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ABSTRACT

INVESTIGATION OF COGNITIVE BIAS IN ATTACHMENT

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There were some studies which indicated that individuals with avoidant attachment style have emotional memory bias and they recalled emotional information less and it took more time to recall this type of information. Besides, some studies claimed that individuals with anxious attachment style recalled attachment related attachment related stimuli easier and faster than individuals with avoidantattachment style (Fraley et al, 2006; Maier et al., 2005; Mikullincer&Shaver, 2003), other studies supported that they ignored attachment related stimuli (Davis et al., 2014; Dewitte et al., 2007; Kirsh&Cassidy, 1997; Zejmals Van Emmichoven et al., 2003). On the other hand, other studies did not find any association between attachment anxiety and emotion (Eldestein, 2006). Therefore, it can be stated that there was no consensus on literature for understanding the association between attachment style and memory bias. The goal of current study was to investigate memory bias for anxious and individuals with avoidant attachment style. Thus, current study examined memory biases and attention biases of anxious and avoidant groups towards attachment-related and non-attachment related stimuli. Participants between 17 and 30;who have romantic relationship at least once in a life were assigned to two attachment groups, namely; anxious group (9female, 13male) and avoidant group (27female, 7male) based on their scores in ECR-R. Working memory capacity of participants was examined by conducting word-operation span task and attention biases were measured with the divided attention task which

consists of words (auditorly presented) and pictures (visually presented). Repeated measure ANOVA showed that there were no significant differences between two groups; in terms of working memory capacity and divided attention performance. On the other hand within group analysis which anxious and avoidant groups were analyzed separately, there was significant effect of stimuli type (negative, positive and neutral) on recognition performance and reaction time. In divided attention task, for verbal stimuli both anxious and avoidant groups recognized less negative words than neutral and positive words; and they missed more negative words than neutral and positive words. Furthermore, both group's reaction time for correctly recognized negative and positive words faster than neutral words. The results which related to recognition of visual stimuli showed that although, there was no effect of visual stimuli on reaction time of anxious participants, avoidant participants spent more time for any kind of response (hit, miss, false positive and correct rejection) to negative pictures compare to positive pictures. Results of the working memory task revealed that working memory capacity of the both attachment groups was low. This result was explained by evaluating emotional load of the task. All of these results were discussed in accordance with the literature about attachment, memory bias, attention bias and defense mechanisms.

Keywords: working memory, memory bias, divided attention, attention bias, and attachment styles.

ÖZ

BAĞLANMADA BİLİŞSEL YANLILIĞIN İNCELENMESİ

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Kaçınmacı bağlanma stiline sahip kişilerin duygusal (emosyonel) belleklerinde yanlılık olduğuna, duygusal bilgileri daha zor ve daha geç hatırlandıklarınaişaret eden araştırmalar rapor edilmiştir. Bunun yanı sıra bazı araştırmalar (Fraley ve diğ., 2006; Majer ve diğ., 2005; Mikullincer ve Shaver, 2003) kaygılı bağlanma stiline sahip kişilerin duygusal uyaranları daha kolay ve hızlı hatırlayabildiğini rapor etmişken, bazı araştırmalar da (Davis ve diğ., 2014; Dewitte ve diğ.,2007; Kirsh ve Cassidy, 1997; Zejmals Van Emmichoven ve diğ., 2003) kaygılı bağlanma stiline sahip kişilerin bu uyaranlarla karşılaşınca dikkatlerini başka yöne çevirdiklerini ileri sürmektedir. Buna karşın, diğer bir grup araştırmanın (Eldestein, 2006) bulguları ise kaygılı bağlanma ve duygusal bellek arasında bir ilişki bulunmadığı yönündedir. Bu sebeple bağlanma stilleri ve bilişsel yanlılıkla ilişkili olarak tam bir fikir birliğinin olmadığını söylemek mümkündür. Bu çalışmanın amacı; kaçınmacı ve kaygılı bağlanma stillerine sahip kişilerin bellek yanlılıklarını incelemektir. Bu amaçla kaçınmacı bağlanma ve kaygılı bağlanma stiline sahip kişilerdeki bağlanma ile ilişkili olan ve ilişkili olmayan uyaranlara karşı bellek yanlılığı ve dikkat yanlılığıaraştırılmıştır. Yaşları17 ile 30 arasında değişen, hayatlarında en az bir defa romantik ilişki yaşamış, katılımcılar, Yetişkin İlişkilerinde Yaşantılar Envanteri-II(YİYE-II)'den aldıkları puanlara göre kaygılı (9 kadın, 13 erkek) ve kaçınmacı (27 kadın, 7 erkek) grupları oluşturmuştur. Katılımcıların çalışma belleği performansları işlem-kelime uzamı göreviyle (bağlanmayla ilişkili olumlu, olumsuz ve yansız kelimeler kullanılmıştır); bölünmüş dikkat performansları ise bağlanmayla ilişkili olumlu olumsuz ve yansız kelimelerin (işitsel olarak sunulmuştur) ve resimlerin (görsel olarak sunulmuştur) yer aldığı bir

dikkat göreviyle ölçülmüştür. Varyans analizlerine göre, iki grup arasında çalışma belleği kapasitesi ve bölünmüş dikkat açısından fark yoktur. Ancak bağlanma grupları kendi içinde analiz edildiğinde uyaran türü (olumlu, olumsuz ve yansız) temel etkisinin her iki görevde de anlamlı farklar yarattığı bulunmuştur. Bölünmüş dikkat görevinde, kaçınmacı ve kaygılı gruptaki katılımcıların, olumlu ve olumsuz kelimeleri yansız kelimelere göre daha başarılı şekilde hatırladıkları; olumsuz kelimeleri, yansız ve olumlu kelimelere göre daha çok kaçırdıkları (missed) göstermektedir. Bunun yanı sıra her iki grubun, olumsuz ve olumlu kelimelere ilişkin tepki süreleri, yansız kelimelere göre daha hızlı olmuştur. Görsel uyaranların, kaygılı kişilerin görsel uyaranları hatırlama süreleri üzerinde bir etkisi olmamasına rağmen, kaçınmacı gruplar için, olumsuz fotoğraf karelerini hatırlamak için geçen sürenin, olumlu fotoğrafkarelerini hatırlamak için geçen süreden daha uzun olduğu görülmüştür. Çalışma belleği görevi sonuçlarına göre, bağlanma stiline bakılmaksızın katılımcıların çalışma belleği kapasitelerinin düşük olduğu rapor edilmiştir. Bu sonuç görevin duygusalyükünün etkisi değerlendirilerek açıklanmıştır. Tüm bulgular, bağlanma stilleri, bellek yanlılıklarını, dikkat yanlılığı ve savunma mekanizmaları ile ilgili yapılan çalışmalar ve bunların sonuçlarına göre tartışılmıştır.

Anahtar Kelimeler: çalışma belleği, bellek yanlılığı, bölünmüş dikkat, dikkat yanlılığı, bağlanma stilleri.

To my lovely cousin Şeyma Öztürk…

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CHAPTER I

INTRODUCTION

1. Literature Review

Bowlby (1982) stated that humans are born with innate psychobiological system called as the attachment system. This system enables people to seek proximity to their significant others and obtain care from “stronger and wiser” one such as attachment figure when they need (Gillath& Shaver, 2007; Mikulincer& Shaver, 2005). These efforts for maintenance proximity are evolutionary valuable in terms of physical survival and cognitive development (Shaver and Mikulincer, 2007). Although early years of life are the most critical period for the attachment system, it was claimed that it is active over the entire life span (Bowly, 1988). So it can be stated that people of all ages need attachment figure to whom they can feel secure in times of trouble, attachment figure is like heaven of safety during this period. It was speculated that real attachment relationships in adolescence and adulthood go through the same stages as infant-parent attachment relationships (Hazan and Zeifman, 1999).

The first empirical study drawing attention to individual differences in infant’s attachment security was conducted by Mary Ainsworth. Ainsworth, Blehar, Waters, and Wall (1978) and it described three types of attachment, often called secure, anxious/ambivalent, and avoidant. Assessment procedure included classification depending on the pattern of behavior shown during strange situation method. Moreover it also consists of infants’ expectations concerning their caregivers' accessibility and responsiveness (Ainsworth 1978/1979). For the securely attached infant, the caregiver

was the one who is generally accessible and responsive to him or her (Ainsworth, 1979). The basis of her or his relationship with mother was trust and his or her security.In contrast, for anxious/ambivalent babies whose mothers do not regard their signals or regard their behavior belatedly or respond their children in inappropriate way there was no basis for believing their caregiver to be trustful when they need them as a result they are anxious, not having clear expectation from their caregiver (Ainsworth, 1979).

The present study focuses on adults whose early experiences result in avoidant and anxious attachment style.

1.1 Adult Attachment

Bowlby'sattachment theory examined primarily the bonds that form between infants and caregivers however there was a theoretical work stating the relevance of attachment principles to adult's close relationship as well (Cassidy & Shaver, 2008).

Hazan and Shaver (1987) answered whether romantic love is an attachment process by doing theoretical and empirical analysis. They explored the valuable perspective for adult romantic love that offered with attachment theory designed primary with infants'. Hazan and Shaver stated that romantic love could be regarded as an attachment process and relative prevalence of these three attachment types in adulthood was the same in infancy. Ainsworth (1991) highlighted the importance of the function of the attachment system in adult life. It was suggested that a secure attachment relationship enables people confidence to engage in other activities in their lives (Ainsworth, 1991). The attachment figure in adult attachment is not need to be protective figures but s/he is needed to be fostering attached individual's own capacity for mastering challenge (Weiss, 1982).

Adults in different attachment styles are also different in terms of their romantic love relationships. For instance secure adults defined their relationships as trustfully, friendly and happy. They said that they are able to accept and support their partner even if their partners have faulty behavior. Moreover their love last longer. Avoidant adults described their romantic relationships as "lack of trust, fear of closeness, emotional highs and lows, jealousy" and for the anxious adults love is "involving obsession, desire

for reciprocation and union, emotional highs and lows, extreme sexual attraction and jealousy"(Hazan and Shaver, 1987).

There are some differences between adult relationship and infant-parent relationship. One of the most important differences is that romantic love includes "a two way street" (Hazan and Shaver, 1987). This means that partners might have the same attachment type, both sometimes might seek security and might be anxious or both might provide security and care. Moreover romantic love includes integration of three systems namely attachment system, the caregivingsystem and mating or reproductive system and this integration is influenced by attachment history (Shaver et al, 1988).

Mikulincer and Shaver (2007) mentioned about a dynamic model called "Attachment behavioral system" (defined by Bowlby, 1982). This model proposed "Primary attachment strategy" which means seeking support from a trusted caregiver when there is threatened experience with the expectation of protection and assistance provided by a trusted caregiver (Mikulincer& Shaver, 2007). For an optimal functioning of the attachment availability and responsiveness of attachment figures are needed and this optimal functioning creates a sense of security. On the other hand, in the case of unavailability of attachment figures, proximity seeking strategies cannot enable to diminish individual's distress and so secondary affect regulation strategies are activated. These secondary affect regulation strategies may trigger hyper activating strategies such as intense and insistent proximity seeking, heightening of distressing thoughts about separation and rejection or deactivating strategies such as denial of attachment needs, suppression of thoughts related to loss, rejection and separation, repressing negative memories and deploying attention away from attachment-related stimuli (Cassidy &Kobak, 1988; Shaver &Mikulincer, 2005). Hyper activating strategies are regarded as *fight* responses to unmet attachment figures and aimed to regain the attachment figure's attention, love and support and they are the basis of attachment anxiety. Deactivating strategies are a "fight" response to avoid frustrations and distress caused by attachment figure unavailability by keeping attachment system turned off or down-regulated. They are the basis of attachment avoidance (Cassidy &Kobak, 1988; Shaver &Mikulincer, 2005).

In addition to psychological factors, cognitive process in attachment is also an important issue. In the following sections, relationship between attachment and cognitive process and importance of cognitive process of attachment related information will be discussed.

1.2 Attachment, Attention and Memory

When the infants are born, they do not feel trust towards themselves and the world they come (Ugur, 2014). They internalize experiences with their mothers. This internalization of relationship with mother which called as "internal working models" becomes the basis of infants' relationship with others in the future (Bowlby, 1988). Individuals develop these models on the basis of their experiences in close relationships (Bowly, 1969/1982). The content and organization of our memories have an undeniable effect on the way we view ourselves, the kinds of experience taken our attention and the way we understand our world (Fraley, 2000). Representational models are thought to guide attention and memory and this enables structuring incoming information and experience to be matched with already existing models (Cassidy 2000; Main et al. 1985). During childhood and adolescence years, working models related with new people and new relationships develop on the basis of the earlier models. Thus it can be stated that new working models are not dependent from earlier ones and so earlier models help how new information about new person and relationship is encoded processed, interpreted, stored in memory (Bowlby, 1973; Collins, Guichard, Ford, & Feeney, 2004 cited in Simpson et al, 2007).

The representational models (internal working models) allow secure children to regulate attention relatively flexible across different environmental stimuli. They know that the attachment figure will be available if needed and this enables them to turn attention to exploration in a calm environment and to turn attention to attachment figure in the case of danger and threat. On the other hand insecure attachment can be regarded as a selective inattention. Individuals with avoidant attachment style needed to shift attention away from stimuli that might activate the attachment system which caused feeling of rejection in the past (Cassidy, 2000). Individuals with avoidant attachment style also seek to keep their attachment system deactivated in order to prevent new

experiences of rejection and reminders of past rejection (Bowly, 1983, 1980). Bowlby defined this as "defensive exclusion" which means regulating negative affect in order to limit attention to material that could cause activation in attachment system (Bowly, 1980). Individuals with avoidant attachment style mostly have chronic attempts to deactivate or inhibit attachment-system activation (Edelstein & Shaver, 2004). Due to repeated attentional shifts in attention away from stimuli depicting or evoking attachment-related themes, it might be difficult for adult individual to regard partner as a secure attachment figure (Cassidy, 2000). This might bealso because they prefer to have psychological distance from relationship partners and minimize the importance of close relationship (Mikulincer& Shaver, 2007). According to study conducted by Mikullincer, Dolev and Shaver (2004), cognitive load diminishes the capacity of avoidant person to suppress, this result supported the idea that thought suppression by individuals with avoidant attachment style is an effortful process.Kohn, Rholes and Schmeichel (2012) conducted another study and asked to people recall their childhood memories which were related to specific emotions. Participants' defensive memory suppression was measured in two different conditions. These were conditions of self-regulatory depletion and normal condition. Results showed that avoidant participants were not able to suppress negative memories under self-regulatory depletion condition. On the other hand they showed response latencies to recall negative memories in normal conditions. This showed that suppression of negative memories requires self-regulatory resources and so effort (Kohn et al., 2012). Thus it might take more effort and so time to recall negative information.

According to attachment theory, these working models effect and shape people's affect regulation, expectations from others in a different settings and so their behaviors towards others (Collins & Read, 1994 cited in Fraley et al, 2000). Information processing would be adaptive to protect psychology and to preserve the relationship with the attachment figure (Bowly, 1980). Secure individuals can engage in problem solving, planning and cognitive reappraisal when they encounter internal or external stimuli or events provoking undesirable emotions. Moreover they can tolerate ambiguity and uncertainty and they allow their emotion to flow and express and communicate feelings freely and accurately to others and do not often need to alter or suppress their emotional

process (Mikulincer& Shaver, 2007). On the other hand inability or unwillingness to cope with the causes of painful emotions cause individuals with avoidant attachment style to use "distraction coping", this regulatory strategy involves denial and suppression emotion related thoughts, memories, diversion of attention away from emotion (Cassidy, 1994; Lazarus &Folkman, 1984). Defensive processes play the role in the function of working models (Fraley, Davis & Shaver, 1998). It is theorized that individuals with avoidant attachment style limit the processing of emotional attachment-related information with this aim, preserving relationship with attachment figure (Bowly, 1980). Defensive exclusion enables threatening information more difficult to be recalled (Edelstein, 2006) and it is mainly directed at fear, anxiety, anger, sadness, shame, guilt, and distress because these kinds of feelings can cause unwanted activation of the attachment system. Moreover feelings like joy and happiness promotes interpersonal closeness and cause individuals with avoidant attachment style may feel uncomfortable (Cassidy, 1994).

