisitenin ise, duygudurum ve kaygı bozukluklarıyla olan ilişkisi kanıtlanmıştır. Ek olarak, anıların fenomenoloji özellikleri olan canlılık ve bakış açısının nörolojik hastalıklarla birlikte değişime uğradıkları bilinmektedir. Tüm bu özellikler farklı tür hastalıklarla ilişkilendiriliyor olsalar da, benzer nöral süreçler tarafından kontrol edildikleri; beynin benzer fonksiyonel ve yapısal bozukluklarından benzer şekilde etkilendiklerini görüyoruz. Klinik psikoloji literatürü negatif duygulardan kaçınma eğiliminin bellek özelliklerinde değişikliğe yol açtığı yönünde kanıtlar sunuyor olsa da, bu değişiklikler farklı psikolojik hastalıklarda ortak olan temel bir mekanizma tarafından daha iyi açıklanabilir. Bu çalışmada, duygu yönetim ve kaçınma davranışının otobiyografik bellek özellikleriyle ilişkisi incelendi. 96 lisans öğrencisinden toplanan veri duygu yönetim güçlüğünün pozitif ve negatif anılarda daha fazla duygusal detay hatırlamayla ilişkili olduğunu gösterdi. Ancak negatif duygu ve olaylara karşı gösterilen kaçınmacı başa çıkma davranışlarının episodik detay, spesifisite ve anılar hatırlanırken kullanılan bakış açısıyla bir ilişkisi bulunmadı. Bu bulgular klinik boyuta ulaşmayan duygusal ve bilişsel süreçlerin anı hatırlama deneyimiyle ilgili yeni bilgiler sunmakla birlikte, psikolojik hastalıkların oluşum aşamalarında görülen değişimlere dair de yeni kanıtlar ortaya koymaktadır.

Anahtar kelimeler: otobiyografik bellek, duygu yönetimi, episodik detay, kaçınmacı başa çıkma

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ABBREVIATIONS

AM	Autobiographical Memory
AMI	Autobiographical Memory Interview
AMT	Autobiographical Memory Task
BDI	Beck's Depression Inventory
CaR- Fa-X	Capture Rumination Functional Avoidance and Executive Dysfunction
DERS	Difficulties in Emotion Regulation Scale
EM	Episodic Memory
MDD	Major Depressive Disorder
MTL	Medial Temporal Lobe
OGM	Overgeneral Memory
SM	Semantic Memory
vmPFC	Ventromedial Prefrontal Cortex

1. INTRODUCTION

Everyday we remember, talk about, and reflect on our memories. Whether we intend on recalling an event that we experienced or a scene from the past pops into our head, memories are a core part of cognition that influence our perceptions, mood, plans, and relationships. Though the act of remembering is ubiquitous, the way it is experienced can be quite unique. Individuals recall their personal memories with different levels of clarity, detail and specificity, and the visual experience that accompanies remembering might vary dramatically. In this thesis, I aimed to examine how the experience of remembering one's personal memories change as a function of different cognitive and affective processes. I proposed that difficulties in negative emotion regulation and avoidant coping strategies might be related to phenomenological experience of personal memories through changes in the levels of episodic details, specificity, and visual imagery[1].

1.1. Literature Review

Autobiographical Memory (AM) constitutes a collection of episodic (EM) and semantic (SM) memories, both of which facilitate AM retrieval (Brewer, 1986). However, they rely on distinct, though to some extent overlapping, mechanisms (Tulving, 1972). EM refers to event-like recollections that have what-where-when information, which facilitates scene construction and visual imagery (Conway, 2009). In other words, it contains source information conveying the details of the context where the memory was encoded. SM, on the other hand, mostly involves factual knowledge of which the source of accumulation is irrelevant for retrieval (Mahr & Csibra, 2018). Although semantic components are also involved in EM, source information determines the distinction.

Episodic recall, which is accompanied by re-experiencing the events in question, requires autonoetic consciousness (Wheeler et al., 1997). Autonoetic consciousness is conceptualized as the cognitive capacity to be aware of one's past, present and possible future experiences, and it is

[1] Emotion regulation refers to the use of strategies to experience negative and positive emotions. In this paper, we use emotion regulation in the context of coping with strong negative emotions that create strong affective and cognitive load.

crucial for the experience of remembering an event as opposed to simply knowing that it happened (Tulving, 1985). To know an event is considered noetic consciousness which is tantamount to semantic knowledge as it does not necessarily involve scene construction or mental imagery (Gardiner, 2001). Remembering an event through autonoetic consciousness, on the other hand, involves recalling source information which conveys information about the context in which it took place. Autonoetic experience varies with regards to the amount of episodic details, specificity, and level of vividness and vantage point. These components will be explained in more detail.

1.1.1. Episodic Details

Remembering involves recalling episodic details. Both recalling past episodes and imagining future events require scene and event construction since they contain information relating to the context where events take place (Addis et al., 2008, Mullally & Maguire, 2013, Race et al., 2011, Schacter et al., 2013), showing that contextual details are important for episodic memory regardless of temporal relations. Therefore, EM retrieval is accompanied with the mental time travel that allows the re-experiencing (or pre-experiencing in the case of future thinking) of events with sensory, affective and spatiotemporal details, and scene construction that contains those episodic details. The recall of episodic memories that include such details constitutes recollection. On the other hand, simply knowing that an event happened without recalling episodic details is more of a familiarity that characterizes semantic memory. Remember responses which correspond to episodic recollection require episodic details whereas know responses which correspond to familiarity involve more semantic than episodic details (Yonelinas, 2002).

A distinction between episodic (internal) and semantic (external) details of personal memories was made by Levine et al. (2002). According to their categorization of AM, the details conveying information about the main event, such as the people involved in it, the weather at the time of the event, time and place, perceptual qualities, and emotions were considered internal (episodic) details. On the other hand, details about incidents other than the main event, general

knowledge, extended states, and repetitions were considered external (semantic) details. In this study, where Levine and colleagues proposed the distinction between episodic and semantic details, they used Autobiographical Memory Interview (AMI) to assess memory quality in aging. By creating a coding manual, they defined main events whose details constitute episodic/ internal details. Details regarding events other than the main event were considered to be external details.

Levine et al.'s study on episodic details showed that older adults relied more heavily on semantic details as opposed to episodic information whereas an opposite pattern was observed in younger adults (Levine et al., 2002). In a more recent study, it was also found that events that took place in a more distant past were recalled with fewer episodic and more semantic details (Strikwerda-Brown et al., 2019). That is, temporal distance is related to a decreased number of episodic details. Therefore, the phenomenological experience of AM during recall differs in relation to the types of details of which the individual makes use, temporal distance and age.

1.1.2. Autobiographical Memory Specificity

A specific memory or an event is described as an incident that took place at a particular time and place and lasted no longer than 24 hours. If a memory that is reported fails to fulfill that definition, it can be classified as a categorical (events that happen repeatedly) or an extended (events that happen over the span of longer than 24 hours) memory (Williams & Broadbent, 1986). Literature on Major Depressive Disorder (MDD) suggests that individuals with depression show a bias towards recalling overgeneral memories (OGM) in the Autobiographical Memory Task (AMT; Williams & Broadbent, 1986). That is, when asked to recall specific memories in response to cue words, they fail to report specific memories (Vreeswijk & Wilde, 2004). Instead, they give categorical (e.g., "When I go to get coffee, I usually also buy carrot cake") or extended (e.g., "I was in the dance club in college") responses.

OGM is commonly explained by the Capture and Rumination-Functional Avoidance-eXecutive dysfunction (CaR-Fa-X) model, which proposes that the reduced specificity of autobiographical memories is caused by 1) individuals' ruminative tendencies that capture attention at the overgeneral level and aborts the search for specific memories before reach, 2)

functional avoidance[2] motivated by the desire to avoid negative affect caused by retrieval of specific negative memories, which globalizes to positive memories in time, and 3) reduced executive control capacity that has a punitive effect on memory search (Williams, 2006). The vast majority of the literature supporting AM deficits in MDD was taken as the basis to consider OGM as one of the major endophenotypes of depressive disorder, which is associated with cognitive and affective biases as well as emotion regulation difficulties (Goldstein & Klein, 2014).

Among psychiatric disorders, OGM is observed in post-traumatic stress disorder (Schönfeld & Ehlers, 2006; Ono et al., 2016), major depressive disorder (Watkins & Teasdale, 2001; Park et al., 2002; Hermans et al., 2008), bipolar disorder (Scott et al., 2000), and acute stress disorder (Bryant et al., 1998). OGM was also found to be associated with anxiety symptoms (Wessel, 2001), though a more recent study failed to find a significant relationship (Van Daele et al., 2014). On the whole, it is clearly not a disorder-specific phenomenon. Since psychiatric disorders present considerable heterogeneity within DSM categories in terms of clinical and cognitive profile, it is best to study such underlying mechanisms via a more dimensional approach. Since most of the studies investigating OGM were conducted from a categorical approach to psychopathology, we cannot draw conclusions regarding the specific endophenotype or a dimensional dysfunction that is most prominently related to this transdiagnostic phenomenon. Though CaR-FA-X is the most prominent conceptual model that explains it through a dimensional lens, studies showed that reduced AM specificity was not related to avoidance (Hallford et al., 2018) or rumination (Chiu et al., 2018). Therefore, the relationship between these cognitive disturbances and OGM is not supported by evidence in the literature.