Individuals with anxious attachment style use "emotion focused coping" strategy. (Lazarus &Folkman, 1984).This strategy consists of hypervigilant attention to physiological chances associated with emotion, heightened recall of threat-related feelings and rumination of actual and potential threats. Thus their cognitive process is often disrupted by distress (Mikulincer& Shaver, 2007).

Depending on literature it has been discussed above, it can be stated that studies of attachment and memory focused two strategies individuals with avoidant attachment style use to deactivate attachment system. These are preemptive defenses and postemptive defenses. These two defenses have different kinds of mechanism. Preemptive defenses enable to keep attachment related thoughts and feelings deactivated and so these kinds of thoughts and feelings were never encoded and there are not unwanted feelings or thoughts in memory to recall. In contrast, postemptive defenses enable limitation to reflect and elaborate on attachment related information after it is encoded. (Fraley et al, 2000) So Primitive defense is related to limiting initial information encoding, attention that might cause attachment activation whereas postemptive defenses is regarded as suppression of previously encoded memories

(Fraley et al, 2000;Kohn et al, 2011). Researches investigating problem-focused and emotion focused coping strategies, the suppression of unwanted thoughts and the regulation of emotions are all related to postemptivestrategies (Fraley et al, 2000).

Previous studies did not determine distinction between preemptive defenses and postemtive defenses. Thus it is unclear to understand whether difficulties in recalling emotional experiences are related to limited attention towards emotional information (called preemptive defenses) and this causes less encoding and so difficulties in recalling; or these difficulties are related to elaboration attachment related information avoidant people encoded before (called postemtive defenses).

1.2.1 Studies related to PreemtiveDefenses

Preemtivedefensesare related to limitation initial information encoding which potentially might activate attachment system.

Main suggested that an individual whose intimacy seeking behaviors are rejected may develop a strategy and reduce his/her attention and memory for attachment related stimuli unconsciously with the goal of preventing attachment system activation. Thus the risk of alienating an attachment figure is reduced (Main, 1990 cited in Crish&Cassidy, 1997). Study conducted by Main et al (1985) examined attention of children in different attachment types to attachment related information. Children at the age of 6 were asked to looking at family photograph and it was observed that children with avoidant attachment were more likely to avoid looking at the photograph and turned their head away from it. It was suggested that children might attend to the stimuli that confirm their schemas. Schema consisted information was remembered better than schema inconsistent ones. That is because schemas were thought to help the process of new information. The study conducted by Kirsh and Cassidy examined relation between attachment quality in infancy and attachment and memory including two attention tasks and one memory task. First attention task was aimed at evaluate attention preferences among three types of attachment-relevant stimuli and the second task measured preferential looking behavior in relation to information both related to and not related to attachment. In the first attention task, children were shown different kinds of drawings including a mother-child dyad in positive interaction and an adult dyad including neutral

affect. Results showed that insecure/avoidant and insecure/ambivalent children weremore likely look away from mother-child dyad comparing to secure children. Results suggested the idea that attachment related differences in gaze aversion might be related to inability to focus rather than a shifting attention away from attachment related stimulus. On the other hand results contradicted the idea that children would attend information consistent with their schema. Kirsh and Cassidy suggested this might be due to the nature of the stimulus in this study. Results of second attention task showed that both avoidant and ambivalent children looked away stimuli more than secure one. This result was contradicted to literature suggesting that ambivalent children had hypervigilant attention to attachment related information. Secure children attended to stimuli consisted with their early attachment experiences. In contrast to results of the first attention task, this result provided support for the idea that people would attend to the stimuli confirming their schema. In memory task children listened 6 stories which consisting of 2 stories mother responding a child sensitively, 2stories mother rejects her child and in 2 stories the mother provided exaggerated response to her child. Results showed that secure children recalled the responsive stories better than insecure/avoidant children moreover they are able to recall the rejecting stories better than the insecure/ ambivalent children (Kirsh& Cassidy, 1997). These results supported the idea that security enables flexibility and openness in the processing of attachment-relevant information. On the other hand, avoidant children were turned their attention away from emotionally alarming stimulus in order to protect themselves from the painful rejection. In this study results did not seem to be coherent for the understanding of the direct relation between attachment quality and memory and attention. More direct measures may further clarify the mechanisms by which individuals with anxious and avoidant use to regulate the processing of attachment-related information.

Miller and Noriot (1999) studied how integral working model of adults influences memory. In the study participants were asked to read an attachment related story and conducted attachment unrelated task. They were primed by asking to write something related to either supportive and rejecting friendship experience either before reading the story or afterwards. Participants' memory for the story was measured with cued-recall test after reading the story. Results indicated that secure individuals were

able to recall positive story events better when they were primed by rejecting memories before reading story. This might be explained by the idea that required of more negative and threatening memories were necessary to activate the beliefs of the securely attached. On the other hand fearful individuals were able to recall negative stories better when they were primed by either rejecting or supportive memories and they had lower performance on the attachment unrelated task when they were primed by negative memories prior to task. There were not any association between dismissing and preoccupied attachment and the processing of negative relationship experiences. It was expected no association between dismissing individual and recall of negative events due to suppression. However the absence of association between preoccupied individuals and recall was inconsistent with the literature. This might be explained by inconsistencies in the relationship experiences of preoccupied individuals. It might be suggested that these inconsistencies experiences might limit assimilation effects (Miller and Noriot, 1999). Moreover this study aimed also testing the idea that supportive and rejecting relationship memories would activate other related memories so cause consume in information processing resources. Results showed that dismissing and fearful attachment group had deficits in recall of peripheral events just after the activation of supportive memories.This might be due to the fact that supportive memories were associated with dependency and closeness by dismissing and fearful attachment group and thus make them uncomfortable and their discomfort might be cause reducing attention to the story (Miller and Noriot, 1999).

Moreover in another study, individuals with anxious attachment style are asked to imagine they are left by their romantic partner. It was reported that they have difficulty stop thinking about imagining scenario even if they asked to stop and their skin conductance level and emotion-related brain activity were recorded as high (Fraley & Shaver, 1997; Gillath, Bunge, Shaver, Wendelken, &Mikulincer, 2005).

Fraley et al. (2000) conducted a study including two parts and investigating the relationship between memory encoding and attachment style and investigating the role of preemptive and postemptive defensive process. The aim of the study was to describe reasons of the relative inability of avoidant adults to recall emotional experience. In the

first part of the study participants were asked to listen tape-recorded clinical interview of a woman describing her family relationships. This interview included attachment related themes such as intimacy, separation and loss. The results showed that individuals with avoidant attachment style recalled fewer details than non-individuals with avoidant attachment style about interview they have just heard. In the second part of the study the same procedure used in first study was modified. A variable time interval between listening to the interview and being tested for details was added. The results of the study indicated that individuals with avoidant attachment style recalled fewer details about emotional details comparing to non avoidant groups without depending on delay between hearing the stimulus and being asked to recall it. Moreover there was not any difference between avoidant and non avoidant group in postencoding process and rehearsal. So general result of the study indicated that individuals with avoidant attachment style use preemptive defensive strategies (encoding and attention) rather than postemptive strategies while organizing emotional memories (Fraley et al., 2000) However in this study preemptive defensive strategies and postemptive strategies were not assessed directly.

1.2.2 Studies related to Postemptive Defenses

Studies investigating postemptive defenses mostly related to limitation to retrieval of childhood memories with attachment figures after it is encoded. Bowly stated that these defenses are an important coping mechanism for individuals with avoidant attachment style.

Mikulincer and Orbach (1995) conducted a study with 120 undergraduate students and it was asked to student to retrieve early emotional memoriesrelated to times when they felt anxious, sad, angry, or happy. The results indicatedthat securely attached individuals showed relatively low levels of anxiety and moderate levels of defensiveness so they were able to retrieve negative emotional memories in moderate time and emotions they linked to these memories were reported as in moderate intensity. It was also claimed that secure individuals were able to allow accessibility of unpleasant emotion without using secondary associations so without being overwhelmed. On the other hand individuals with anxious attachment style reported relatively high level of

anxiety and lower level of defenses. That is means they are able to access unpleasant emotion however they were not able to stop flowing of negative thoughts and feelings and therefore they experience high levels of anxiety. So they showed relatively shortest retrieval times for negative emotional memories but emotions were highest emotional intensity. Individuals with avoidant attachment style showed relatively moderate-high levels of anxiety and high levels of defensiveness. They use high levels of repression thus they inhibit accessibility of emotional memories.However, they showed high levels of anxiety due to overuse of avoidance mechanism, they spend their effort to inhibit accessibility to unpleasant emotional memory. They showed longest retrieval time for memories and the lowest emotional intensity. These findings supported the idea that individuals with avoidant attachment style have limited access to emotional memories probably due to restricted attention to emotional memories or subsequent processing of emotional information. On the other hand it is hard for individuals with anxious attachment style to disengage from their own negative thoughts and memories. When individuals with anxious attachment style are asked to recall retrieve childhood memories including a particular negative emotion, they are able to retrieve many. They have difficulties in regulating inner distress and they do not have control capacities thus when they let themselves access to inner unpleasant emotional memories, they cannot limit the autonomous spreading of distress related to emotional schemas (Milkulincer&Orbach, 1995).

Another study conducted by Mikulincer (1998) examined the relationship of attachment style and autobiographical memory of trust. 70 participants were asked to recall and describe six personal experiences consist of an episode in which either the father, the mother, or romantic partner was involved and these experiences included three positive and three negative trusted related memories and then they were asked to rate the emotions they make them felt. The results showed that secure individuals needed shortest time to retrieve positive trust related memories. On the other hand avoidant and individuals with anxious attachment style retrieved negative memories quicker than positive memories. It was stated that secure persons had more accessibility to positive memories which justify their trust whereas avoidant and anxious participants had more accessibility to negative memories which violate their trust. They suggested

that secure person has bias in memories toward positive trusted related episodes and insecure person has bias in memories toward negative trust related episodes. Findings related to affective ratings suggested another mechanism of attachment working model. Secure individuals displayed emotions mainly to positive trust-related memories and anxious persons showed strong emotional reactions towards not only negative but also positive memories while individuals with avoidant attachment style showed weak emotional reactions to any type of emotional memory(Mikulincer, 1998; Mikulincer, 1995). Individuals with avoidant attachment style had tendency to deactivate attachment related information by suppressing distressing emotion thus they were able to neutralize the arousal of negative trust memories. On the other hand individuals with anxious attachment style' dependency on others and search for security might cause them to react with more intense emotions to both negative and positive memories (Mikulincer, 1998).

In line with these studies mentioned above, Fraley, Garner and Shaver (2000) found that individuals with higher levels of attachment avoidance had more difficulty on recalling details of attachment related emotional interview. On the other hand there was no interaction between attachment anxiety and recall. However in another study, Gillath et al. (2005) claimed that while people with attachment anxiety were thinking about negative attachment events, there was an increase in activation in left hippocampus related to memory retrieval.There was no consensus on results of the studies aiming to understand the relationship between attachment anxiety and memory bias. Some studies showed that anxious people were able to recall emotional memories easier and faster than other attachment groups whereas other studies supported that there was not any association between attachment anxiety and attachment related memory.

All of these studies related to postmetive defenses showed some evidence that individuals with avoidant attachment style limit the processing of attachment related information by suppressing and so they have some deficits in long term memory related to emotional information (Fraley, Garner, & Shaver, 2000; Mikulincer& Orbach, 1995).

In order to investigate attachment related differences in Long Term Memory (LTM), Eldestein et al. (2005) conducted a study with individuals who have a highly emotional

life experiences, childhood sexual abuse. The study included two interview phases, in the first phase participants were asked about four pieces of information about experiences related to sexual abuse.The second phases included questions related to current mental health functioning, delinquency and legal attitudes. Adult attachment also was assessed during this phase by RQ (Relationship Questionnaire). The results supported previous studies by claiming that individuals with avoidant attachment style were less accurate in their recall. It was reported that findings was not mediated by whether participants talking about the abuse after it occurred or not. Memories with highly emotional intensity were poorly recalled by individuals with avoidant attachment style. On the other hand, attachment anxiety was unrelated to emotional memory accuracy (Eldestein et al., 2005).

However there is not enough study in order to understand mechanism behind deficit in LTM. The current study aimed to examine the resources of these deficits.

1.2.3 Attachment and Working Memory (WM)

In the literature it was stated that attachment avoidance is associated with deficits in LTM for attachment-related information, thesedeficits mightreflect initial failures of fully process information in WM (Mikulincer&Orbach 1995; Edelstein, 2006). WM is an important system in order to understand mechanism underlying retention and retrieval, problems related to process of information in WM might cause deficit in LTM (Baddeley&Logie, 1999 cited in Edelstein 2006). It was important fact that without fully processing of attachment related information, it is hard for individual to recall (Edelstein, 2006).

WM is short-term mental storage including control, regulation and maintenance of information (Shiffrin et al., 2006). WM capacity was not just storage for memory but also capacity for controlled and sustained attention (Engle et al., 1999).Thus in order to understand mechanism of both preemetive and postmetive defenses, understanding of WM mechanism for different attachment group might be important. That is because preemptive defenses related to limitation attention towards emotional information and WM capacity is related how an individual sustain his or her attention to information.

Edelstein (2006) conducted study in order to investigate the source and extent of memory deficits in LTM in individuals with avoidant attachment style by examining working memory capacity for attachment related and non-attachment related stimulus. Results showed that avoidant memory impairments are specific to attachment related stimulus. This result claimed the idea that a processing is restricted before information can be fully encoded. It was also reported that avoidance was negatively associated with memory for both positive and negative attachment related words; supporting the theory that even positive attachment related stimulus may activate defensive process (Edelstein, 2006). Attachment anxiety on the other hand was unrelated to WM performance.

WM tasks are not direct measure of attention. For further clarification of the mechanism by which both anxious and avoidant use in order to regulate processing of attachment related information, the current study used both WM task and divided attention task. WM and divided attention were assessed for both attachment related (positive emotional and negative emotional) and nonattachment related words (neutral).

1.3 Goals of Study

The present study aimed to investigate the source of the cognitive bias in avoidant and anxious attachment groups by using WM and divided attention tasks.

It can be stated that there were many studies investigating the relationship between attachment orientations, attention and memory. Most of the previous studies advocated that individuals with avoidant attachment stylehave more difficulty on recalling emotional related information (Edelstein et al, 2005; Fraley et al, 2000; Mikullincer&Orbach, 1995). Individuals with avoidant attachment style might be less attentive to attachment-related experiences and thus encode less information about these experiences so they might have less information to recall or individuals might attend and encode information however they might suppress and deactivate memories and thus they have more difficulty in recalling them. This study investigated whether processing is restricted before information can be fully encoded and so recall of that information is likely to suffer or the problem is stamp from recalling process. The distinction between difficulty in attention and rehearsal is important that is because two kinds of mechanism

have different implications to understand the mechanism of defense and the psychological well-being of defensive individuals. There is a difference between psychological well-being of people who are not attending to potentially painful events and who are attend them but have some struggle to recall them. When people do not attend potentially painful attachment related information, they are not affected by them (Fraley et al, 2000). If the attachment-related information is less accessible, the possibility it causes the avoidant individual to feel threatened or overly emotional is less. On the other hand if individuals with avoidant attachment style attend attachment-related information and have struggle while recalling them, in other words if the problem is related to process the information, they may vulnerable to the unwanted effects of this defense. Thus it is important to understand mechanism underlying defenses. Although it has been claimed that the LTM deficits in individuals with avoidant attachment style resulted from limited attention to attachment related information (e.g., Fraley et al, 2000), in these studies the function of attention was inferred rather thanmeasured directly.Current study examine attentional bias not only by WM task used but also divided attention task which is regarded as more direct measure of attention used.