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[2] Functional Avoidance in the CaR-Fa-X model is conceptualized as the tendency to cognitively suppress information with which it is difficult to cope, rather than avoidance as an attachment style. Throughout this paper, functional avoidance is used in the context of findings related to CaR-Fa-X model to be consistent with the terminology used in the model. In the rest of the paper, I used “cognitive avoidance” or “avoidance” to refer to the same construct.

1.1.3. Visual Imagery During Memory Retrieval: Vantage Point and Vividness

Source information that aids visual scene construction during episodic memory retrieval relates to visual imagery during memory recall, which is related to vantage point and vividness. While constructing the scene of the retrieved event, one can take either allocentric perspective where they see themselves as being involved in the event or the observer perspective which places the individual on the outside of the context (Tulving, 1987). In healthy individuals, focusing on emotional experiences was associated with remembering AM from the first-person (egocentric, field) perspective while the recall of objective elements (i.e., contextual information such as time, place, and perceptual details) was coupled with the third-person (allocentric, observer) perspective (Nigro & Neisser, 1983). An opposite pattern is observed in older adults who rely more heavily on the observer perspective and know, as opposed to remember, responses (Piolino et al., 2006).

While healthy individuals tend to recall EM from the egocentric perspective (Nigro & Neisser, 1983), MDD patients are more likely to remember AM from the observer point of view (Lemogne et al., 2006; Bergouignan et al., 2008), which was interpreted as a tendency to emotionally distance themselves from the affective nature of the memories (Williams et al., 2007). That is, during retrieval of personal memories, depressed individuals show a tendency towards seeing themselves as looking from the outside as opposed to being involved in the event. Additionally, MDD and PTSD patients' recall of intrusive memories from the allocentric perspective was explained by emotional detachment and cognitive avoidance (Williams & Moulds, 2007).

MDD patients also recall positive events less vividly compared to negative events (Williams et al., 2007). This is in line with the evidence suggesting egocentric perspective facilitates emotional detail recall and vividness, and depressed individuals more prominently take the observer perspective during the recall of positive memories and recall negative memories from the egocentric perspective. However, this result contradicts the predictions of the Functional Avoidance component of the CaR-FA-X model. We would expect MDD patients to

recall negative memories less vividly if they are trying to avoid negative feelings associated with remembering negative memories. CaR-Fa-X model claims that a strategy that started out to avoid negative affect loses its flexibility and, in time, starts to globalize across different valences. Alternatively, it could be related to disturbed reward mechanisms, a prevalent feature of anhedonic depression (Der-Avakian & Pizzagalli, 2018). The latter explanation would suggest that it is lack of motivation to feel pleasure, rather than avoidance of negative affect, that interferes with vividness and vantage point taken.

1.1.4. Neural Underpinnings of AM quality

Findings from a large number of neuroimaging studies suggest that episodic details depend heavily on the medial temporal lobe (MTL) structures (Eichenbaum & Fortin, 2009; Bonnici et al., 2009; Schacter & Addis, 2009; Race et al., 2011), and that damage to the MTL interferes with the encoding and retrieval of episodic details (Irish et al., 2013; Sheldon et al., 2011). Within the MTL, item-specific information is encoded by the amygdala, and it is related to subjective feelings and emotions (Kensinger et al., 2011). On the other hand, episodic details concerning objective circumstances (i.e., the when-where-what information) is governed by the hippocampus (Davachi, 2006; Slotnick, 2010). In other words, even though they are both considered episodic details, subjective and objective states are governed by distinct neural mechanisms. In personal memories, we would expect retrieval of subjective details of EM (i.e.: emotion and thought details) to require amygdala involvement whereas the objective details (details regarding time, place, and perceptual qualities) would be associated with the posterior hippocampus-related processes. However, since there is no study that looked at this distinction previously, this expectation is a mere inference at the moment.

In a comprehensive review of the neurobiology of OGM, it was found that the reduced specificity of AM in depression was positively related to enhanced hippocampal and decreased amygdala activity (Barry et al., 2018). It was also found that enhancing the amygdala activity led to an improvement in specific memory recall as well as decreased depression scores in individuals with depression (Young et al., 2017). Since the amygdala's role on emotional

memories is well-established (Cahill et al., 1995; Canli et al., 2000), it could be inferred that the reduced activity in this region would also be associated with a reduction in emotional details, which in turn would be related to a decrease in the vividness of recalled memories. A study which looked at episodic details reported that MDD patients showed overall reduction in episodic details during future thinking (King et al., 2011). Since it was found that the vividness of AM was related to the ability to focus on the emotional aspects of recalled events that is governed by the amygdala (Kensinger et al. 2011), combined with the evidence that reduced amygdala activity is observed during recall of emotional memories in depression (Young et al., 2017), it could be expected that the reduced vividness in depression would relate to a decrease in emotional details. However, to our knowledge, no such examination was made previously as there is no study that looked at episodic details of recalled past experiences in relation to affective difficulties.

With aging, the re-experiencing of emotional memories changes. Older adults are known to report negative events less vividly (Ford et al., 2014), and it is thought to be regulated by prefrontal cortex-governed emotion regulation strategies targeting positive emotion enhancement and negative emotion down-regulation (Ford & Kensinger, 2018). It is suggested that hippocampal involvement in memory retrieval decreases as memories become more integrated into long-term storage, and prefrontal structures, ventromedial prefrontal cortex (vmPFC) in particular, takes the leading role in processing memories that align with existing schemas (van Kesteren et al., 2010). This transition is a possible explanation for how and why older adults recall memories from the allocentric perspective and make use of schemas during AM recall. Considering the relationship between emotional details recalled and the egocentric perspective, it could be inferred that vmPFC involvement in AM recall and emotion regulation in aging might be related to a decreased number of emotional details and the shift in vantage point.

1.2. Rationale of the Present Study

Collectively, components of personal memories and their phenomenological experience affect the conscious experience of the self. One’s self-concept, personal schemas, and identity are

heavily influenced by the cognitive biases that influence one's memory recall (Conway & Pleydell-Pierce, 2000; Conway, 2005). The ways that remembering is affected by these biases, in affective or neurological disorders, take a toll on the dynamic models of self. Therefore, understanding the mechanisms by which phenomenological experience of remembering is shaped and differentiating between different components of this experience, as well as discovering how they interact with each other, would help illuminate some of the questions in the fields of cognitive and clinical neuroscience by contributing to our knowledge on consciousness, memory, and psychopathology.

In my literature overview, I addressed three different qualities of autobiographical memory: episodic detail, specificity, and visual imagery as it relates to vantage point and vividness. These qualities have been investigated, often separately, with different populations and from different perspectives. Whereas most of the literature on episodic details and imagery is concerned with structural MTL deterioration (i.e., aging, Alzheimer's Disease, and MTL epilepsy), OGM is mostly studied in relation to affective disorders which are characterized by functional problems of the brain. However, a given memory involves all of these features on varying levels even though the extent to which they are examined depend on the purpose and the scope of the studies in question. Based on the literature reviewed above, the present study aims to examine different qualities of autobiographical memory in relation to each other and from a dimensional perspective without a focus on diagnostic categories in a clinically undiagnosed sample.

Specific memories are thought to contain more sensory-perceptual details and be experience-near (Conway, 2001). However, as explained previously, to be considered specific, a memory measured by the AMT only has to take place at a certain place and time, and should not have lasted longer than 24 hours (e.g., "my brother's engagement party"). Therefore, by definition, a memory does not need to have episodic richness (i.e., episodic details and vividness) to be considered specific. For example, "I had dinner with my brother" would be considered a specific memory. However, this memory does not contain any episodic details other than event information. In contrast, a memory that fails to be considered specific could have a high number

of episodic details. For example, “Everytime I see Jeff at the cafeteria in the main campus when he comes to grab his afternoon coffee at exactly 2 o’clock everyday, I happen to be studying with my best friend, Alison. It reminds me of the times we used to hangout as a group, which makes me a little sad.” would be considered a categorical memory that contains event, time, place, and emotion details. Therefore, specificity criteria does not make a distinction as to whether, or to what extent, episodic details are retrieved.

Autobiographical memory specificity and episodic details are not the same, and they might be influenced by mental illnesses and cognitive deficits in different ways. In fact, a study investigated the two in relation to cognitive and affective processes, and found that specificity was related to rumination, avoidance, emotional reactivity, and depression. On the other hand, episodic details were associated with depression diagnosis, depressive symptoms, stress, emotion reactivity, and rumination (Kyung et al., 2015). Even though they do not represent the same construct, there is a level of overlap between cognitive and affective processes associated with two outcomes. Previous findings suggest that episodic details might also be influenced by dysfunctional cognitive and affective tendencies present in psychiatric disorders similar to specificity. However, the different processes with which they are associated are not investigated thoroughly.