Moreover there were inconsistent findings regarding attachment related memory in anxious people. Theoretically individuals with anxious attachment style were associated with hypervigillant to attachment related concerns and thus their attachment related memory was expected to be enhanced and some studies supported that they were able to retrieve emotional autobiographical memories faster and easier (Mikulincer&Orbach, 1995). On the other hand results of other studies suggested that attachment anxiety is unrelated to WM (Fraley, 2000; Edelstein et al., 2005; Edelstein, 2006). Moreover, some studies supported that anxious people were vigilant towards attachment related stimuli (Edelstein & Gillath, 2008; Mikullincer et al, 2004), some others showed that they diverted their attention away from this kinds of stimuli (Dewitte, et al 2007).Thus literature did not allow to draw firm conclusions.

Overall, there was no consensus on results of the previous studies for understanding the relationship between attachment, attentional bias and memory bias.In order to understand memory bias, source and mechanism of defenses should have been

investigated. Consequently, current study examines defenses that anxious and avoidant group used when they are faced with attachment related stimuli. For this purpose, two tasks; namely WM task and divided attention task were used. Firstly by conducting word-span memory task by using negative, positive and neutral verbal stimuli, direct relationship between working memory capacity and attachment type was investigated. Attention biases and recognition biases of anxious and avoidant group were investigated by analyzing the results of divided attention task for both verbal and visual stimuli.Some results will be analyzed with single detection theory which enables to analyze decision making in presence of uncertainty.

Taken together, the present study was aimed to test the following hypothesis:

Hypothesis 1: There will be significant differences between individuals with anxious attachment style and individuals with avoidant attachment style in term of working memory capacity.

Hypothesis 2: There will be significant differences between individuals with avoidant attachment style and individuals with anxious attachment style interms of the number of correctly recalled and missed verbal stimuli in WM task.

Hypothesis 3: There will be significant difference between attachment anxiety and attachment avoidance in terms of total recognition of presented verbal items and total rejection of non-presented verbal items

Hypothesis 4: There will be significant difference between anxious and avoidant group in terms of frequency of reaction type (hit, miss, false positive and correct rejection) to negative, neutral and positive words.

Hypothesis 5: There will be significant difference between attachment anxiety and attachment avoidance in terms of reaction time for recognition of negative, neutral and positive words.

Hypothesis 6: There will be significant difference between attachment anxiety and attachment avoidance in terms of reaction type (hit, miss, false positive and correct rejection) to negative, neutral and positive attachment related pictures.

Hypothesis 7: There will be significant difference between attachment anxiety and attachment avoidance in terms of recognition time for negative, neutral and positive visual stimulus.

CHAPTER 2

METHOD

2.1. Participants

The participants of this study were determined by applyingTurkish version of Experiences in Close Relationships-Revised (ECR-R), "Yetişkin İlişkilerinde Yaşantılar Envanteri-II" (YİYE-II, Selçuk et al., 2005). People between 17 and 30 and living in Istanbul were invited to administration of ECR-R questionnaire study via Survey Monkey.

The inclusion criterion of the study was having romantic relationship at least once in a life thus the students who reported that they had never been in a romantic relationshipwere excluded from the sample. Moreover, participants who have current and paspsychiatric diagnosis will be excluded from the study.

Firstly this scale was carried out to 716 participants, all between 17 and 30 who volunteered to participate in the study. ECR-R scores (Anxious and avoidant scores) were calculated for all participants respectively. ECR-R is a dimensional scale basis on two dimension; avoidance and anxiety. In order to create pure attachment groups psychometrically accepted method for dimensional scales was proceeded. So participants who were in the highest 70% percentile according to avoidance subscale and at the same time in the lowest 30% percentile according to anxiety subscale defined as avoidant individual and participants who were in the highest 70% percentile according

to anxiety subscale and at the same time in the lowest 30% percentile according to avoidance subscale defined as anxious individual.

Of the initial pool of 716 participants, 111 individuals (73 female, 36 male) were selected for the behavioral analysis of the present study after analyzing ECR-R scoresusing by above mentioned methodology. Although 111 individuals stated that they were willing to join behavioral task, 51 individuals rejected to attend when they were invited to laboratory for behavioral task. 60 participants accepted to join in the behavioral tasks of the study however 4 of them stated they were using psychiatric drugs and excluded from sample list.As a result, the sample included 36 female (64.3%) and 20 female (35.7%) with the age varying from 17 to 29 (M = 22.11, SD = 2.85). (see Table 2.1)

Table 2.1: Demographic Charachteristic of the Participants

Variable	N	%	Mean	SD	Range
Gender					
Female	36	64.3			
Male	20	35.7			
Age			22.1	2.85	17-29
Attachment. Type					
Anxious	22	39.3			
Female	9	40.9			
Male	13	59.1			
Avoidant	34	60.7			
Female	27	79.4			
Male	7	20			

Anxious group included 9 Females (40.9%) and 13 males (59.1%) while avoidant group included 27 Females (79.4) and 7 males (20%).

Most of the students were selected from Boğaziçi University and Bahçeşehir University.

2.2 Measures

2.2.1 Demographic information form

Participants provided information on their background. The demographic data form includes questions about age, sex, educational level, duration of their romantic relationships, the number of ex-romantic relationships,duration of these relationships, psychiatric and medical history etc. Demographic form was presented in Appendix A.

2.2.2 Experienced In Close Relationships

Attachment styles were measured with Turkish version of Experiences in Close Relationships Questionnaire-Revised (ECR-R) (Fraley, Waller, and Brennan, 2000). It was indicated that ECR-R has higher level of test sensitivity comparing to other attachment scales (Selcuk et al, 2005). Thus it was chosen as a measure to determine attachment groups in this study.

This self-report measure of attachment style was developed by Fraley,Waller and Brennan in order to assess individual differences in adult attachment dimensions. It is constructed on the basis of two dimensions namely, avoidance and anxiety. The scale includes 18 items for each dimension, totally 36 items. Each item is rated on a seven-point likert scale. (1=strongly disagree 7=strongly agree). In the original scale, test-retest correlation based on actual items parameters was reported as .94 for anxiety dimension and .95 for avoidance dimension.

The Turkish adaptation of ECR-R (translated into Turkish as Yakın İlişkilerdeYaşantılarEnvanteri-II.) was made by Selcuk, Gunaydin, Sumer and Uysal (2005) with two hundred fifty six undergraduate students (45% female and 55% male). Sumer (2006) reported that two dimensional structure of ECR was more predictive than four attachment style of ECR in Turkish culture. As original scale, ECR-R comprises two subscales and 18 items in each subscale (36 items in total).

Cronbach alpha was found as .90 for avoidance dimension and .86 for anxious dimension. Test-retest reliability was also confirmed (.82 for avoidance dimension, .81 for anxiety dimension).Turkish version of ECR-R is presented in Appendix B.

2.2.3 Working Memory Task (WM)

In order to measure WM capacity related to attachment related stimuli, an operation-word span task was used. Operation-word span task was designed by Engle, Tuholski, et al. (1999) basing on the perspective of Baddeley and Hitch's (1974) theory of WM (Conway et al., 2015). Operation-word span task in our study was enabled to measure attachment related information storage, rehearsal and the simultaneous processing of additional information. This task required memory to work with both to be remembered stimuli which was attachment related words and demanding, another processing task which was verifying equations at the same time. In short it was expected participants to keep task-relevant information active and accessible in memory during the execution of complex cognitive tasks.

In this task the operation word pairs were presented to participants. They were asked to read aloud the operation and decide whether the given result was correct or not. The operation was followed by to be remembered word, also read aloud. For example "(14/2-5=2?)" requiring a "true" response followed by the word (e.g. Bağlı). Then another operation-word pair was immediately followed.Operation-word pairs were presented in blocks that typically consist of three to nine operations. (see Appendix D)

After compilation of each block, the participants were asked to recall and to type the words in given boxes on the screen using digital keyboard. If all words were recalled correctly, the task continued up to blocks including nine word-operations. However if one word in any blocks was not remembered correctly, the optional block including the same number of operation-word pairs as the failed to remember block included was presented. If words of alternative item were being able to be recalled correctly, the experiment would continue. Otherwise the experiment was terminated and the WM capacity was reported as the number of the last correctly recalled words.

For example, if a participant successfully recalled words in item 5 but s|he was not able to be successful on item 6, alternative item 6 was presented. If s|he was failed to recall words in optional item 6, the WM capacity of that person was reported as 5. However if s|he was able to recall words properly, s|he was able to continue experiment with item 7.

In this study WM was assessed for attachment-related (positive and negative emotional) and nonattachment-related (neutral) stimuli. Thus there were 36 words including words related to 12 secure-attachment words (eg: Sevgi, Güvenli), 12 words related to insecure attachment (eg; Ruhsuz, Ihmal) and 12 neutral words (e.g; masa, kablo). These words were chosen from list previously used study (Aydınoğlu, 2013).

Participants first completed two practice trials and they were able to repeat practice trials until task was well understood. Operations were presented via computer and consist of the equal number of true and false response.

Operations were presented for 2000ms and words were presented for 1000ms. All words in this task were appeared in capital size. There were equal numbers of correct and wrong answers to the operations.

The WM capacity of each participant was reported as the number of the last correctly recalled words. The minimum score the participant could get would be 3 whereas the maximum score would be 9. Accuracy of subjects' responses to the operation was not taken as criterion however accuracy of the recalled words was reported for the statistical analysis.

2.2.4 Divided Attention Task

This task included three parts and each part had three phases. All parts would evaluate attention preferences of participants among two types of attachment-relevant stimuli (positive and negative) and irrelevant (natural) stimuli. In this task the visual (pictures) and auditory stimulus (words) were presented at the same time and participants were informed to attend both stimuli as much as they can.

Participants were shown three sets (emotionally positive pictures, emotionally negative pictures and emotionally neutral pictures) of 9 pictures, some taken from different movies and some taken from International Affective Picture System. Pictures were similar in terms of quality, presence of people and amount of background figures and words were different from words presented in WM task.

In each part the 9 pictures taken from different movies were presented to participants while 18 words (including equal numbers of secure-attachment words, insecure attachment words and neutral words) were presented from headphones. Words presented on headphone were chosen from previous study (Aydınoğlu, 2013). Pictures were differentiated in terms of their content. The pilot study had been conducted to determine pictures. A picturepool was consisting of 180 pictures and 20 judges were asked to evaluate appropriateness of the pictures. The pictures were voted on 5-point likert scale (1= negative (insecure), 3=Neutral and 5=Positive (secure). The first 9 pictures got the highest score were taken as secure attachment group, the first 9 pictures got the lowest score determined negative group. For neutral group pictures, most of the pictures were taken from International Affective Picture System.

In order to word list for auditory recalling phase, the pilot study had been conducted. After three word lists (secure, insecure and neutral) were created, it was asked one professor in psychology department and nineteen students including undergraduate students and master students in psychology department to assess appropriateness of each word regarding to the target category and 40 attachment related words (20 secure, 20 insecure) and 20 neutral words were determined.

A block design was to presentation of the pictures, content of insecure attachment (emotionally negative pictures) neutral pictures, and secure attachment pictures, respectively. Before staring the divided attention task, participants first completed a practice trial and they were able to repeat practice trials until task was well understood.

In the first phases, participants were asked to attend both auditory and visual stimulus as far as they could.Pictureswere presented for 2000ms and each word was presented for 1000ms with 500ms interval.

In the second phases (auditory recall) participants were presented 40 words (20 previously presented and 20 previously not presented) and after presentation of each word they were asked whether they heard this word in the first phase or not. Immediately after auditory recall, in the third phase,avisual recall task was conducted. In

this phase 18 picture frames (9 of them cropped from pictures shown before and 9 of them cropped from non-shown pictures) were presented and participants were asked to decide whether they saw these frames in the first phases or not. (see Appendix E)

The number of correct and incorrect responses in auditory recall phase and visual recall phase were recorded. Moreover, the auditory recalling time for each item (negative, neutral, positive words) and the visual recalling time for each item (negative, neutral, positive frames) were recorded for statistical analyses.

2.3 Procedure

At first necessary ethics approval is taken from Bahcesehir University Ethical Committee. Prior to the study, the purpose of the study was explained to the participants and all participants provided written informed consent and the anonymity and the confidentiality were guaranteed. Participants were told that they are free to leave any time they want.

There were two section of the study. In the first section, Demographic Form, and ECR-R was administered. After that, based on the results of ECR-R, two groups (Secure group and insecure group) were determined and invited for the second section of the study.

In the second section, Memory Task and Divided Attention were presented respectively. All assessments were conducted in Brain and Cognition Laboratory in Bahcesehir University. IBM compatible 15 inch computer running Windows XP was used for administrations

CHAPTER 3

3. RESULTS

3.1 Data Screening

Prior to the analysis, data screening was made to examine accuracy of data entry, missing data, distributions, and the assumptions of multivariate analysis. There were no missing values. Multivariate outliers were detected by using mahalanobis distance with $p < .001$. No outliers among the cases were identified as multivariate outliers in their own groups.

3.2 Comparison between Attachment Anxiety and Attachment Avoidance on Cognitive Biases

3.2.1. Comparison between Attachment Anxiety and Attachment Avoidance on Working Memory Task

Between subjects multivariate analysis of variance was conducted to determine the effect of word type and attachment type on total correctly recalled words. Independent variable were attachment types which had two levels (anxious and avoidant) and word types which had three levels (positive, neutral, negative) and dependent variable was percentage of correctly recalled words.

With the use of Wilks' criterion, there was not statistically different between individuals with avoidant attachment style and individuals with anxious attachment style on the percentage of correctly recalled words $p>.05$.

A repeated measure ANOVA was used, because same entities was showed different type of word (Positive, negative, neutral) in the same order andasked to recall

those words. Dependent variable was percentage of correctly recalled words and independent variables were attachment type and word type.

According to results Wilks Lamda was significant, Wilks = .991, $p < .05$, so model was significant. Mauch's test was conducted to examine variances. Results indicated there is not significant variances for word type, Mauchly's $W = .995$ χ^2 (2) =.27, $p > .01$.

Within subject variables were word-type and between subject factor was attachment type. Results revealed a main effect of word type was significant F (2,108) =7.83, $p < .01$, $\acute{\eta}^2 = .127$.

Percentage of positive correctly recalledattachment related words (M=.78 SD=.21) and negative correctly recalled words (M=.78, SD=.23) was significantly higher than neutral correctly recalled words (M=.64, SD=.26). (see Figure 3.1)

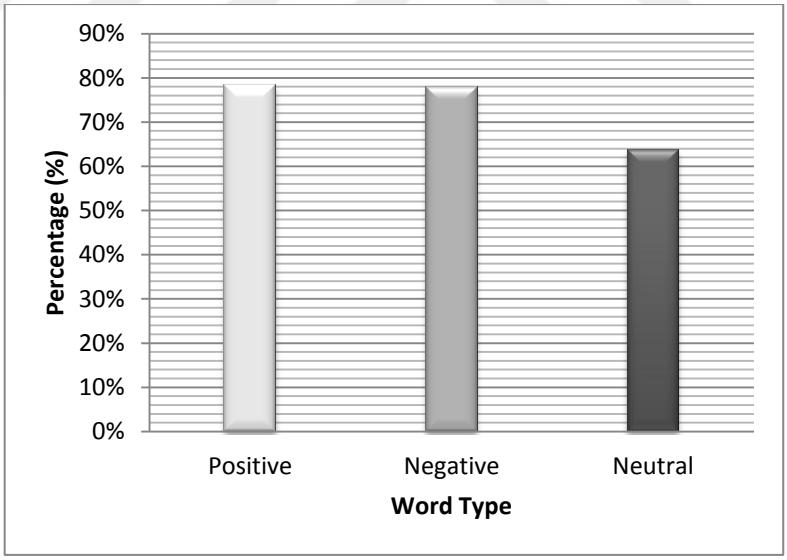

Figure 3.1: Difference between percentage of correctly recalled positive, negative and neutral words during working memory task.

To examine the effect of word type, reaction type on percentage of correctly recalled words for people with anxious attachment style and people with avoidant attachment style separate ANOVAs were conducted.

According to results for Anxious group, WilksLamda was not significant, Wilks = .763, $p > .05$, so model was not significant. Mauchlys test showed that variance was

homogeny, Mauchly = .998, p>.05. So homogeneity of variance assumption was not met, and the main effect was significant, F (2, 42) =3.29 p<.05, $\acute{\eta}^2$=.14.

The mean value for positive words correctly recalled (M=.7678, SD=.23) and negative words correctly recalled (M=.7762, SD=.25) were higher than neutral words correctly recalled (M=0.6, SD=.28). (see Figure 3.2)

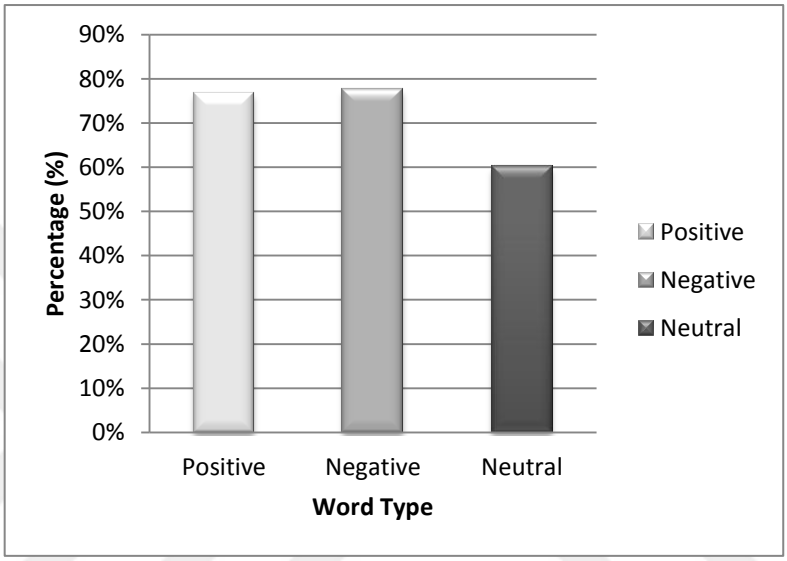

Figure 3.2: Difference between percentages of correctly recalled according to word type by group with anxious attachment style.

According to results of Avoidant group, WilksLamda was significant, Wilks = .789, p< .05, so model was significant. Mauchly'stest showed that variance was not homogeny, Mauchly's W= .989, p>.05 and thus homogeneity of variance assumption was not met, there was a significant difference between mean value for percentage of positive, negative and neutral correctly recalled words, F(2,66)=4.44, p<.05. The mean value for both percentage of positive words (M=.7912, SD=. 19) and percentage of negative words (M=.779, SD=.217) were significantly higher than neutral words (M=.661 SD=.251). Thus according to this result, it can be stated that avoidant people ,as people with anxious attachment style, were able to recall negative and positivewords more accurately than they recall neutral.(see Figure 3.3)

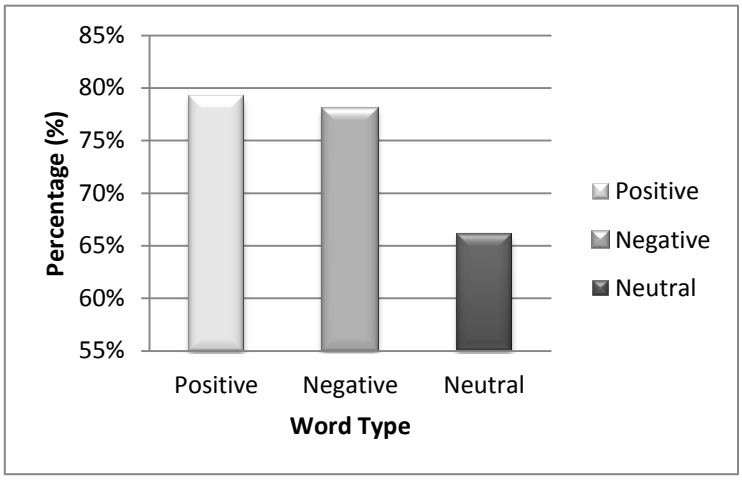

Figure 3.3: Difference between percentages of correctly recalled according to word type by avoidant group.

There was not main effect of attachment type on percentage of correctly recognized word, $p>.05$. Moreover there was not interaction effect of word type and attachment type$p>.05$.

The univariate analyze was performed in order to examine the effect of attachment type and word type on working memory capacity. Independent variable was attachment type and dependent variable was working memory capacity. The result show that although avoidant group (M=3.35, SD=1.81) showed better performance than group with anxious attachment style (M=2.82, SD=2.01) working memory capacity was not significant $p>.05$ (see Figure 3.4).

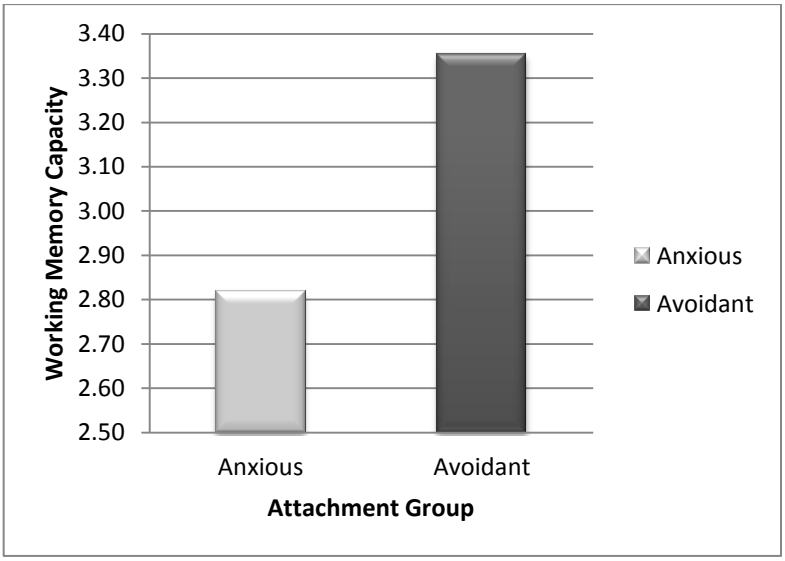

Figure 3.4: Comparison between anxious and avoidant groups for working memory capacity.

3.2.2. Comparison between Attachment Anxiety and Attachment Avoidance on Divided Attention Task

3.2.2.1 Comparison between Attachment Anxiety and Attachment Avoidance on total recognition performance

To analyze whether there was a significant change on number of total recognized verbal item depending on type of verbal stimuli (negative words, neutral words and positive words) and attachment type (groups with anxious attachment style and group with avoidant attachment style) between mixed design ANOVA (3X2X2) was conducted. Within subject variables were word-type with three levels (Negative, neutral and positive) and reaction type with two levels (Correct and False response) and between subject factor was attachment type. Multiple analyses were made on the data set thus a made on the data set thus a Bonferroni type adjustment was made for inflated Type 1 error for each of the analysis separately.

According to results WilksLamda was significant for word type, Wilks =.43, $p<$ .01 and reaction type Wilks =.017, $p<$ .001, interaction of word type and reaction type Wilks =.7, $p<$ .05, so model was significant for those. On the other hand WilksLamda was not significant for interaction of word type, reaction type and attachment type $p>$ .05.

Firstly, Mauchly test was conducted to examine variances Results indicated there was significant variances for word type, Mauchly's W=.33 χ^2 (2) =59.12, p<.001 and for interaction of word type and reaction type, Mauchly's W=.65 χ^2 (2) =22.55, p<.001. Thus thesphericity rule for main effect of word type and interaction effect of word type and reaction type were violated.

There was a significant main effect of word type F (1.19, 64.58) =63.91 p<.001, $\acute{\eta}^2$=.54. The mean value for neutral correct response (M=31.45, SD=2.09) was significantly higher than both negative (M=28.66, SD=2.43) and positive correct response (M=28.66, SD=2.39).Thus it can be stated that participants were able to recognize more neutral words than negative words and positive words. (see Figure 3.6)

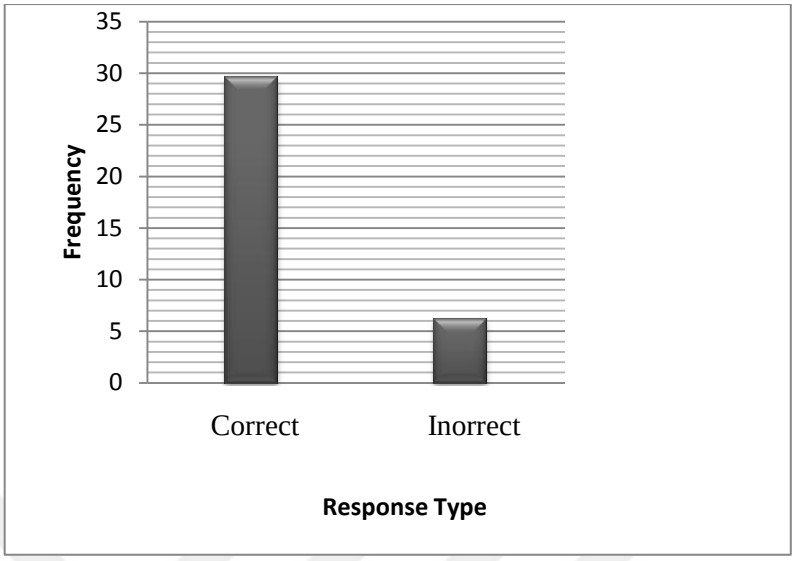

Figure 3.5: Comparison between frequency of correct and incorrect responses to verbal stimulus.

There was a significant main effect of response type F (1, 54) =3183.73 p<.001, $\acute{\eta}^2$=.98. The mean value for correctly recognized word (M=29.59, SD=2.3) was significantly higher than incorrectly recognized item (M=6.23, SD=2.3). (see Figure 3.5)

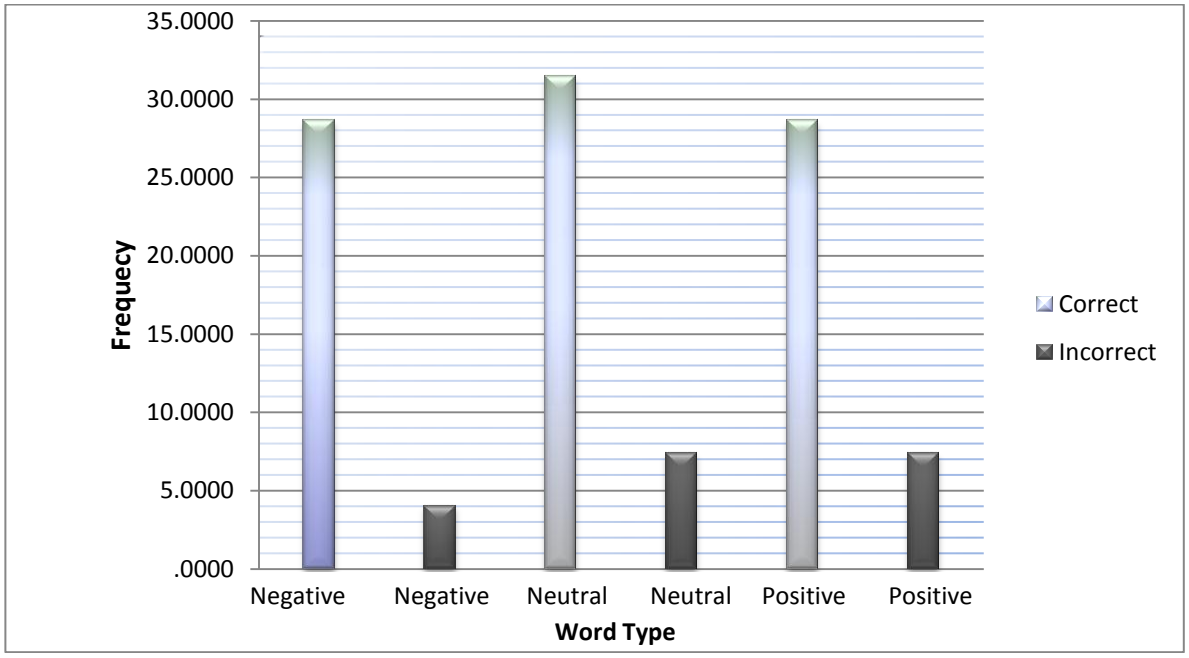

Figure 3.6: Comparison between frequency of correct and incorrect responds according to word type.

The interaction effect of type of stimulus and type of response was also significant $F(1.48, 80.2) = 18.39$, $p < .01$, $\acute{\eta}^2 = .25$. Posthoc analyses showed that the mean value forcorrectly recognized neutral words was higher than positive (M=28.66, SD=2.39) and negative (M=28.66, SD=2.43). The mean value for incorrectly recognized neutral words (M=7.34, SD= 2.43) and positive words (M=7.15, SD=2.28) were significantly higher than negative words (M=4.02 SD=2.04)

The mean value for correctly recognized negative words (M=28.66, SD=2.43) was significantly higher than incorrectly recognized negative words (M=4.02 SD=2.04). Moreover the mean value for correctly recognized neutral words (M=31.45, SD=2.09) was significantly higher than incorrectly recognized neutral words (M=7.34, SD= 2.43). Lastly the mean value for correctly recognized positive words (M=28.66, SD=2.39) was significantly higher than incorrectly recognized positive words (M=7.15, SD=2.28)(see Figure 3.6).There was no significant main effect of attachment type, $p > .05$. Furthermore, there was no significant interaction effect of type of stimulus, type of response and attachment type $p > .05$.

Table 3.1

Variables		Anxious		Avoidant		Total	
		M	*SD*	*M*	*SD*	*M*	*SD*
Frequency for Words							
Negative	Correct	29.00	2.86	28.44	2.12	28.66	2.43
	Incorrect	4.09	1.99	3.44	1.88	4.02	2.04
Neutral	Correct	31.14	2.44	31.65	1.84	31.45	2.09
	Incorrect	7.0	2.86	7.56	2.12	7.34	2.43
Positive	Correct	28.36	2.57	28.85	2.28	28.66	2.39
	Incorrect	7.64	2.57	7.15	2.28	7.34	2.39

3.2.2.2 Comparison between Attachment Anxiety and Attachment Avoidance on total recognition of presented visual items and total rejection of non-presented visual items

To analyze whether there was a significant difference number of total recognized visual items depending on type of verbal stimulus (negative pictures, neutral pictures and positive pictures) and attachment (anxious and avoidant groups), between mixed design ANOVA (3X2X2) was conducted. Within subject variables were picture type with three types (Negative, neutral and positive) and type of reaction with two levels (Correct and False response). Between subject factors was attachment type. Multiple analyses were made on the data set thus a Bonferroni type adjustment was conducted for inflated Type 1 error for each of the analysis separately.

According to results WilksLamda was significant for picture type, Wilks =.47, p< .001 and reaction type Wilks =.18, p<.001, interaction effect of word type and attachment type Wilks =.865 p<.05. On the other hand WilksLamda was not significant for interaction effect of word type and reaction type and interaction of word type, reaction type and attachment type p> .05.

Firstly, Mauchly test was conducted to examine variances. Results indicated there was significant variances for picture type, Mauchly's W=.058 χ^2 (2) =150.78, p<.001. On the other hand, there was not significant variances for interaction of picturetype and reaction type, Mauchly's W=.989 χ^2 (2) =.578, p>.05.

Results revealed that there was a significant main effect of stimulus type F (1.03, 55.62) =57.58 p<.001, $\acute{\eta}^2$=.52. The mean value for correct response to positive stimulus (M=13.86, SD=2.51) was higher than correct response to both negative (M=13.14, SD=2.7) and neutral stimulus (M=12.39, SD=2.12).The mean value for correctly recognized negative stimulus (M=13.14, SD=2.7) was higher than correctly recognizedneutral stimulus (M=12.39, SD=2.12).So the number of correctly recognizedpositive visual pictures was higher than negative and neutral visual stimulus. Moreover the mean value for incorrectly recognized positive stimulus (M=7.32,

SD=2.83) was higher than both the mean value for negative (*M*=4.84, *SD*=2.67) and neutral stimulus (*M*=5.64, *SD*=2.16). (see Figure 3.8)

There was a significant main effect of response type *F* (1, 54) =243.41, *p*<.001, $\acute{\eta}^2$=.82. The mean value for correct response (*M*=13.13, *SD*=2.44) was significantly higher than false response (*M*=5.93, *SD*=2.44).