It was suggested that positive emotion enhancement and negative emotion downregulation strategies were associated with reduced vividness of negative memories in older adults (Ford & Kensinger, 2018). Therefore, vividness is related to emotion regulation strategies. Inability to recall positive memories vividly in MDD further suggests a link between emotion regulation difficulties and visual imagery during memory recall. The CaR-Fa-X model similarly suggests that the development of OGM is an attempt to reduce the putative effects of negative emotions which individuals find too hard to cope. This explanation implies emotion regulation difficulties but studies built on this model do not explicitly measure participants’ level and style of emotion regulation. In fact, the rumination component in the model is in contradiction with the avoidance module since the suggestion that individuals who tend to ruminate are the ones who, by definition, cannot repress (i.e., avoid) thoughts that have emotional impacts. Therefore,

it seems that it is the difficulty regulating emotions rather than avoidance that influences memory characteristics.

Since emotions bring out different reactions from individuals, it is not scientifically grounded to assume that the default reaction to difficult emotions would be to avoid experiencing them in all ways possible. Further, studies conducted with clinical populations hinder conclusions making inferences about cognitive processes which are naturally on a continuum. However, the qualitative differences in maladaptive processes in clinical and healthy populations have not been illuminated yet. Therefore, we cannot be sure whether it is the level of a given cognitive process (cognitive avoidance and emotion regulation difficulties in this case) or the presence of psychopathology that is changing the experience of autobiographical remembering. To address these issues, there is a need to develop designs where underlying cognitive mechanisms of autobiographical remembering are explained through data collected from clinically undiagnosed individuals who differ in their levels of avoidance and emotion regulation difficulties.

In this study, I aimed to explore and propose a model for the interactive relationship between emotion regulation and avoidant coping as they relate to the vividness and episodic (specifically, emotional) details of recalled personal memories. Based on the evidence suggesting a negative correlation between temporal distance and episodic details recalled, I would like to examine how cognitive distance and affective difficulties would factor in the relationship of episodic details with vantage point and vividness. I propose that difficulties in emotion regulation and reliance on avoidant coping strategies would be related to a reduced number of emotional episodic details, reduced vividness and remembering from the allocentric perspective during the recall of personal memories, and that this will hold true only for negative memories that are expected to induce negative emotional states.

The literature we reviewed regarding episodic details was mostly built on the use of AMI. Since this literature is mostly concerned with neurocognitive disturbances due to aging or neurological disorders, AMI's structure that directs participants to a specific time period and

reduces the burden on the individuals to make the mental time travel on their own is an advantage for these populations. Also, in AMI, the experimenter asks for each episodic detail and tries to get as much as possible from the participant. This approach is useful considering organic deficits might interfere with individuals' ability to spontaneously recall these sorts of details. However, OGM literature is mostly built on knowledge gained from psychiatric disorders, and it is concerned with affective components of AM. Additionally, knowledge of lifetime periods are independent of MTL structures as they acquire semantic-like features by going through consolidation (Conway, 1993; Conway & Rubin, 1993). For these reasons, AMT is a more suited test as it involves giving participants cue words of different valence and does not direct them to certain time periods.

Given this information, and considering that episodic versus semantic detail distinction is a big part of episodic reexperiencing, it is supposed that the AMI is not the ideal task in measuring spontaneous episodic detail recall in healthy populations. To assess characteristics of episodic re-experiencing and scene construction, a better method would be to ask participants about specific memories without probing lifetime periods. Using the AMT would leave the time travel to the participant and help us see their autonoetic consciousness capacity. Another advantage of the AMT is that it allows for using emotional cue words, which would help observe the influence of affective difficulties. I proposed that episodic detail coding should be incorporated into the examination of memories that were reported in response to cue words in the AMT to better understand how re-experiencing the past changes with emotional difficulties .

1.3. Hypotheses

My first set of hypotheses is concerned with the vantage point. I expect that cognitive avoidance would put a mental distance to negative memories, which would affect the vantage point shift towards an allocentric recall. My first hypothesis is that individuals who have a high avoidance will recall a higher percentage of negative memories from an allocentric point of view as opposed to an egocentric perspective (1). For positive memories, we would not expect to see the effect of cognitive avoidance since positive emotional memories would not necessitate

emotional distancing in a non-clinical population. Therefore, my second hypothesis is that there will be no significant relationship between avoidance and level of allocentric recall of positive memories (2).

My second set of hypotheses involves the assessment of emotional details. As explained above, specificity and episodic details are concerned with different aspects of memories. If avoidance is indeed related to changes during the recall of personal memories, we would expect it to result in fewer emotional details reported in response to negative cue words in individuals who have difficulty regulating negative emotions. My third hypothesis is that individuals who have difficulty regulating their emotions will have reduced number of emotional details for negative memories, and this relationship will be moderated by avoidant tendencies of individuals (3). Since the recall of positive memories is not expected to yield affective load, we would not expect to see this effect for memories that are reported in response to positive cue words. Therefore, my forth hypothesis is that there will not be a relationship between emotion regulation difficulties and emotional details of positive memories (4).

My last set of hypotheses relate to vividness. If depressed individuals remember negative memories more vividly, I would expect this to be related to emotion regulation difficulties that are experienced even without a clinical diagnosis. If this was related to avoidance, we would expect them to recall negative memories less vividly to avoid negative emotions. Therefore, I hypothesize that emotion regulation difficulties will be associated with more vivid negative memories (5). Since positive memories do not lead to affective overload with which individuals with emotion regulation difficulties find hard to cope, we would not expect to see a relationship with them. Therefore, I hypothesize that the relationship between emotion regulation difficulties and vividness of positive memories would be insignificant (6).

2. METHOD

2.1. Participants

Data were collected at the Koc University Campus from undergraduate students. An a priori G*Power (Faul et al., 2007) analysis was conducted using a medium effect size (d = .50), and an alpha of .05 as input variables. The results showed that 68 participants were needed to achieve .80 power. Individuals who were over the age of 18 and in a state to give informed consent were included in the study. Exclusion criteria were diagnosis of a psychiatric disorder, having a history of head trauma followed by an unconscious period, history of substance/alcohol use disorder, diagnosis of a neurodegenerative disorder, and current use of a psychiatric medicine. Individuals who fulfilled any of the exclusion criteria were excluded from the data before analysis. To avoid putative effects of potential data loss, 96 participants were recruited, and they were compensated for their time with course credit and coffee coupons. The study protocol was approved by the Institutional Review Board at Koc University.

2.2. Materials

Autobiographical Memory Task: It is a task that assesses an individual's ability to retrieve specific memories in response to positive, negative, and/or neutral cue words. It was designed by Williams Broadbent in 1986. In this study, we used 6 negative and 6 positive Turkish cue words that were chosen from the Turkish Emotional Word Norms where a rating of 0 represented extremely negative and 10 represented extremely positive scores (Kapucu et al., 2018). From this list, we chose moderately valenced words to avoid inflicting extreme emotional states (*Range* = 1.96 - 3.09 and 7.37 - 8.36, respectively).

Beck Depression Inventory-II (BDI-II): The Beck Depression inventory was originally developed by Beck, Ward, Mendelson, Mock, & Erbaugh (1961), and later revised by Beck, Steer, & Brown (1996). The inventory consists of 21 items targeted to measure severity of nine depressive symptoms that are identified in DSM IV. Every item includes 4 statements that indicate the level of severity for each item (i.e., *0- I do not feel I am worthless.; 1- I don't*

consider myself as worthwhile and useful as I used to.; 2- I feel more worthless as compared to others.; 3- I feel utterly worthless.). Scores vary between 0 and 69. Higher scores reflect higher levels of depressive symptoms. Scores higher than 19 require consultation and those over 40 are considered to be clinically depressed. Turkish adaptation of the inventory was conducted by Hisli in 1989. Internal consistency coefficient was .80.

COPE Inventory: The inventory was developed by Carver, Scheier and Weintraub in 1989. The 60-item inventory assesses different dimensions of approach to coping and consists of seven subscales: positive reinterpretation and growth, mental disengagement, focus on and venting of emotions, use of instrumental social support, active coping, denial, religious coping, humor, behavioral disengagement, restraint, use of emotional social support, substance use, acceptance, suppression of competing activities, planning. Participants are asked what they generally do and feel when they are stressed (i.e., *"I restrain myself from doing anything too quickly."*) and rate each item based on how frequently it is employed on a 4-point scale (*1- I usually don't do this at all; 4 - I usually do this a lot)*. It was adapted to Turkish by Dicle and Ersanli in 2015. Internal consistency coefficient was .77. For this study, I used behavioral and mental disengagement, and denial scores as the measure of avoidant coping. With this scoring, the possible range of scores is between 12 and 48. [3]

The Difficulties in Emotion Regulation Scale (DERS)- 16: It was developed by Bjureberg et al. (2015) as a brief alternative to the original DERS which was developed earlier by Gratz and Roemer (2004). It was adapted to Turkish by Yigit & Yigit in 2019 (Yigit & Yigit, 2019). The 16-item self-report measure assesses emotion dysregulation (i.e., "*When I am upset, I become angry with myself for feeling that way*."). The scale measures lack of emotional awareness, emotional clarity, strategy building and control on impulsive behaviors, as well as non-acceptance of negative emotions and inability to behave in accordance with goals under negative emotions with 2 to 5 items in each subscale. It is a 5-point likert scale (*1- Almost Never; 5- Almost always*).

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[3] There are a number of self-report inventories measuring avoidance. COPE focuses on affective and behavioral coping responses in the face of difficult and stressful situations. It was the best suited measure for our purposes since our focus in this paper was on avoidance of strong negative emotions as a coping strategy.

Total scores on this scale range between 16 and 80. Internal consistency coefficient for subscales ranged between .80 to .91.

Episodic Detail Coding Manual: Levine et al.'s 2002 study lays out the manual to code episodic details in the following categories: event, place, time, perceptual, emotion/thought, semantic, and other details. These categorizations coded both for internal (i.e., relating to the main event) and for external (i.e., details that do not pertain to the main event) details. We adapted the manual and added people and metacognitive details since they also give information regarding how much detail is recalled and reported by the participants (see Appendix G for details). After coding the details, we divided them by the total number of words participants used in order to have normalized scores.

Memory Quality Questionnaire - with a cue word (*MQQ*): Originally, the 10-item Memory Experiences Questionnaire was developed by Angelina Sutin and Richard Robins in 2006. Participants rate vividness, coherence, accessibility, time perspective, sensory details, visual perspective, emotional intensity, sharing, distancing, and valence of their own memories for each cue word. We revised this scale and added new items to create a 15-item rating scale measuring phenomenological memory quality by additionally asking about vantage point and date. The questionnaire asks about feelings and sensations for at the time of both the event and the retrieval. It involves a mixture of 5 to 7 item likert type scales and dichotomous response choices.

2.3. Procedure

Participants were asked to complete questionnaires online via Qualtrics (Qualtrics, Provo, UT) prior to coming into the laboratory for the interview. The Qualtrics survey had a fixed order and the flow will be as follows: Beck's Depression Inventory (BDI), COPE Inventory, Difficulties in Emotion Regulation Scale. For the Autobiographical Memory Test (Williams and Broadbent, 1986) which was conducted as an interview, participants met an experimenter in our laboratory. The Qualtrics survey and the lab session were completed within the same week since the BDI measures short-term affective states. In the lab session, the experimenter explained the

task to the participant and asked them to report a specific memory within a 30-second response window. Two practice words (tree, car) were used before beginning the experimental trials. After the participant agreed to proceed, positive and negative words were read in blocks in a counterbalanced order (positive-negative or negative-positive) for each participant. If they failed to report a memory within the allotted time, the experimenter proceeded to the next cue word. Upon reporting each memory, they were asked to rate their memories on the Memory Quality Questionnaire. Participants were debriefed about the study's aims by email after the data collection has ended.

3. RESULTS

3.1. Descriptive Statistics

Participant age ranged from 18 to 27 (M = 20.18, SD = 1.94). A majority of the participants were female (66.7%) and 33.3% were male. The DERS was used as the measure of emotion regulation difficulties. The avoidance score was calculated as the sum of behavioral and mental disengagement, and denial subscales of the COPE inventory. The distributions of scores on the self-report measures were relatively normal for BDI (M = 13.18, SD = 8.92), DERS (M = 43.88, SD = 15.03), and avoidance[4] (M = 23.71, SD = 5.79). Since participants with scores over 40 on BDI were not allowed to continue participating in the study, no further exclusion was made based on high depression scores. Participants with scores over three standard deviations above the mean on at least one measure (two participants on BDI, five on DERS, one in avoidance, one on number of details) were not excluded from the analyses since they did not differ from the others in a systematic way, and they were under the cut off for clinical diagnoses (BDI = 40). The number of allocentric memories out of responses to 6 cue words were positively skewed for both positive (M = 1.26, SD = 1.16) and negative memories (M = 1.19, SD = 1.21), meaning that individuals in our sample predominantly remembered memories from the egocentric perspective.

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[4] One participant did not fill out the COPE scale. Their data was included and analyses that involved avoidance were conducted on a sample of N = 95.

Table 1
Descriptive Statistics

Variables	M	SD
Age	20.18	1.94
BDI	13.18	8.92
Difficulties in Emotion Regulation	43.88	15.03
Avoidance	23.71	5.79
Allocentric Recall Percentage - Positive Memories	0.25	0.22
Allocentric Recall Percentage - Negative Memories	0.24	0.24
Vividness - Positive Memories	16.79	3.21
Vividness - Negative Memories	17.02	3.02
Emotional Details - Positive Memories	3.45	2.62
Emotional Details - Negative Memories	4.23	3.13
Total number of words the participant used	503.14	297.03
Positive Specific Memories	4.89	0.86
Negative Specific Memories	4.73	1.16

3.2. Hypothesis Testing

To test the hypothesis that individuals who have higher levels of avoidance would report negative memories from the allocentric perspective, a one-tailed Pearson correlation analysis was conducted. Avoidance scores were calculated as the sum of behavioral disengagement, mental disengagement, and denial subscales of the COPE scale. The percentage of memories recalled from the allocentric perspective out of memories reported in response to the negative cue words were also calculated. The result of this analysis revealed that the correlation between avoidance and allocentric retrieval of negative memories was not significant ($r = .11$, $p = .16$). I also had hypothesized that avoidance scores would not be related to the percentage of positive memories recalled from an allocentric perspective, and that hypothesis was confirmed ($r = .034$, $p = .37$). The difference between these correlation coefficients was insignificant ($z = .52$, $p = .60$). These results suggest that high cognitive avoidance was not associated with allocentric recall of memories in response to either positive or negative cue words.

To test the third hypothesis that difficulties in emotion regulation as measured by the DERS will be related to a decrease in the number of emotional details reported for negative cue words, we conducted linear regression analysis. To control for the effect of the total number of words used by each participant, we used normalized scores for analyses involving episodic details. For this purpose, we divided each detail score by the total number of words and acquired a percentage of each detail category (i.e., emotional detail). The correlation analysis showed a significant relationship between DERS scores and percentage of emotional details (r = .26, p = .005) for negative memories. Regression analysis showed that the model involving DERS and avoidance scores as independent variables and normalized emotional detail scores for negative memories was also significant (Adjusted R^2 = .07, F (3, 94) = 3.32, p = .02). However, the model showed that, while DERS was a significant predictor of negative emotional details (b = .35, t(94) = 2.92, p = .004), avoidance scores did not explain the variance (b = -.07, t(94) = -.61, p = .55). That is, contrary to my hypothesis, higher DERS scores were associated with a higher number of emotional details reported for negative memories, and avoidance did not explain this variance. Further analysis failed to confirm my fourth hypothesis that DERS scores would not be correlated with emotional details for positive words. In fact, the greater the emotion regulation difficulty, the more positive details reported (r = .30, p = .002). Collectively, emotion regulation difficulties were associated with greater number of emotional details in both positive and negative words.

Due to problems associated with frequentist analyses and null hypothesis significance testing, I also conducted Bayesian correlation analyses for the third and fourth hypotheses. Using Jeffreys prior (c = 1.5), Bayesian Pearson Correlation analysis showed that DERS scores significantly predicted emotional details in negative memories (M = 187; 95% CI: [.01 - .38]). However, with the same criteria applied, (M = 187; 95% CI: [-.04 - .34]) showed that DERS scores did not predict emotional details in positive memories. These results show that difficulties in emotion regulation were only related to an increase in negative but not positive details.

Lastly, I tested my hypotheses involving vividness. A one-tailed Pearson correlation showed a significant association between DERS scores and vividness ratings for negative

memories (r = .20, p = .03). A separate correlation analysis revealed that the relationship between DERS scores and positive memories' vividness was not significant (r = .02, p = .41). Therefore, I was able to confirm my hypotheses that emotions regulation difficulties would be related to vividness of negative but not positive memories.

3.3. Auxiliary Analyses

In addition to hypothesis testing, I also conducted analyses to test whether my data replicated findings in the existing literature. Within the context of these analyses, I tested whether BDI scores were negatively correlated with the vividness of positive memories. The results failed to replicate the findings, showing no significant correlation between BDI scores and vividness of memories reported for positive cue words (r = -.04, p = .35). However, BDI scores were positively correlated with vividness of negative memories (r = .20, p = .03). Individuals with higher depression scores recalled negative memories more vividly. Additionally, not in line with the overgeneral memory literature, our data showed that higher BDI scores were associated with higher specificity for negative memories (r = .20, p = .03) whereas the correlation was insignificant for positive memories (r = -.05, p = .31). These results suggest that, as opposed to being associated with overgeneral memory, depression scores were in fact associated with increased specificity for memories reported in response to negative cue words in a non-clinical population.