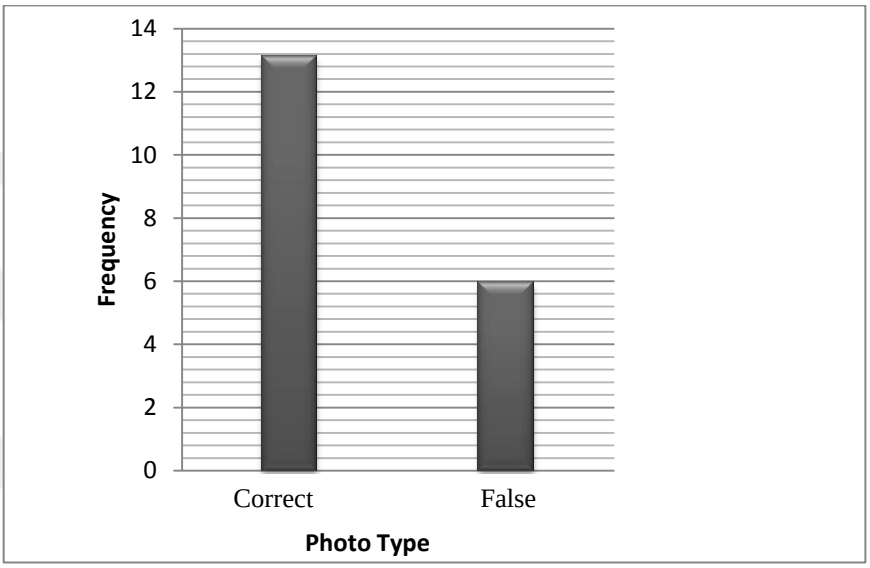

Figure 3.7: Comparison between frequency of correct and false responds to visual stimulus.

The interaction effect of picture type and attachment type was statistically significant, *F* (2,108) =6.89 *p*<.01 $\acute{\eta}^2$=.11. The mean value for correct response of people with anxious attachmet style to positive pictures (*M*=12.77, *SD*=2.99) was lower than avoidant participants' pictures (*M*=14.56, *SD*=1.88). So it can be stated the number of avoidant participants correctly recognized positive stimulus was more than anxious participants. Moreover the mean value for correct response of participants with avoidant attachment style to positive pictures (*M*=14.56, *SD*=1.88) was higher thancorrect response ofparticipants with avoidant to negative (*M*=13.23, *SD*=2.58) and neutral pictures (*M*=12.5, *SD*=2.12).

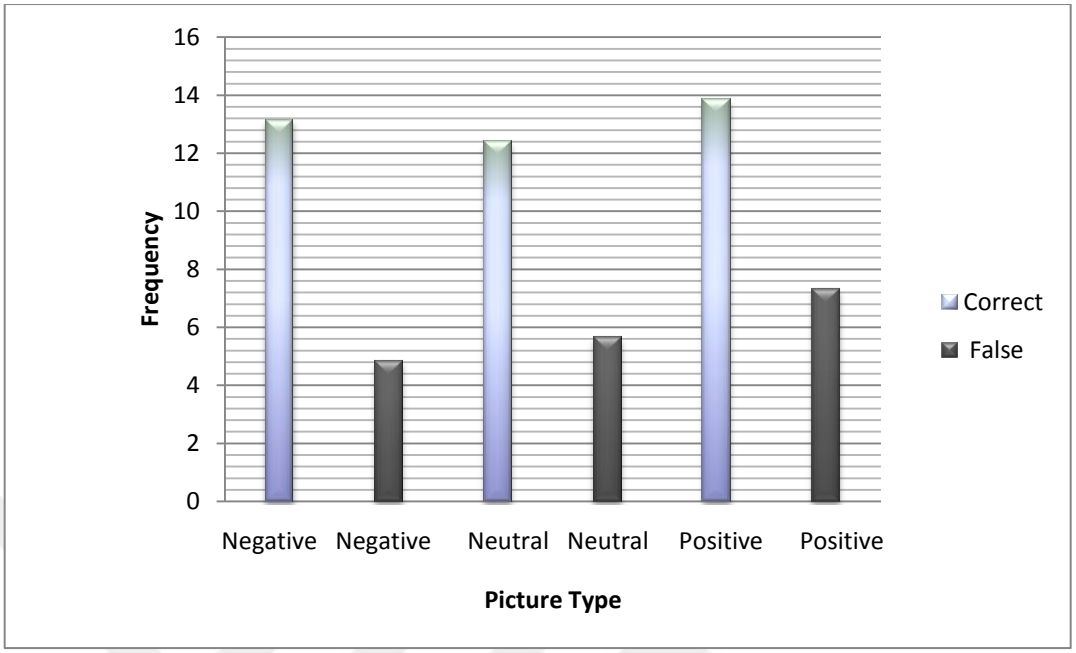

Figure 3.8: Comparison of frequency of correct and false responds depending on picture type.

There was a significant interaction effect of picture type and reaction type F (2, 108) =3.2, $p<.05$, $\acute{\eta}^2=.06$. The mean value for correctly recognized positive stimulus (M=13.86, SD=2.51) was significantly higher than both correctly recognized negative (M=13.14, SD=2.7) and neutral stimulus (M=12.39, SD=2.12). Moreover the mean value for incorrectly recognized positive stimulus (M=7.32, SD=2.83) was higher than both the mean value for negative (M=4.84, SD=2.67) and neutral stimulus (M=5.64, SD=2.16). The mean value for correctly recognized negative pictures (M=13.14, SD=2.7) was significantly higher than incorrectly recognized negative pictures (M=4.84, SD=2.67). The mean value for correctly recognized neutral pictures (M=12.39, SD=2.12) was significantly higher than incorrectly recognized neutral pictures (M=5.64, SD=2.16). Moreover the mean value for correctly recognized positive pictures (M=13.86, SD=2.51) was significantly higher than incorrectly recognized positive pictures (M=7.32, SD=2.83). (see Figure 3.8)

The results show that there was not significant main effect of attachment type $p>.05$ and there was not significant interaction effect of word type, reaction type and attachmenttype $p>.05$.

Following analyses would be based on signal detection theory which enables to analyze decision making in presence of uncertainty and gives more clear results.

Table 3.2

Variables		Anxious		Avoidant		Total	
		M	*SD*	*M*	*SD*	*M*	*SD*
Frequency for Pictures							
Negative	Correct	13.00	2.93	13.23	2.58	13.14	2.7
	Incorrect	4.95	2.85	4.76	2.58	4.84	2.67
Neutral	Correct	12.23	2.16	12.5	2.12	12.39	2.12
	Incorrect	2.86	2.25	5.5	2.12	5.64	2.16
Positive	Correct	12.77	2.99	14.56	2.88	13.86	2.51
	Incorrect	7.18	3.39	7.41	2.46	7.32	2.83

3.2.2.3 Comparison between Anxious and Avoidant group for frequency of reaction type to Negative, Neutral and Positive Words

In order to analyze the effects of word type, reaction type and attachment type on total recognition of presented verbal stimulus and rejection non-presented stimulus, repeated measure ANOVA was carried out. In the analysis dependent variable was total recognized items while independent variables were attachment type, word type and reaction type. Within subject variables were word-type with three levels (Negative, neutral and positive) and type of reaction with four levels (Hit, Miss, False positive and Correct Rejection) and between subject factors was attachment type.

Mauchly's test was conducted to examine variances. Results indicated there was not significant variances for word type, Mauchly'sW=.979 χ^2 (2) =1.14, p>.01. The sphericity rule was not violated for the effect of word type. On the other hand there were significant variances for reaction type, Mauchly'sW=.668 χ^2 (2) =21.34, p<.01 andinteraction effect of word type and reaction type, Mauchly'sW=.212 χ^2 (9) =81.35, p<.01.

Result revealed that the main effect of word type was significant$F$ (2, 108) =36,056, p<.01 and $\acute{\eta}^2$=.541. The mean value for negative hit response (M=11.98, SD=2.24) was significantly lower than neutral hit response (M=14.64, SD=1.88) and positive hit response (M=15.07, SD=2.19). Moreover, neutral hit response (M=14.64, SD=1.88) was lower than positive hit response (M=15.07, SD=2.19).Participants were able to recognize more positive words than negative words and neutral words. (see Figure 3.9)

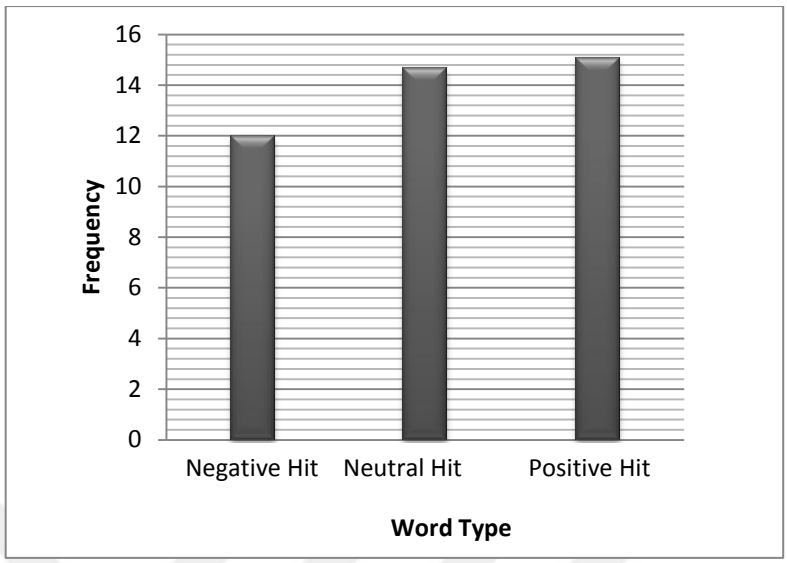

Figure 3.9: Participants' hit response according to word type.

The mean value for negative miss response (*M*=5, *SD*=2.25) was higher than neutral (*M*=3.36, *SD*=1.85) and positive miss response (*M*=3.35, *SD*=2.19). (see Figure 3.10)

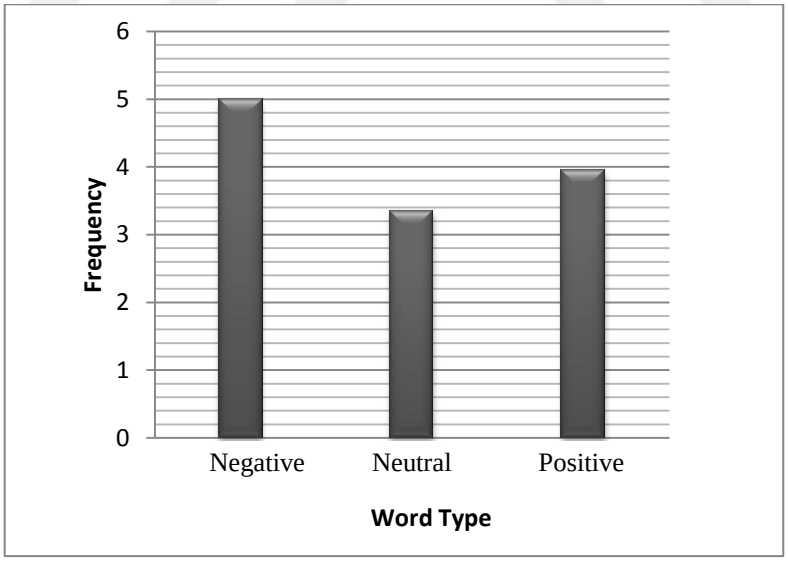

Figure 3.10: Participants' miss response according to word type.

The mean value for false positive for positive stimulus (*M*=3.39, *SD*=2.21) was higher than false positive for negative stimulus (*M*=2.34, *SD*=2.25) and false positive for neutral stimulus (*M*=1.2, *SD*=1.38). (see Figure 3.11)

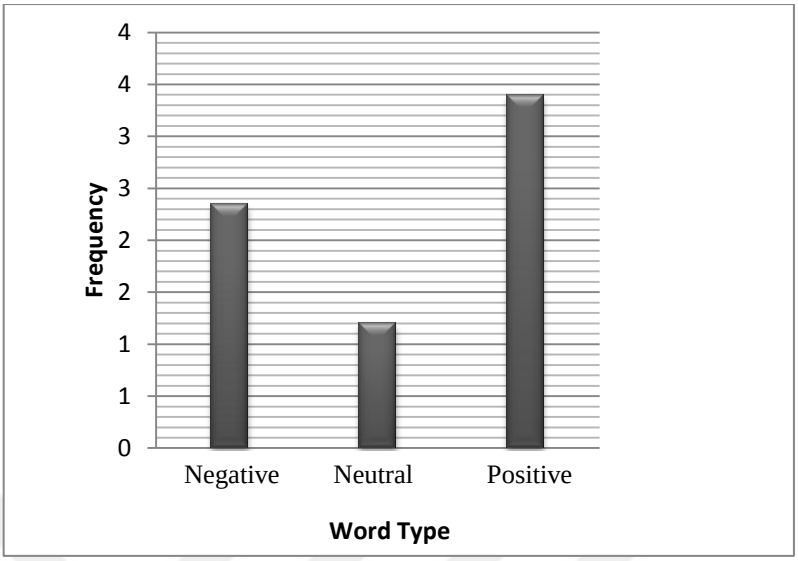

Figure 3.11: Participants' false positive response according to word type.

The mean value for negative correct rejection response (*M*=16.68, *SD*=1.9) and neutral correct rejection response (*M*=16.8, *SD*=1.39) were higher than positive correct rejection response (*M*=13.59, *SD*=2.2). (see Figure 3.12)

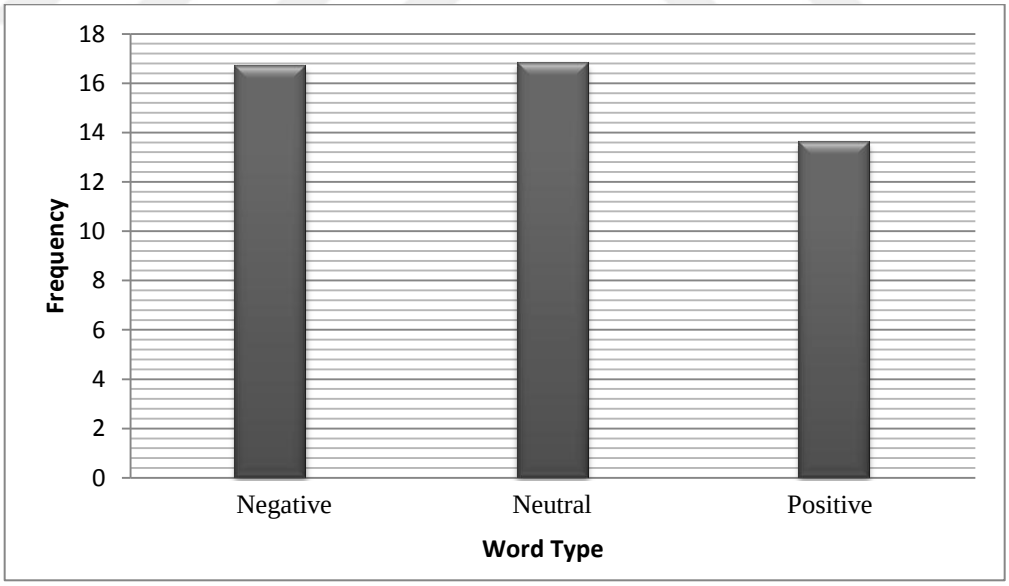

Figure 3.12: Participants' correct rejection response according to word type.