BDI scores were in fact positively correlated with avoidance (r = .32, p = .001). However, the correlation of avoidance was not significant with specificity for either positive (r = .01, p = .47) or negative memories (r = .11, p = .15). These results suggest that avoidance was not correlated with overgeneral memory. In terms of the vantage point, I conducted analyses to investigate whether allocentric recall was associated with the number of objective (time, place, and perceptual) details reported. The results of this analysis showed no significant correlation for either positive (r = -.02, p = .43) or negative (r = -.01, p = .17) memories. However, the correlation between egocentric recall and vividness of memories was significant for positive memories (r = .17, p = .048) even though that for negative memories remained insignificant (r

= .06, p = .29). That is, there was a significant correlation between egocentric recall and vividness of positive memories.

3.4. Exploratory Analyses

I also wanted to investigate how DERS and avoidance scores would be related to the total number of words used by participants. My analyses revealed that the total number of words was negatively correlated with both DERS (r = -.20, p = .03) and avoidance scores (r = -.25, p = . 008). These results suggest that greater difficulty regulating emotions and greater avoidance were associated with using fewer words while reporting personal memories.

4. CONCLUSION

4.1. Discussion

In this study, I aimed to explore the relationship between affective processes (avoidance and emotion regulation difficulties) and memory characteristics (episodic details, specificity, and visual imagery). With the aim of explaining the dynamic relationship between those components, I conducted multiple analyses which yielded the following results. The data showed that avoidance was not associated with vantage point shift towards allocentric recall of negative memories, which was not in line with my hypothesis. However, my hypothesis that cognitive avoidance would not correlate with the allocentric recall of positive memories was confirmed. The results also revealed that emotion regulation difficulties were related to a higher number of emotional details in both positive and negative memories. Further, higher levels of emotion regulation difficulties were associated with higher vividness of memories reported in response to negative, but not positive, cue words, which supported my hypotheses.

Based on the literature suggesting that cognitive avoidance is related to distancing oneself from emotional overload associated with negative emotional experiences, I hypothesized that individuals who rely on avoidant coping strategies would show a similar pattern in memory recall. Following this logic, I expected that higher avoidance scores would be correlated with a reliance on remembering negative memories from the allocentric perspective which is suggested

to serve the function of distancing oneself from the experience. However, the data showed no significant relationship between avoidance and allocentric recall of negative memories. Avoidance scores were also not correlated with allocentric recall of positive memories, which is what I had expected. The data had a relatively normal distribution of avoidance scores, however, the general tendency to recall memories from the allocentric perspective was very low such that roughly 1 in every 4 memories was recalled from the observer perspective.The restricted distribution of allocentric recall scores might be the reason why the analyses involving vantage point did not yield significant results. Based on these findings, it might be that avoidance in healthy populations does not lead to a shift in vantage point during memory recall as in the case of depressive disorder (Williams et al., 2007). Therefore, it seems that clinical depression has other characteristics that are associated with a shift in vantage point. Considering the avoidance observed in psychopathology is a part of a complex maladaptive process, it could be that it is the extreme avoidance that creates the dysfunctional shift in vantage point during memory recall. The avoidant coping strategy outside of clinical depression, on the other hand, might be insufficient to create such a change.

Based on the assumption that individuals who have difficulty regulating their emotions refrain from focusing on emotional aspects of negative memories, I expected that high scores on DERS would be associated with a lower number of emotional details in negative memories. However, the data showed otherwise. Our findings suggest that individuals who have difficulty with emotion regulation, in fact, tend to have more emotionally detailed positive and negative memories. Though we did not directly measure their tendency to focus on emotions, the data point to a pattern where emotion regulation difficulties are related to a greater focus on emotional details. The number of details reported naturally varies as a function of total number of words per memory reported. In our analyses, by controlling for total number of words, we were able to test whether certain individuals refrained from articulating the details even if they remember them or that they report memories using fewer words because they do not remember much detail. The fact that individuals high on DERS reported fewer words but more emotional details shows that we in fact measured their focus on affective features of memories rather than loquacity. This

finding provides support to my reasoning that avoidance is not the default response to difficulties with emotion regulation. In fact, the data show an opposite pattern where emotion regulation difficulties are related to even more focus on affective features of memories, which might be better explained by rumination and emotional reactivity, rather than avoidance.

Based on the findings suggesting depressed individuals recall negative memories more vividly (Williams et al., 2007), I expected that the increased vividness would be explained by emotion regulation difficulties. In a healthy population, I was able to show that difficulty with emotion regulation was, indeed, related to the vividness of negative personal memories. This effect was not present in positive memories. These findings provide even further support that emotion regulation difficulties do not warrant avoidance towards negative emotions. Rather, they might be explained by more vivid and detailed memories. Without the presence of confounding variables associated with psychopathology, I was able to show that emotion regulation is related to the phenomenological experience of negative memories.

The analyses I conducted to reexamine patterns reported in the existing literature revealed mixed results. The data I collected replicated the findings that depression scores were correlated with avoidance. However, in contrast with the proposal of the CaR-Fa-X model, simply having high avoidant coping scores without the presence of psychopathology did not predict overgeneral memory showing no correlation between avoidance and specificity of either positive or negative memories. Since overgeneral memory is a transdiagnostic dysfunction, investigating the underlying mechanisms transdiagnostically and outside acute episodes of disorders with which it is associated is of great importance. The data I collected in a clinically undiagnosed sample provides a good opportunity to examine avoidance dimensionally in relation to overgeneral memory and shows that nonclinical avoidance, in fact, is not a predictor of reduced specificity. Therefore, it is either the qualitatively different avoidance seen in psychopathology that is related to OGM or that avoidance is not related to OGM, at all. Alternatively, functional avoidance that would be related to OGM is qualitatively different from avoidant coping strategies, which would bring us to discussion of the qualitative differences of maladaptive avoidance seen in psychopathology.

Additionally, individuals who had higher depression scores recalled negative memories more vividly and specifically. This finding supports the negative cognitive biases in depression which affects the way memories are recalled and provides further evidence contrasting the avoidance component of the CaR-Fa-X model. Further evidence comes from the meta-analysis we conducted to investigate the relationship between OGM and dissociation which revealed insignificant results (Okan et al, *Under Review*). Taken together, these findings point to the conclusion that it is not avoidance that predicts reduced specificity. Further investigation of other factors such as rumination and executive dysfunction is needed. However, it seems to be the case that the predictor of OGM is the presence of psychopathology, rather than a subclinical change in varying levels of cognitive and affective processes.

Emotion dysregulation has been connected to general vulnerability to psychopathology (i.e., p factor) (Carver et al., 2017). Given how prominent emotion dysregulation is, it is important to understand how it relates to internal mechanisms (cognitive and biological) posing risk for psychopathology. The capacity to flexibly regulate emotions has been associated with prefrontal control of limbic responses that facilitates suppression of amygdala activity in the face of negative affective stimuli (Phan et al., 2005; Beer et al., 2006). Evidence from cognitive control theories of emotion regulation suggests that our findings might be explained by a lack of cognitive control. Though our study did not focus on this aspect of cognition, studies investigating the role of cognitive control and inhibition of strong emotional reactions might show a link between heightened emotional reactivity and increased number of emotional details in autobiographical memories.

In this study, as is the case for most autobiographical memory studies, we did not have access to encoding context. Since reporting personal memories does not provide information about cognitive resources at the time of the event, we would not be able to make conclusions as to how attending to certain stimuli (i.e., emotional as opposed to contextual information) would facilitate details reported during recall. As part of both cognitive control and the retrieval process, the role of attention is important to consider. An experimental design that manage to show the differential effects of attention directed to encoding and retrieval would help answer the

question of whether 1) individuals with emotion regulation difficulties are sensitive to emotional stimuli in the environment and are better able to encode them or 2) current emotion regulation difficulties creates salience for emotional details and make them more accessible at the time of recall.

4.2. Limitations

The data presented here hold great promise for building a model that explains how cognitive processes influence and are influenced by memory characteristics. However, there were certain limitations that prevented me from making generalizable inferences. Firstly, the distribution of allocentric recall was too narrow to see a correlation of vantage point with my variables of interest. This finding was expected since allocentric recall is rarely observed in healthy populations, however, this should be addressed in pursuit of answering questions posed in this study. Further, since our design did not include experimental manipulation, we cannot make inferences as to whether it is the recall of more vivid and emotionally detailed memories causing difficulties in emotion regulation or the other way around. Additionally, we used the COPE inventory as a measure of avoidance which is intended to assess coping strategies which individuals are aware of employing. Avoidance affecting memory characteristics might be an implicit process that influences the storage and retrieval of personal memories.

4.3. Future Steps

Future studies would benefit from employing experimental manipulations to induce allocentric recall and exploring how this shift in vantage point affects episodic details. Such manipulations might be useful in examining how allocentric recall of negative memories would influence emotion regulation in individuals without a mental health diagnosis. Based on our findings, future research should aim to examine avoidance and emotion regulation difficulties (and strategies) longitudinally to see gradual changes in these dynamics in relation to autobiographical memory qualities. For example, positive emotion enhancement in older adults might counter the effects of emotion regulation difficulties and eliminate the increase in negative emotional details. Additionally, frontal control of emotions might be investigated to see how it

affects emotional episodic details in positive and negative memories. Further, use of an implicit measure of cognitive avoidance would be useful in determining how cognitive avoidance without awareness would influence memory storage and retrieval. Finally, to see the effect of cognitive resources at the time of both encoding and retrieval, measuring emotional reactivity after directing participants' attention towards emotionally overwhelming stimuli in laboratory-based episodic memory tasks could provide insight into how attention to emotional stimuli would be related to recall performance with and without emotion regulation difficulties.

4.4. Concluding Remarks

Overall, this study shows that avoidance by itself without being accompanied by psychopathology is not associated with a shift in vantage point. Additionally, emotion regulation difficulties are related to higher vividness and increased number of emotional details in negative memories. Higher scores in emotion regulation difficulties also predicted a reduced total number of both internal and external details in positive memories. The data, however, provide meaningful evidence for a change in the phenomenological experience of personal memories in relation to emotion regulation difficulties.

Our observations provide new insights into how changes in memory characteristics are manifested in relation to subclinical cognitive and affective challenges which are seen in extremes in psychopathology. With the emerging trends in clinical neuroscience focusing on higher order processes underlying psychopathology, it is important to understand the ways in which subclinical symptoms are associated with changes in cognitive functioning. Such investigations have the potential to illuminate how and when changes in cognitive processes cross the threshold from tolerable variations to harmful dysfunctions and create qualitatively different significant problems in individuals' lives. Our data show that subclinical emotion regulation difficulties are associated with changes in phenomenological experience of negative memories. However, subclinical avoidance is not related to a change in vantage point during memory recall.

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6. APPENDIX A

Autobiographical Memory Task - Yönerge

1.AŞAMA

“Deneyin bu aşamasında sizin başınızdan geçen olaylarla ilgili hatırladıklarınızla ilgileniyoruz. Size bazı kelimeler okuyacağım. Her kelime için, bu kelimenin size hatırlattığı ve en az bir hafta önce yaşanmış bir anınızı düşünmenizi rica ediyorum. Bu, sizin için önemli veya sıradan bir olay olabilir. Dikkat etmeniz gereken nokta bunun spesifik (yani belirli bir yerde geçen ve 24 saatten daha az süreyle gerçekleşmiş) bir olay olması. Mesela eğer okuduğum kelime “toplantı” ise “Toplantılarda güzel zaman geçiririm” gibi bir cevap yerine “Oryantasyon toplantısına katıldığımda guzel bir kahve icip yaninda kurabiye yedim” gibi bir cevap bu amaca uygun olacaktır. Ayrıca her kelime için farklı bir anınızı hatırlamaya çalışmanız çok önemli. Belirlenen zaman aralığında aklınıza bir anı gelmezse bir sonraki kelimeye geçeceğiz. Bu testi ses kayıt cihazıyla kayıt altına alıyoruz. Bu kayıtlara araştırma ekibimiz dışında hiç kimsenin erişimi olmayacağından ve bu kayıtların kişisel bilgilerinizle eşleştirilmeyeceğinden emin olabilirsiniz. Verdiğiniz cevaplar sadece eğitim ve araştırma amaçlı kullanılacaktır.

Ayrica her olayla ilgili 15 soruluk bir anket olacak. Bu anketin bitiminde cikan next tusuna basmamaniz gerekmekte cunku bir sonraki kelimeyi ben soylemeden gormemelisiniz.

İlk denemede biraz zorluk yaşamanız çok normal. Bu nedenle sizinle bir alıştırma yapacağız. Bu ilk kelimeye vereceğiniz cevap teste dahil edilmeyecek ama bu cevap sayesinde testin gidişatını iyice anladığınızdan emin olmak istiyoruz. Elinizden gelenin en iyisini yapmaya çalışın. Hazırsanız ses kayıt cihazını başlatıyorum”

-Deneme aşamasından itibaren deneyi yapan kişi ses kayıt cihazını başlatıp tarihi, saati, katılımcı numarasını, ve sıralama kodunu (MQQ 1 veya 2) söyler.

MQQ anketinin siralamasiyla elinizdeki kagidin eslestiginden emin olunuz.

- Katılımcı 30 saniye içerisinde bir anı anlatmaya başladığında eğer bu anı spesifik değilse hatırlatma yapılır ancak 30 saniye geçtikten sonra dönüt verilmeden cevap kaydedilir.

-> İlk aşama bittikten sonra beş dakika mola verilir. Dönüldüğünde ikinci aşamada tekrar ses kayıt cihazı açılır ve eger bir onceki kayit durdurulmussa yeni kayit acilarak katılımcı numarası tekrar söylenir.

7. APPENDIX B

Autobiographical Memory Task - Word List
(Positive - Negative Order)

Practice:

-Ağaç

-Araba

TEST:

1. Başarı
2. Mutlu
3. Yetenek
4. Neşe
5. Huzur
6. Dürüst
7. Sıkıntı
8. Korku
9. Kaba
10. Keyifsiz
11. Kızgın
12. Perişan

8. APPENDIX C

Beck's Depression Inventory

Aşağıda, kişilerin ruh durumlarını ifade ederken kullandıkları bazı cümleler verilmiştir. Her madde bir çeşit ruh durumunu anlatmaktadır. Her maddede o ruh durumunun derecesini belirleyen 4 seçenek vardır. Lütfen bu seçenekleri dikkatle okuyun. Son bir hafta içinde (şu an dahil) kendi ruh durumunuzu göz önünde bulundurarak, size en uygun olan ifadeyi bulun. Daha sonra, o maddenin yanındaki harfin üzerine (x) işareti koyun.

1. (a) Kendimi üzgün hissetmiyorum.
   (b) Kendimi üzgün hissediyorum.
   (c) Her zaman için üzgünüm ve kendimi bu duygudan kurtaramıyorum.
   (d) Öylesine üzgün ve mutsuzum ki dayanamıyorum.

2. (a) Gelecekten umutsuz değilim.
   (b) Geleceğe biraz umutsuz bakıyorum.
   (c) Gelecekten beklediğim hiçbir şey yok.
   (d) Benim için bir gelecek yok ve bu durum düzelmeyecek.

3. (a) Kendimi başarısız görmüyorum.
   (b) Çevremdeki birçok kişiden daha fazla başarısızlıklarım oldu sayılır.
   (c) Geriye dönüp baktığımda, çok fazla başarısızlığımın olduğunu görüyorum.
   (d) Kendimi tümüyle başarısız bir insan olarak görüyorum.

4. (a) Her şeyden eskisi kadar zevk alabiliyorum.
   (b) Her şeyden eskisi kadar zevk alamıyorum.
   (c) Artık hiçbir şeyden gerçek bir zevk alamıyorum.
   (d) Bana zevk veren hiçbir şey yok ve her şey çok sıkıcı.

5. (a) Kendimi suçlu hissetmiyorum.
   (b) Arada bir kendimi suçlu hissettiğim oluyor.
   (c) Kendimi çoğunlukla suçlu hissediyorum.
   (d) Kendimi her an için suçlu hissediyorum.

6. (a) Cezalandırıldığımı düşünmüyorum.
   (b) Bazı şeyler için cezalandırılabileceğimi hissediyorum.
   (c) Cezalandırılmayı bekliyorum.
   (d) Cezalandırıldığımı hissediyorum.

7. (a) Kendimden hoşnutum.
   (b) Kendimden pek hoşnut değilim.
   (c) Kendimden hiç hoşlanmıyorum.
   (d) Kendimden nefret ediyorum.

8. (a) Kendimi diğer insanlardan daha kötü görmüyorum.
   (b) Kendimi zayıflıklarım ve hatalarım için eleştiriyorum.
   (c) Kendimi hatalarım için çoğu zaman suçluyorum.
   (d) Her kötü olayda kendimi suçluyorum

9. (a) Kendimi öldürmek gibi düşüncelerim yok.
   (b) Bazen kendimi öldürmeyi düşünüyorum, fakat bunu yapamam.
   (c) Kendimi öldürebilmeyi isterdim.
   (d) Bir fırsatını bulsam kendimi öldürürdüm.

10. (a) Her zamankinden daha fazla ağladığımı sanmıyorum.
    (b) Eskisine göre şu sıralarda daha fazla ağlıyorum.
    (c) Şu sıralarda her an ağlıyorum.
    (d) Eskiden ağlayabilirdim, ama şu sıralarda istesem de ağlayamıyorum.

11. (a) Her zamankinden daha sinirli değilim.
    (b) Her zamankinden daha kolayca sinirleniyor ve kızıyorum.
    (c) Çoğu zaman sinirliyim.
    (d) Eskiden sinirlendiğim şeylere bile artık sinirlenemiyorum.

12. (a) Diğer insanlara karşı ilgimi kaybetmedim.
    (b) Eskisine göre insanlarla daha az ilgiliyim.
    (c) Diğer insanlara karşı ilgimin çoğunu kaybettim.
    (d) Diğer insanlara karşı hiç ilgim kalmadı.