According to results of repeated measure ANOVA, there was significant main effect of type of reaction, F (3,162) =807.74 p<.01, $\acute{\eta}^2$=.94. The mean value of hit response (*M*=13.898, *SD*=.2.10) was significantly higher than miss (*M*=4.1, *SD*=2.098) and false positive response (*M*=2.3095, *SD*=1.82). Moreover the mean value of correct

rejection (*M*=15.69, *SD*=1.83) was significantly higher than hit response (*M*=13.898, *SD*=.2.10), miss response (*M*=4.1, *SD*=2.098) andfalsepositive response (*M*=2.3095, *SD*=1.82). Moreover the mean value for miss response (*M*=4.1, *SD*=2.098) was significantly higher than false positive response (*M*=2.3095, *SD*=1.82). (see Figure 3.13)

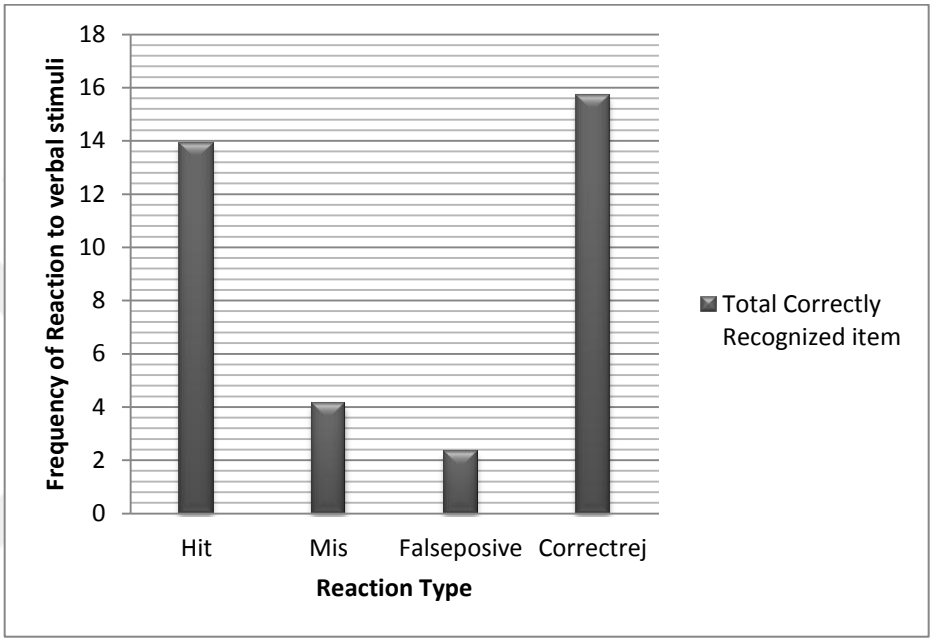

Figure 3.13: Comparison between response types to verbal stimuli.

There was also significant interaction effect word type and reaction type *F* (4,216) = 41.20, $p<.01$, $\acute{\eta}^2=.884$. The mean of hit response to negative word (*M*=11.98), *SD*=2.24) was lower than both hit response to neutral words (*M*=14.64, *SD*=1.88) and positive words (*M*=15.07, *SD*=2.19). On the other hand the mean value for miss response to negative words (*M*=5,*SD*=2.24) was higher than missresponseto both neutral (*M*=3.36, *SD*=1.85) and positive words (*M*=3.95, *SD*=2.2). Mean value for correct rejection respond to positive words (M=13.59, SD= 2.20) was lower than both correct rejection respond to negative words (*M*=16.68, *SD*= 1.9) and neutralwords (*M*=16.8, *SD*= 1.39). The mean value for false positive to neutral words (*M*=1.2, *SD*= 1.38) was lower than false positive to negative words (*M*=2.34, *SD*= 1.89) and positive words (*M*=3.39, *SD*= 2.21).

The mean value for correct rejection response to negative words(*M*=16.68, *SD*= 1.9) was higher than hit response (*M*=11.98,*SD*=2.24), miss response (*M*=5,*SD*=2.24) and false positive response to negative words(*M*=2.34, *SD*= 1.89) and the mean value for hit response (*M*=11.98 *SD*=2.24) was higher than miss response (*M*=5 *SD*=2.24) and false positive response to negative words (*M*=2.34, *SD*= 1.89). The mean value for miss response to negative words (*M*=5, *SD*=2.24) was higher than mean value for false positive response (*M*=2.34, *SD*= 1.89). The mean value for correct rejection response to neutral words(*M*=16.8, *SD*= 1.39) was higher than hit response (*M*=14.64, *SD*= 1.88), miss response (*M*=3.36, *SD*= 1.85), and false positive response to neutral words(*M*=1.2, *SD*= 1.38), and the mean value for hit response to neutral words(*M*=14.64, *SD*= 1.88) was higher than miss response (*M*=3.36, *SD*= 1.85) and false positive response to neutral words (*M*=1.2, *SD*= 1.38). The mean value for miss response (*M*=3.36, *SD*= 1.85) to neutral wordswas higher than mean value for false positive response (*M*=1.2, *SD*= 1.38). The mean value for hit response to positive words (*M*=15.07, *SD*= 2.19) was higher than correct rejection (*M*=13.59, *SD*= 2.2), miss (*M*=3.95, *SD*= 2.19) and false positive response to positive words (*M*=3.39, *SD*= 2.21). The mean value for correct rejection response to positive words (*M*=13.59, *SD*= 2.2) was higher than miss (*M*=3.95, *SD*= 2.19) and false positive response to positive words (*M*=3.39, *SD*= 2.21).

The results show that there was no interaction effect between word type, reaction type and attachment type, $p>.01$. (see Figure 3.3)

In order to analyze the effect of word type and respond type on total recognition in anxious and avoidant group separately, repeated measure ANOVA (3X4) for each half was conducted separately by using split half method. Dependent variable was number of total recognition and independent variables were word type and respond type. Within subject variables were word-type with three levels (Negative, neutral and positive) and type of reaction with four levels (Hit, Miss, False positive and Correct Rejection). Multiple analyses were made on the data set thus a Bonferroni type adjustment was made for inflated Type 3 error for each of the analysis separately.

According to results of Anxious group, WilksLamda was significant for word type, Wilks =.172, $p< .001 \acute{\eta}^2 =.83$ and reaction type Wilks =.034, $p< .001 \acute{\eta}^2 =.97$,

interaction of word type and reaction type Wilks =.214, $p < .001$ $\acute{\eta}^2 = .79$, so model was significant for those.

Mauchly test was conducted to examine variances. Results indicated there was not significant variances for word type, Mauchly $W = .953$ χ^2 (2) =.962, $p > .05$ and reaction type Mauchly$W = .798\chi^2$ (2) =4.51, $p > .05$. The sphericity rule was not violated for those. However there was a significant variance for interaction of word type and reaction type, Mauchly $W = .14\chi^2$ (9) =38.149, $p < .001$. Thus it can be stated that the sphericity rule was violated for interaction effect of word type and reaction.

For Anxious group the main effect of word type was statistically significant, F (2, 42) =40.38, $p < .001$, $\acute{\eta}^2 = .66$. The mean values for hit response to neutral (M=14.59, SD=1.84) and positive words (M=14.59, SD=1.84) were higher than hit response to negative words (M=12.64, SD=2.55). The number of correctly recognized negative words was significantly lower than correctly recognized neutral and positive words. (see Figure 3.14)

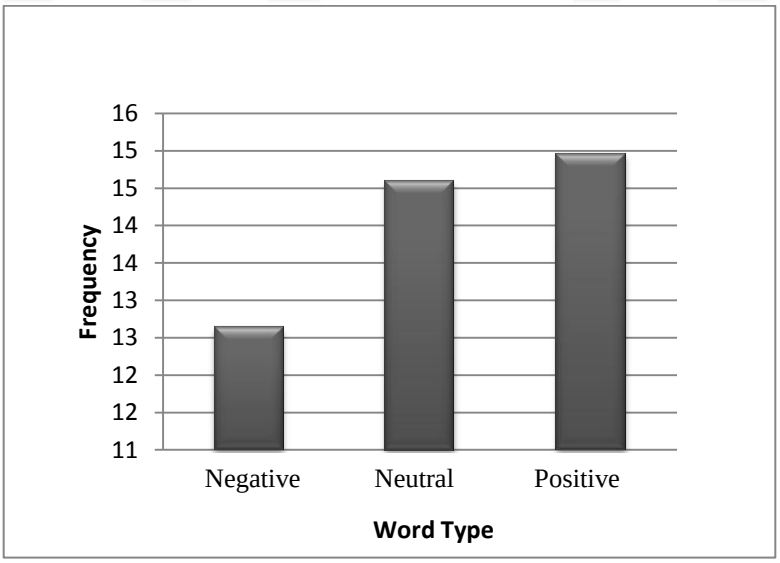

Figure 3.14: Anxious Participants' hit response according to word type.

The mean value for false positive response to positive words (M=3.59, SD= 2.67) was higher than false positive response to neutral words (M=1.45, SD=1.4) and negative words (M=2.64, SD=2.55). So, it can be stated that number of non-presented

positive words rejected was lower than number of non-presented negative and neutral words. (see Figure 3.15)

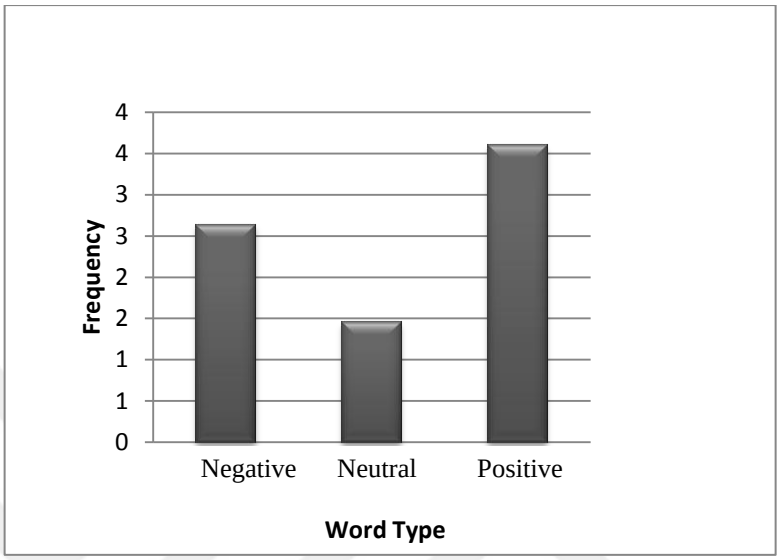

Figure 3.15: Anxious Participants' false positive response according to word type.

The mean value for correct rejection response to positive words (M=13.41, SD=2.67) was lower than both correct rejection response to neutral (M=16.54, SD=1.4) and negative words (M=16.36, SD=2.55). (see Figure 3.16)

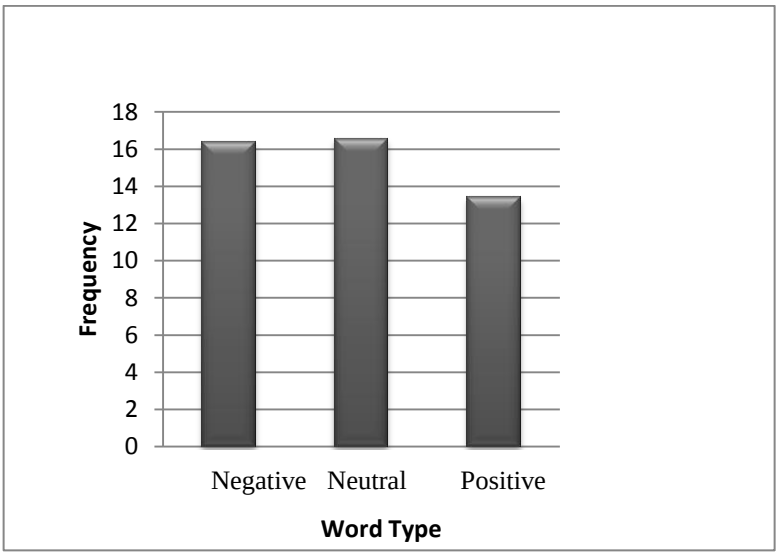

Figure 3.16: Anxious Participants' correct rejection response according to word type.

The main effect of reaction type was statistically significant F (2, 42) =2051.92, p<.001, $\acute{\eta}^2$=.91. The mean value for hit response (M=14.06, SD=2.2) and correct rejection response (M=15.44, SD=2.2) were significantly higher than miss response (M=3.94, SD=2.2) and false positive response (M=2.56, SD=2.2). (see Figure 3.17)

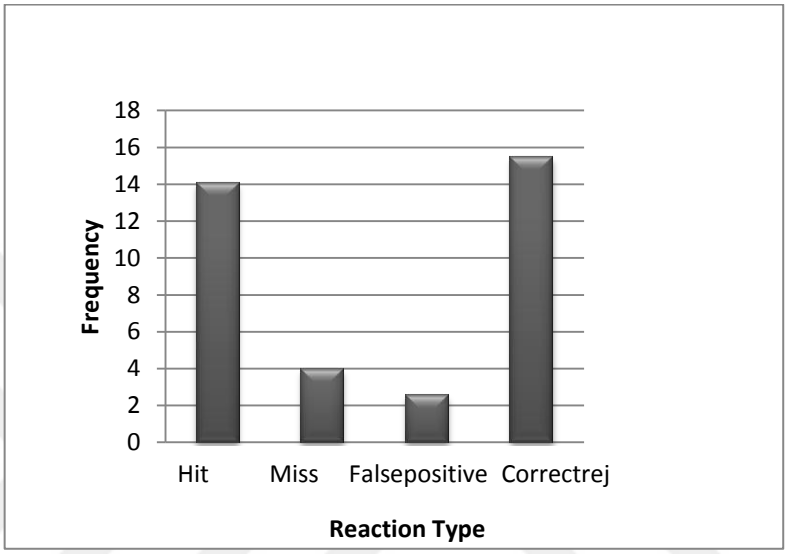

Figure 3.17: Comparison between response types of anxious group to visual stimuli.

The interaction effect of word type and reaction type was statistically significant F (2.32, 48.79) = 5.74, p<.001, $\acute{\eta}^2$=.21. The mean value for hit response to negative words (M=12.64, SD=2.55) was significantly higher than miss response (M=4.36, SD=2.55) and false positive response (M=2.64, SD=2.55). The mean value for correct rejection response to negative words (M=16.36, SD=2.55) was significantly higher than miss response (M=4.36, SD=2.55) and false positive response (M=2.64, SD=2.55). The mean value for hit response to neutral words (M=14.59, SD=1.84) was significantly higher than miss response (M=3.41, SD=1.84) and false positive response (M=1.45, SD=1.4). The mean value for correct rejection response to neutral words (M=16.54, SD=1.4) was significantly higher than miss response (M=3.41, SD=1.84) and false positive response (M=1.45, SD=1.4). The mean value for hit response to positive words(M=14.95, SD=2.19) and correct rejection response to positive words(M=13.41, SD=2.67) were significantly higher than miss response (M=4.04, SD=2.19) and false positive response (M=3.59, SD=2.67).

According to results of Avoidant group, WilksLamda was significant for word type, Wilks =.222, $p< .001$ $\acute{\eta}^2$ =.78 and reaction type Wilks =.011, $p< .001$ $\acute{\eta}^2$=.99, interaction of word type and reaction type Wilks =.252, $p< .001$ $\acute{\eta}^2$=.75, so model was significant for those.

Mauchly test was conducted to examine variances. Results indicated there was not significant variances for word type, Mauchly W=.940χ^2 (2) =.1.99, p>.05. The sphericity rule was not violated. However there was a significant variance for and reaction type Mauchly$W$=.462χ^2 (2) =24.71, p<.001interaction of word type and reaction type, Mauchly W=.191χ^2 (9) =51.97, p<.001. Thus it can be stated that the sphericity rule was violated for reaction type and interaction effect of word type and reaction.