13. (a) Kararlarımı eskisi kadar kolay ve rahat verebiliyorum.
    (b) Şu sıralarda kararlarımı vermeyi erteliyorum.
    (c) Kararlarımı vermekte oldukça güçlük çekiyorum.
    (d) Artık hiç karar veremiyorum.

14. (a) Dış görünüşümün eskisinden daha kötü olduğunu sanmıyorum.
    (b) Yaşlandığımı ve çekiciliğimi kaybettiğimi düşünüyor ve üzülüyorum.

(c) Dış görünüşümde artık değiştirilmesi mümkün olmayan olumsuz değişiklikler olduğunu hissediyorum.
(d) Çok çirkin olduğumu düşünüyorum.

15. (a) Eskisi kadar iyi çalışabiliyorum.
(b) Bir işe başlayabilmek için eskisine göre kendimi aha fazla zorlamam gerekiyor.
(c) Hangi iş olursa olsun, yapabilmek için kendimi çok zorluyorum.
(d) Hiçbir iş yapamıyorum.

16. (a) Eskisi kadar rahat uyuyabiliyorum.
(b) Şu sıralarda eskisi kadar rahat uyuyamıyorum.
(c) Eskisine göre 1 veya 2 saat erken uyanıyor ve tekrar uyumakta zorluk çekiyorum.
(d) Eskisine göre çok erken uyanıyor ve tekrar uyuyamıyorum.

17. (a) Eskisine kıyasla daha çabuk yorulduğumu sanmıyorum.
(b) Eskisinden daha çabuk yoruluyorum.
(c) Şu sıralarda neredeyse her şey beni yoruyor.
(d) Öyle yorgunum ki hiç bir şey yapamıyorum.

18. (a) İştahım eskisinden pek farklı değil.
(b) İştahım eskisi kadar iyi değil.
(c) Şu sıralarda iştahım epey kötü.
(d) Artık hiç iştahım yok.

19. (a) Son zamanlarda pek fazla kilo kaybettiğimi sanmıyorum.
(b) Son zamanlarda istemediğim halde üç kilodan fazla kaybettim.
(c) Son zamanlarda istemediğim halde beş kilodan fazla kaybettim.
(d) Son zamanlarda istemediğim halde yedi kilodan fazla kaybettim.

20. (a) Sağlığım beni pek endişelendirmiyor.
(b) Son zamanlarda ağrı, sızı, mide bozukluğu, kabızlık gibi sorunlarım var.
(c) Ağrı, sızı gibi bu sıkıntılarım beni epey endişelendirdiği için başka şeyleri düşünmek zor geliyor.
(d) Bu tür sıkıntılar beni öylesine endişelendiriyor ki, artık başka hiçbir şey düşünemiyorum.

21. (a) Son zamanlarda cinsel hayatımda dikkatimi çeken bir şey yok.
(b) Eskisine oranla cinsel konularla daha az ilgileniyorum.

(c) Şu sıralarda cinsellikle pek ilgili değilim.
(d) Artık cinsellikle hiçbir ilgim kalmadı.

9. APPENDIX D

COPE Inventory

Bu anket, zor veya stresli olaylarla karşı karşıya kaldığınızda genelde nasıl hissettiğiniz ve davrandığınızla ilgilidir. Aşağıdaki cümleleri dikkatle okuyun ve stres altındayken neler yaptığınızı düşünerek cevaplandırın. Her cümlenin size ne kadar uyduğunu belirtmek için 1'den 4'e kadar olan rakamlardan en uygununu yuvarlak içine alın.

1—genelde bunu hiç yapmam; 2—genelde bunu çok seyrek yaparım; 3—genelde bunu bazen yaparım; 4—genelde bunu çok sık yaparım

1. Yaşadıklarımın sonuçlarından faydalanarak olgunlaşmaya çalışırım. (real)	1 2 3 4
2. Kafamı dağıtmak için işe veya diğer aktivitelere yönelirim.	1 2 3 4
3. Sinirlenirim ve dışa vururum. (ventem)	1 2 3 4
4. İnsanlardan ne yapmam gerektiği hakkında tavsiye almaya çalışırım. (socisup)	1 2 3 4
5. Çabalarımı bu konuda bir şeyler yapmak için yoğunlaştırırım. (real)	1 2 3 4
6. Kendi kendime "bu gerçek olamaz" derim. (escape)	1 2 3 4
7. Tanrıya olan inancıma sığınırım. (escape)	1 2 3 4
8. Duruma güler geçerim. (poscope)	1 2 3 4
9. Bu problemle başa çıkamayacağımı kendime itiraf edip uğraşmaktan vazgeçerim. (behdis)	1 2 3 4
10. Aceleci davranmaktan kaçınmak için kendimi tutarım. (om)	1 2 3 4
11. Birisiyle duygularım hakkında konuşurum. (socisup)	1 2 3 4
12. Daha iyi hissetmek için alkol veya başka uyuşturucu madde kullanırım. (subsuse)	1 2 3 4

13. Bu problemin gerçek olduğu düşüncesine alışırım. (real)	1	2	3	4
14. Durumu derinlemesine anlamak için birisiyle konuşurum. (socisup)	1	2	3	4
15. Başka düşüncelerin veya aktivitelerin dikkatimi dağıtmasına izin vermem. (suppcom)	1	2	3	4
16. Problemden başka şeyler hakkında hayaller kurarım. (om)	1	2	3	4
17. Sinirlenirim ve bunun tümüyle farkında olurum. (ventem)	1	2	3	4
18. Tanrının yardımını beklerim. (escape)	1	2	3	4
19. Eyleme geçmek için bir plan yaparım.(real)	1	2	3	4
20. Problem hakkında şakalar yaparım.(poscope)	1	2	3	4
21. Problemin gerçek olduğunu ve değiştirilemeyeceğini kabullenirim. (real)	1	2	3	4
22. Durum el verene kadar hiçbir şey yapmam. (om)	1	2	3	4
23. Arkadaşlarımdan veya akrabalarımdan duygusal destek almaya çalışırım. (socisup)	1	2	3	4
24. Amacıma ulaşmaya uğraşmaktan vazgeçerim. (behdis)	1	2	3	4
25. Problemden kurtulmak için başka yöntemler denerim.(real)	1	2	3	4
26. Madde veya alkol kullanarak bir süreliğine kendimi kaybetmeye çalışırım. (subsuse)	1	2	3	4
27. Bunların gerçek olduğuna inanmayı reddederim. (escape)	1	2	3	4
28. Duygularımı ifade ederim. (ventem)	1	2	3	4
29. Problemi daha olumlu görebilmek için başka açılardan bakmaya çalışırım. (real)	1	2	3	4
30. Problem hakkında somut bir şey yapabilecek biriyle konuşurum.(socisup)	1	2	3	4

31. Normalden daha fazla uyurum.(om)	1	2	3	4
32. Ne yapmam gerektiği hakkında bir strateji oluşturmaya çalışırım.(real)	1	2	3	4
33. Bu problemle uğraşmaya odaklanırım ve gerekirse başka şeyleri biraz ihmal edebilirim. (suppcom)	1	2	3	4
34. Birisinden anlayış ve ilgi görmek isterim. (socisup)	1	2	3	4
35. Problem hakkında daha az düşünmek için uyuşturucu madde veya alkol alırım. (subsuse)	1	2	3	4
36. Problemle dalga geçerim.(poscope)	1	2	3	4
37. İstediğimi almak için uğraşmaktan vazgeçerim. (behdis)	1	2	3	4
38. Olanların içinde iyi bir yön ararım.(real)	1	2	3	4
39. Problemle en iyi nasıl baş edeceğimi düşünürüm. (real)	1	2	3	4
40. Problem olmamış gibi davranırım.(escape)	1	2	3	4
41. Aceleci davranarak durumu daha da kötüleştirmekten kaçınırım.(om)	1	2	3	4
42. Problemle uğraşırkenki çabama başka şeylerin müdahalesine engel olmaya çalışırım.(suppcom)	1	2	3	4
43. Problem hakkında daha az düşünmek için sinemaya giderim veya TV izlerim.(om)	1	2	3	4
44. Bunların olmuş olduğu gerçeğini kabullenirim. (real)	1	2	3	4
45. Benzer deneyimler yaşamış insanlara bu konuda neler yapmış olduklarını sorarım.(socisup)	1	2	3	4
46. Çok fazla duygusal stres yaşarım ve bu duyguları dışarı çok yansıtırım.(ventem)	1	2	3	4
47. Problemi çözmek için direk harekete geçerim. (real)	1	2	3	4
48. Huzuru dinimde ararım.(escape)	1	2	3	4