The main effect of word type for Avoidant people was statistically significant F (2, 66) = 62.55, p<.001 $\acute{\eta}^2$=.65. The mean value for hit response to neutral (M=14.68, SD=1.93) and positive (M=15.15, SD=2.22) was higher than negative (M=11.56, SD=1.93). Avoidant people were able to recognize less number of negative words than the number of neutral and positive words. (see Figure 3.18)

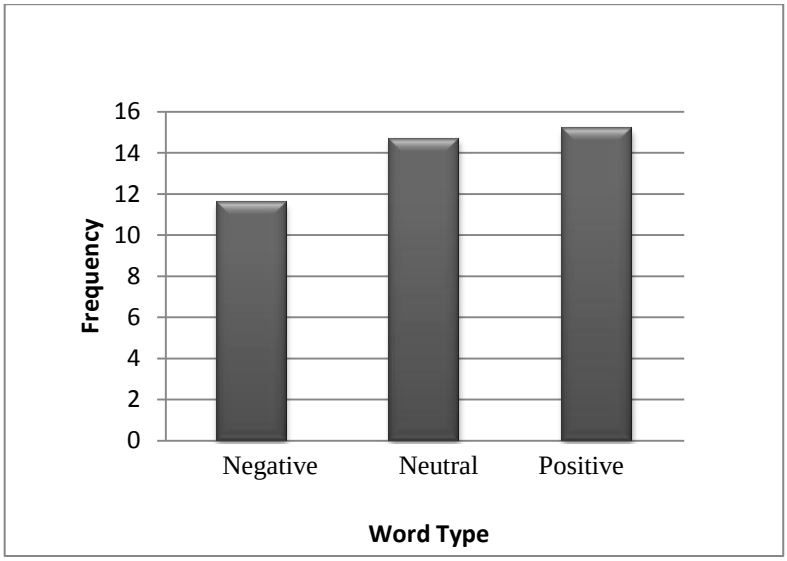

Figure 3.18: Avoidant Participants' hit response according to word type.

The mean value for miss value for negative (M=5.41, SD=1.96) was higher than mean value for neutral (M=3.32, SD=1.89) and positive (M=3.88, SD=2.23).

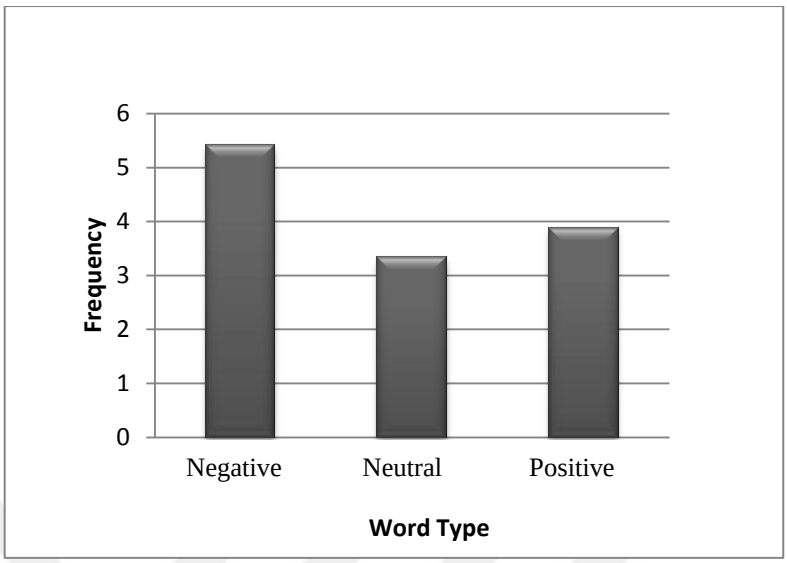

Figure 3.19: Avoidant Participants' miss response according to word type.

When the stimulus type was negative, avoidant people had more tendencies to miss the words presented before. The mean value for false positive to positive words (*M*=3.26, *SD*=1.9) was higher than both false positive to negative (*M*=2.15, *SD*=1.31) and neutral (*M*=1.03, *SD*=1.36). (see Figure 3.20)

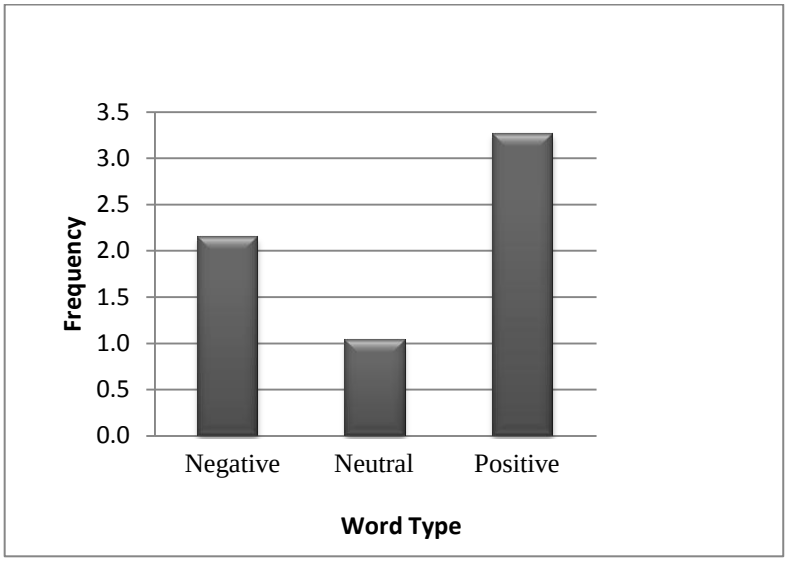

Figure 3.20: Avoidant Participants' falsepositive response according to word type.

The mean value for correct rejection response to negative (*M*=16.88, *SD*=1.34) and neutral (*M*=16.97, *SD*=1.38) was higher than positive words (*M*=13.71, *SD*=1.81). (see Figure 3.21)

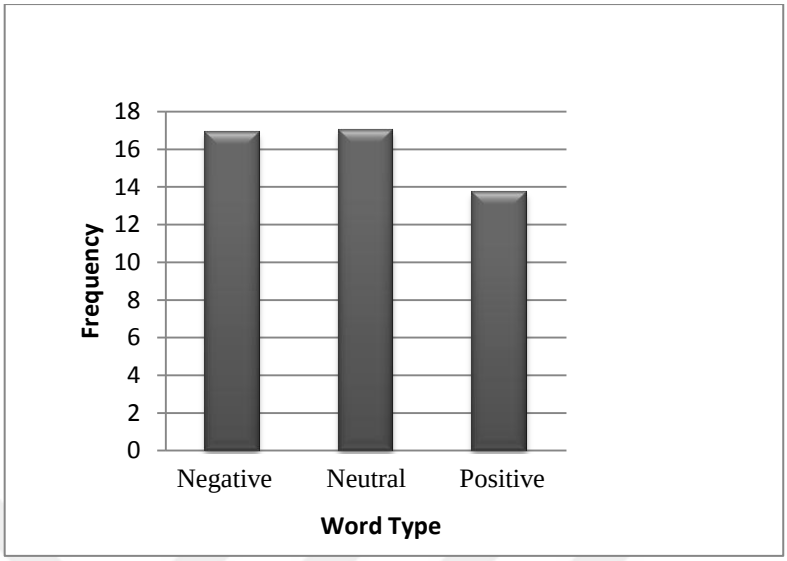

Figure 3.21: Avoidant Participants' correct rejection response according to word type.

The main effect of reaction type was statistically significant F (1.3, 42.9) = 591.61, p<.001 $\acute{\eta}^2$=.95. The mean value for hit response (M=13.79, SD=2.02) and correct rejection response (M=15.85, SD=1.54) were significantly higher than miss response (M=4.21, SD=2.02) and false positive response (M=2.15, SD=1.52). Moreover the mean value for correct rejection (M=15.85, SD=1.54) was significantly higher than hit response (M=13.79, SD=2.02) and the mean value for miss response (M=4.21, SD=2.02) was significantly higher than false positive response (M=2.15, SD=1.52). (see Figure 3.22)

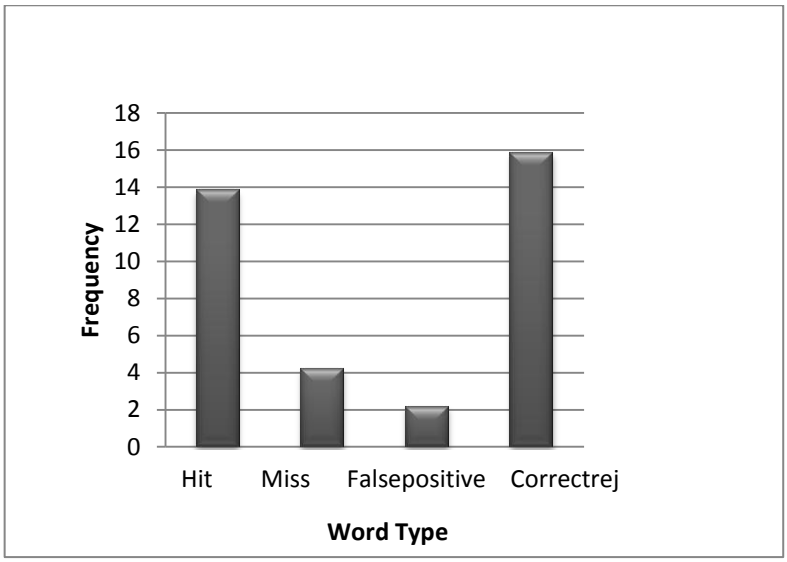

Figure 3.22: Comparisonbetweenfrequency of response type of anxious group to verbal stimuli.

The interaction effect of word type and reaction type was $F(2.42, 79.98) = 21.39$, $p<.001 \acute{\eta}^2=.39$.The mean value for correct rejection to negative words (M=16.88, SD=1.34) was significantly higher than hit (M=11.55, SD=1.93) miss(M=5.41, SD=1.96) and false positive response (M=2.15, SD=1.31);the mean value of hit response to negative words (M=11.55, SD=1.93)was higher than miss (M=5.41, SD=1.96) and false positive response to negative words (M=2.15, SD=1.31). The mean value for miss response to negative words (M=5.41, SD=1.96) was significantly higher than false positive response to negative words (M=2.15, SD=1.31). The mean value for correct rejection to neutral words (M=16.97, SD=1.38) was significantly higher than hit (M=14.68, SD=1.93), miss (M=3.32, SD=1.89) and false positive response (M=1.02, SD=1.36); mean value for hit response to neutral words (M=14.68, SD=1.93) was higher than miss response (M=3.32, SD=1.89) and false positive response (M=1.02, SD=1.36). The mean value for miss response to neutral words (M=3.32, SD=1.89)was significantly higher than false positive response (M=1.02, SD=1.36). The mean value for hit to positive words (M=15.15, SD=2.22) was significantly higher than correct rejection response (M=13.71, SD=1.81), miss response (M=3.88, SD=2.23) and false positive response (M=3.26, SD=1.9). Mean value for correct rejection response (M=13.71, SD=1.81) was significantly higher than miss (M=3.88, SD=2.23) and false positive response (M=3.26, SD=1.9).The mean value for hit response to neutral (M=14.68, SD=1.93) and positive (M=15.15, SD=2.22) was higher than negative (M=11.55, SD=1.93). The mean value for miss value for negative (M=5.41, SD=1.96) was higher than mean value for neutral (M=3.32, SD=1.89) and positive (M=3.88, SD=2.23). The mean value for false positive to positive words (M=3.26, SD=1.9) was higher than both false positive to negative (M=2.15, SD=1.31) and neutral (M=1.03, SD=1.36). The mean value for correct rejection response to negative (M=16.88, SD=1.34) and neutral (M=16.97, SD=1.38) was higher than positive words (M=13.71, SD=1.81).

Table 3.3

Variables		Anxious		Avoidant		Total	
		M	*SD*	*M*	*SD*	*M*	*SD*
Frequency for Words							
Negative	Hit	12.64	2.55	11.56	1.93	11.98	2.24
	Miss	4.36	2.55	5.41	1.96	5.00	2.25
	False positive	2.64	2.55	2.15	1.31	2.34	1.89
	Correct rejection	16.36	2.55	16.88	2.35	16.68	1.91
Neutral	Hit	14.59	1.84	14.68	1.93	14.64	1.88
	Miss	3.41	1.84	3.32	1.89	3.36	1.85
	False positive	1.45	1.4	1.03	1.36	1.2	1.38
	Correct rejection	16.4	1.54	16.97	1.38	16.8	1.39
Positive	Hit	14.95	2.19	15.15	2.22	15.07	1.19
	Miss	4.04	2.19	3.88	2.23	3.95	2.19
	False positive	3.59	2.67	3.26	1.9	3.39	2.21
	Correct rejection	13.41	2.67	13.71	1.88	13.59	2.21

3.2.2.4 Comparison between Attachment Anxiety and Attachment Avoidance for Reaction time for recognition of Negative, Neutral and Positive Words

In order to analyze the effect of word type, respond type and attachment type on reaction time for total correct recognition, between mixed designs ANOVA (3X4X2) was conducted. Dependent variable was reaction time for recognition and independent variables were word type, respond type and attachment type (Anxious and Avoidant groups). Within subject variables were word-type with three levels (Negative, neutral and positive) and type of reaction with four levels (Hit, Miss, False positive and Correct Rejection) and between subject factors was attachment type. Multiple analyses were made on the data set thus a Bonferroni type adjustment was made for inflated Type 3 error for each of the analysis separately.

According to results WilksLamda was significant for word type, Wilks = .504, $p < .001$ and reaction type, Wilks =.150, $p < .001$ and interaction of word type and reaction type Wilks =.125, $p < .001$, so model was significant for those. On the other hand WilksLamda was not significant for interaction of word type, reaction type and attachment type $p > .05$.

Firstly, Mauch's test was conducted to examine variances. Results indicated there is not significant variances for word type, Mauch's W=.945 χ^2 (2) =2.97, $p>.05$, thus the sphericity rule was not violated. However there was a significant variance for both reaction type Mauch's W=.543 χ^2 (5) =32.17, $p<.001$, and interaction of word type and reaction type, Mauch's W=.103 χ^2 (20) =117.6, $p<.001$. So it can be stated that the sphericity rule for main effect of word type and interaction effect of word type and reaction type were violated.

Results revealed that main effect of word type was significant F (2, 108) =29.38, $p<.001$, $\acute{\eta}^2=.35$. The mean value for hit response time to neutralwords (M=3993.35, SD=1144.28) was significantly higher than hit response time to negativewords (M=1330.94, SD=400.81) and hit response time to positivewords (M=1288.73, SD=381.36). Thus it can be stated that participants were able to recognized positive and negative words in shorter time comparing to neutral words. (see Figure 3.23)

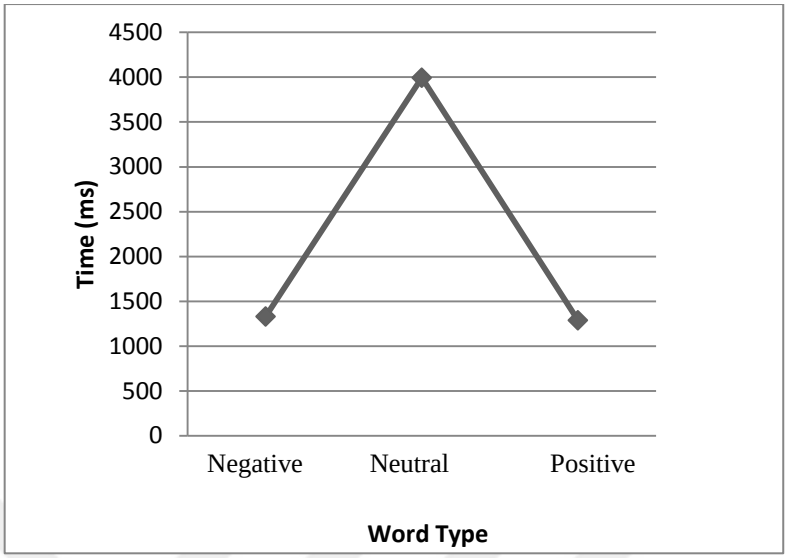

Figure 3.23: Participants' hit response time according to word type.