49. Kendimi, bir şey yapmak için doğru zamanın gelmesini beklemeye zorlarım.(om)	1	2	3	4
50. Durumla ilgili şakalar yaparım.(poscope)	1	2	3	4
51. Problemi çözmek için sarfettiğim çabayı azaltırım.(behdis)	1	2	3	4
52. Birisiyle nasıl hissettiğim hakkında konuşurum. (socisup)	1	2	3	4
53. Durumu kolay atlatmama yardımcı olsun diye uyuşturucu madde veya alkol kullanırım.(subsuse)	1	2	3	4
54. Bu durumla yaşamayı öğrenirim.(real)	1	2	3	4
55. Probleme konsantre olmak için başka aktiviteleri bir kenara bırakırım.(suppress of other acts)	1	2	3	4
56. Atmam gereken adımlar hakkında çok yoğun düşünürüm. (real)	1	2	3	4
57. Böyle bir şey hiç olmamış gibi davranırım. (escape)	1	2	3	4
58. Yapılması gerekenleri adım adım yaparım.(real)	1	2	3	4
59. Bu deneyimden bir şeyler öğrenmeye çalışırım. (poscope)	1	2	3	4
60. Normalden daha fazla dua ederim.(escape)	1	2	3	4

10. APPENDIX E

The Difficulties in Emotion Regulation Scale (DERS-16)

	Hemen hemen hiç (%0-%10)	Bazen (%11-%35)	Yaklaşık yarı yarıya (%36-%65)	Çoğu zaman (%66-%90)	Hemen hemen her zaman (%91-%100)
1.Duygularıma bir anlam vermekte zorlanırım.					
2. Ne hissettiğim konusunda karmaşa yaşarım.					
3. Kendimi kötü hissettiğimde işlerimi bitirmekte zorlanırım.					
4. Kendimi kötü hissettiğimde kontrolden çıkarım.					
5. Kendimi kötü hissettiğimde uzun süre böyle kalacağıma inanırım.					
6. Kendimi kötü hissetmenin yoğun depresif duyguyla sonuçlanacağına inanırım.					
7. Kendimi kötü hissederken başka şeylere odaklanmakta zorlanırım.					
8. Kendimi kötü hissederken kontrolden çıktığım korkusu yaşarım.					

9. Kendimi kötü hissettiğimde bu duygumdan dolayı kendimden utanırım.					
10. Kendimi kötü hissettiğimde zayıf biri olduğum duygusuna kapılırım.					
11. Kendimi kötü hissettiğimde davranışlarımı kontrol etmekte zorlanırım.					
12. Kendimi kötü hissettiğimde daha iyi hissetmem için yapabileceğim hiçbir olmadığına inanırım.					
13. Kendimi kötü hissettiğimde böyle hissettiğim için kendimden rahatsız olurum.					
14. Kendimi kötü hissettiğimde kendimle ilgili olarak çok fazla endişelenmeye başlarım.					
15. Kendimi kötü hissettiğimde başka bir şey düşünmekte zorlanırım.					
16. Kendimi kötü hissettiğimde duygularım dayanılmaz olur.					

11. APPENDIX F

Memory Quality Questionnaire

		Hiç		Orta düzeyde		Yüksek düzeyde
1	Olay sırasında çok yoğun duygular hissetmiştim.	1	2	3	4	5
2	Olay sırasında hissettiğim duyguları şimdi de aynı yoğunlukta hissediyorum.	1	2	3	4	5
3	Olayı hatırlarken, olayı yeniden yaşıyormuş gibi hissediyorum.	1	2	3	4	5
4	Olayı hatırlarken, olayın seslerini zihnimde duyabiliyorum.	1	2	3	4	5
5	Olayı hatırlarken, gözümde canlandırabiliyorum.	1	2	3	4	5
6	İnsanlar bazı olayları, hatırlamasalar da başlarından geçtiğini bilirler. Ben anımı hatırlarken, bu olayın başımdan geçtiğini bilmekten öte onu gerçekten hatırlayabiliyorum.	1	2	3	4	5
7	Bu olay olduğundan beri, olay hakkında düşünmesem de, sık sık aklıma gelir.	1	2	3	4	5
8	Olduğundan beri, bu olay hakkında düşündüm.	1	2	3	4	5
9	Olduğundan beri, bu olay hakkında konuştum.	1	2	3	4	5
10	Bu olay benim için önemli bir olaydır.	1	2	3	4	5
11	Bu olayın anlattığınız şekilde gerçekleştiğinden eminim.	1	2	3	4	5
12	Bazı olaylarda insanlar kendilerini olaya katılmış biri olarak, diğerlerinde ise kendilerini dışardan seyreden biri olarak hatırlarlar. Siz bu olayı hangi biçimde hatırlıyorsunuz?	Olayın içinde yer alıyor gibi				Olaya dışardan bakıyor gibi
13	Olayı hatırlarken, aklıma yalnızca bir durum, gözlem ya da sahne olarak değil; sözcükler ya da resimlerden oluşan bütün bir hikaye ya da olay olarak geliyor.	1	2	3	4	5

14	Bu olayın gerçekten hatırladığım şekilde gerçekleştiğine ve olmamış herhangi bir şeyi hayal etmediğime ya da kurmadığıma inanıyorum.	1	2	3	4	5
15	Bildiğiniz kadarıyla, bu anı, belli bir zaman ve yerde bir kere gerçekleşmiş bir olayın mı, birçok benzer ya da ilişkili olayın birleşiminin mi ya da bir günden fazla bir süreye yayılmış bir olayın mı hatırlanmasıdır?	1- Bir kerede gerçekleşmiş bir olay		2- Birkaç olayın birleşimi	3- Bir günden fazla bir süreye yayılmış bir olay	
16	Lütfen olayın <u>tarihini</u> (gün / ay / yıl) olabildiğince doğru bir şekilde hatırlamaya çalışın. <u>Tahmin etmeniz gerekse bile lütfen bir gün, ay ve yıl yazın</u>. Eğer bu anı uzun bir süreye yayılmışsa, bu sürenin yaklaşık olarak ortasına gelen tarihi yazın. Eğer ayı biliyor ama günü bilmiyorsanız, ayın başı, ortası veya sonu için sırasıyla 1, 15 ya da 30 yazın. Bazen olayın tarihini hatırlamak için tatiller, doğum günleri ya da okulda olduğunuz yıllar gibi bilinen tarihler kullanmak yardımcı olabilir.					

12. APPENDIX G

Episodic Detail Coding Manual

©Adapted from *2005 Levine, B., Svoboda, E., & Moscovitch, M.*

Internal (int)	**External (ext)**	
Event (ed)	Event (ed)	Semantic (sem)
Place (Pl)	Place (Pl)	Repetition (rep)
Time (time)	Time (time)	Meta
Perceptual (perc)	Perceptual (perc)	Other
People (peop)	People (peop)	
Emotion/Thought (emo)	Emotion/Thought (emo)	

Details pertaining to the main event are coded as internal, those that do not are external details.

Event Details: Details regarding the actions, events, weather, reactions and emotions in other, physical occurrences.

Place Details: Information about localization in space including countries, bodies of water, buildings and locations within a room.

Time Details: Life epoch ("My twenties"), year, season, month, date, day of week, time of day, or clock time.

Perceptual Details: Auditory, olfactory, tactile/pain, taste, visual (object details, colours), spatial-temporal (allocentric-egocentric space, body position and duration) information.

People Details: People involved in the event. People details are not coded in the original manual, however, we included them since they give information about how much individuals recall and report details. Once P introduces a person involved in the event regardless of internal/external, we code it as people detail (up to 5). However, afterwards when it is repeated as the subject of the sentence, we do not code it.

Emotion/Thought Details: Details about the mental state of the subject at the time of the event.

Semantic Details: General knowledge brought into the description. Semantic detail is always external as it does not reflect knowledge of the main event specifically. If the sentence is

semantic, we do not code the other details. But if the details (time or place) pertain to the main event, we code it since it gives that information about the main event.

Repetition: Repetition of information reported previously. If a statement provides clarification or additional information, it is not a repetition.

Metacognitive Details: Statements regarding emotions and thoughts reported at the time of retrieval. If the statement gives information about the mental state at the time of the event, it is coded as Emotion/Thought detail. Metacognitive details are not coded in the original manual but we coded them since they give information regarding the mental state of the participants.

Other Details: Details that give additional information but do not conform to the description of any other category.

Example:

Ormanla ilgili bir anım var. Çok da uzun zaman geçmedi aslında üstünden 15-20 gün geçti.
Pl-int ed-int perc-int peop-int
Ağva'daydım ATV turunda ama hava kararmıştı biraz yanımda kız arkadaşım vardı ATV turunda
Ed-int ed-int time-int rep
ormana girdik. Normalde girilmemesi gerekiyordu ve 9 falandı hava karanlıktı ondan hemen bir

yarım saat önce de bindiğimiz taksiciye hani burada Patika tarzı bir yer var mı yürüyebileceğimiz
ed-int ed-int
dediğimizde işte ormana girmenizi pek tavsiye etmem geceleri dedi. işte birazcık da alkollü
ed-int ed-int ed-int perc-int
olduğum için çok durumun farkında değildim, kendimi ormanda buldum bir anda. Arkada kız
ed-int emo-int
arkadaşım da çok gergindi o da beni gerdi. Hayatım boyunca ilk defa kaçırılacağımdan veya
emo-int
öldüreceğimden korkmuştum.