The mean value for miss response time for negative (*M*=1948.2, *SD*=956.97) and miss response time to positive words (*M*=1944.66, *SD*=1092.61) was higher than miss response time for neutral words (*M*=1722.99, *SD*=869.19).(see Figure 3.24)

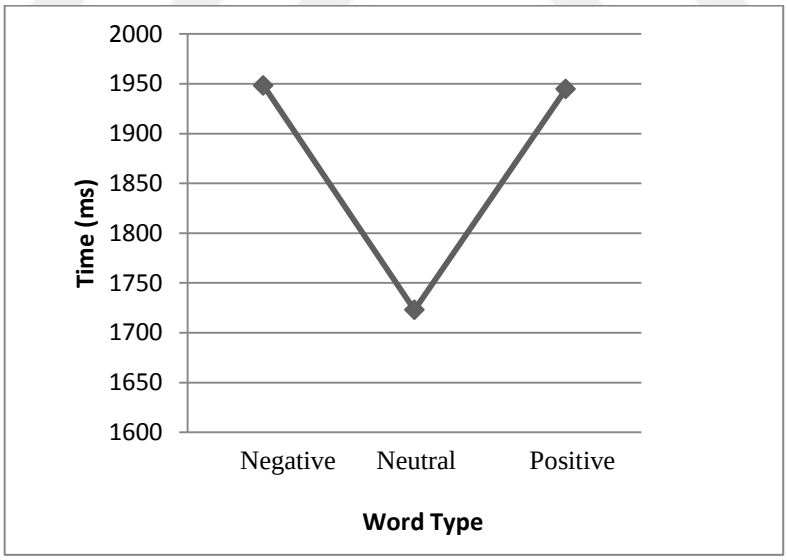

Figure 3.24: Participants' miss response time according to word type.

The mean value for false positive response time for negative words (*M*=1631.19, SD=1430.67) and positive words (*M*=1470.74, *SD*=733.94) were higher than neutral words (*M*=1051.41, *SD*=1016.22). (see Figure 3.25)

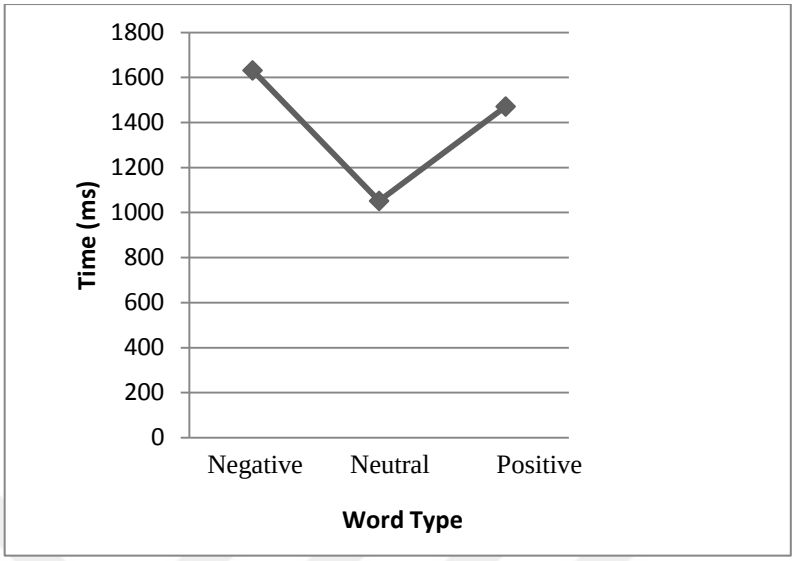

Figure 3.25: Participants' false positive response time according to word type.

The mean value for correct rejection time to negative words (*M*=1539.65, *SD*=541.39) and correct rejection time to positive words (*M*=1510.99, *SD*=423.65) were higher than correct rejection time to neutral words (*M*=1275.09, *SD*=288.59). (see Figure 3.26)

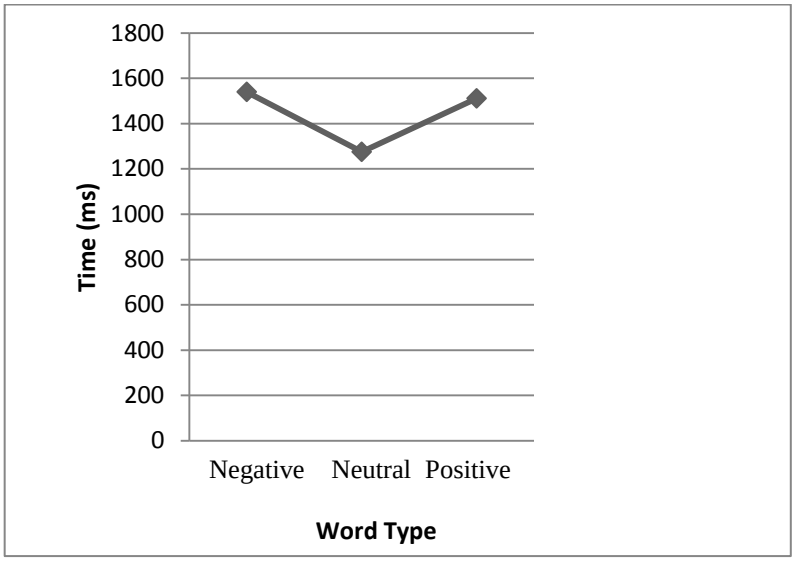

Figure 3.26: Participants' correct rejection response time according to word type.

Moreover the main effect of reaction type was also significant *F* (2.35, 126.8) =47.36, $p<.01$, $\acute{\eta}^2=.47$. The mean concern for average time for hit response (*M*=2204.3448, *SD*=642.15) was significantly higher than false positive (*M*=1384.4458, *SD*=1060.275) and the correct rejection (*M*=1441.9105, *SD*=417.878) and the mean

concern for false positive response (*M*=1384.4458, *SD*=1060.275) was lower than miss response (*M*=1871.9499, *SD*=972.923). According to these results, responding time for hit was the longest comparing to time for miss, correct rejection and false positive response. On the other hand responding time for correct rejection was shorter than responding time for miss. Responding time of false positive is also shorter than responding time for miss.So it can be stated that it took more time for participant when it was asked to recognized presented stimulus comparing to non-presented stimulus.(see Figure 3.27)

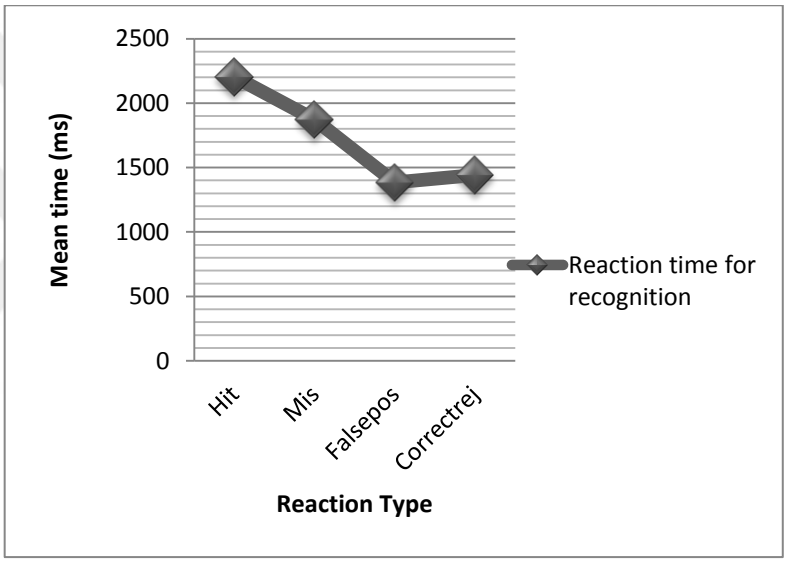

Figure 3.27: Participants'response times depending on reaction type to verbal stimuli.

The main effect of attachment type was not statistically significant $p>.05$.The reaction time for anxious and avoidant people was not different from each other for any kind of word type and reaction type.

Results revealed that there was a significant interaction between the word type and the reaction time for response types F (3,916, 221, 48) = 79,487, $p<.01 \acute{\eta}^2=.87$. The mean value for hit response time to neutral words (*M*=3993.35, *SD*=1144.28) was significantly higher than hit response time to negative (*M*=1330.94, *SD*=400.81) and hit responsetime to positive words (*M*=1288.73, *SD*=381.36). Thus it can be stated that participants were able to recognized positive and negative words in shorter time comparing to neutral words. The mean value for correct rejection time to negative words (*M*=1539.65, *SD*=541.39) and correct rejection time for positive words (M=1510.99,

SD=423.65) were higher than correct rejection time to neutral words (*M*=1275.09, *SD*=288.59). The mean value for miss response time for negative (*M*=1948.2, *SD*=956.97) and miss response time to positive words (*M*=1944.66, *SD*=1092.61) was higher than miss response time for neutral words (*M*=1722.99, *SD*=869.19). The mean value for false positive response time for negative words (*M*=1631.19, SD=1430.67) and neutral words (*M*=1470.74, *SD*=733.94) were higher than neutral words (*M*=1051.41, *SD*=1016.22).

The mean value for time for hit response to negativewords (*M*=1330.9459, *SD*=400.810) was lower than miss response to negative (*M*=1948.1979, *SD*=956.969), false positive (*M*= 1631.1857, *SD*=1430.667) and correct rejection to negative (*M*=1539.6458, *SD*=541.388). Regardless of attachment type, participants responded hit response the most quickly for negative words. Their miss responds took more time (*M*=1948.1979, *SD*=956.969) comparing to both correct rejection (*M*=1539.6458, *SD*=541.388) and false positive responds (*M*= 1631.1857, *SD*=1430.667). The main effect of hit response time to neutral words (*M*= 3993.35, *SD*= 1144.28) was significantly higher than miss response time to neutral words (*M*=1722.99, *SD*=869.19), false positive time to neutral words (*M*=1051.41, *SD*= 1016.22) and correct rejection time to neutral words (*M*=1275.09, *SD*=288.59). The main effect of correct rejection time to neutral words (*M*=1275.09, *SD*=288.59) was higher than miss response time to neutral words (*M*=1722.99, *SD*=869.19). Moreover the main effect of miss response (*M*=1722.99, *SD*=869.19) was higher than false positive response (*M*=1051.41, *SD*= 1016.22). Results revealed that for negative stimulus participants gave hit responds in a longest time comparing to other responds. Moreover they gave miss responds longer time comparing to false positive and correct rejection respond. So it can be stated that for neutral stimulus it took more time for participant when it was asked to recognized presented stimulus comparing to non-presented stimulus.The mean value for hit response to positive words (*M*=1288.3, *SD*=381.36) was lower than miss response (*M*=14.82, *SD*=1092.61), false positive response (*M*=1470.74, *SD*=733.94) and correct rejection response (*M*=1510.99, *SD*=423.65). For positive stimulus participants were able to give hit responds in a shortest time comparing to other responds.

Although there was a differences between mean values as it shown at figure 3.7, there was not a significant interaction effect between word type, response type and attachment type, $p>.05$.

In order to analyze the effect of word type and respond type on reaction time for total recognition in anxious and avoidant group separately, repeated measure ANOVA (3X4) for each half was conducted separately by using split half method. Dependent variables werereaction time for correct recognition, miss, false positive and correct rejection and independent variables were word type and respond type. Within subject variables were word-type with three levels (Negative, neutral and positive) and reaction type with four levels (Hit, Miss, False positive and Correct Rejection). Multiple analyses were made on the data set thus a Bonferroni type adjustment was made for inflated Type 3 error for each of the analysis separately.

According to results of Anxious group, Wilks Lamda was significant for word type, Wilks =.402, $p< .001 \acute{\eta}^2 =.6$ and reaction type Wilks =.165, $p< .001 \acute{\eta}^2 =.83$, interaction of word type and reaction type Wilks =.088, $p< .001$ $\acute{\eta}^2=.91$, so model was significant for those.

Mauchly test was conducted to examine variances. Results indicated there was not significant variances for word type, Mauchly $W=.779 \chi^2$ (2) =4.99, $p>.05$. The sphericity rule was not violated. However there was a significant variance for reaction type Mauchly$W=.556 \chi^2$ (5) =11.58, $p<.05$, and interaction of word type and reaction type, Mauchly $W=.067 \chi^2$ (20) =50.64, $p<.001$. Thus it can be stated that the sphericity rule was violated for word type and interaction effect of word type and reaction.

Results showed that the main effect of word type was statistically significant F (2, 42) =15.64, $p<.001$, $\acute{\eta}^2=.43$.The mean value for hit response time for neutral words (M=3862.2 SD=1026.32) was significantly higher than negative words (M=1248.07, SD=315.03) and positive words (M=1255.91, SD=254.15). Anxious participants were able to recognized negative and positive words in shorter time comparing to neutral words. (see Figure 3.28)

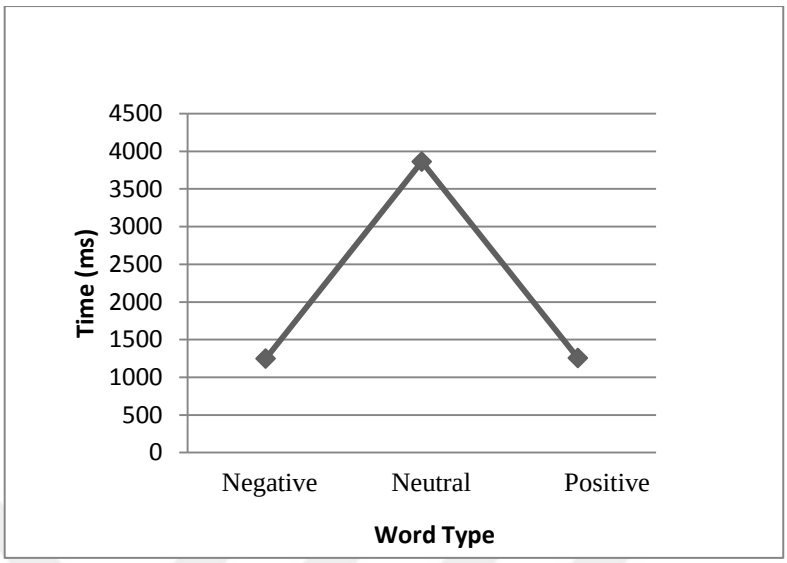

Figure 3.28: Anxious Participants' hit response time according to word type.

The mean value for false positive response time to neutral words (*M*=1286.64, *SD*=931.56) was lower than negative (*M*=1286.64, *SD*=931.56) and positive response (*M*=1452.30, *SD*=604.06). (see Figure 3.29)

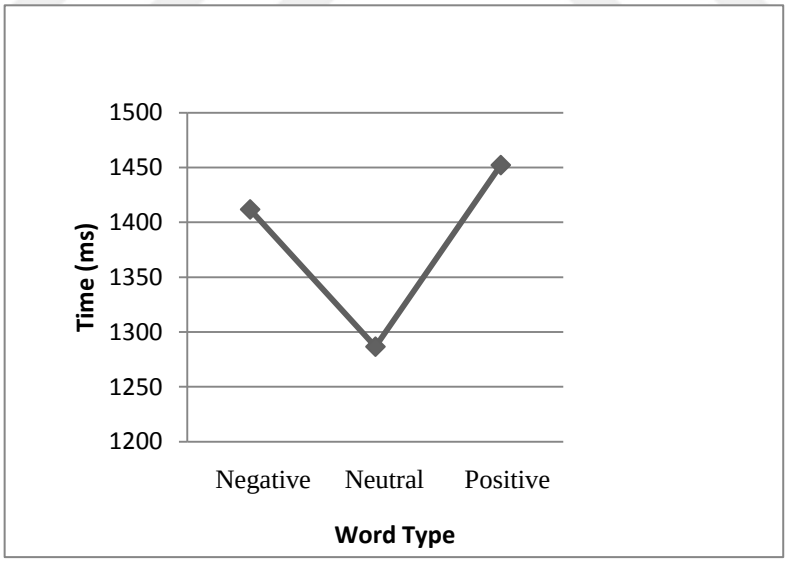

Figure 3.29: Participants' false positive response time according to word type.

The mean value for correct rejection time for neutral words (*M*=1286.27, *SD*=250.68) was lower than negative (*M*=1534.43, *SD*=483.73) and positive words (*M*=1500.37, *SD*=418.33). So it can be stated than anxious people were able to confirm

absence of presented words in first stage of the experiment, in shorter time comparing to negative and positive words. (see Figure 3.30)

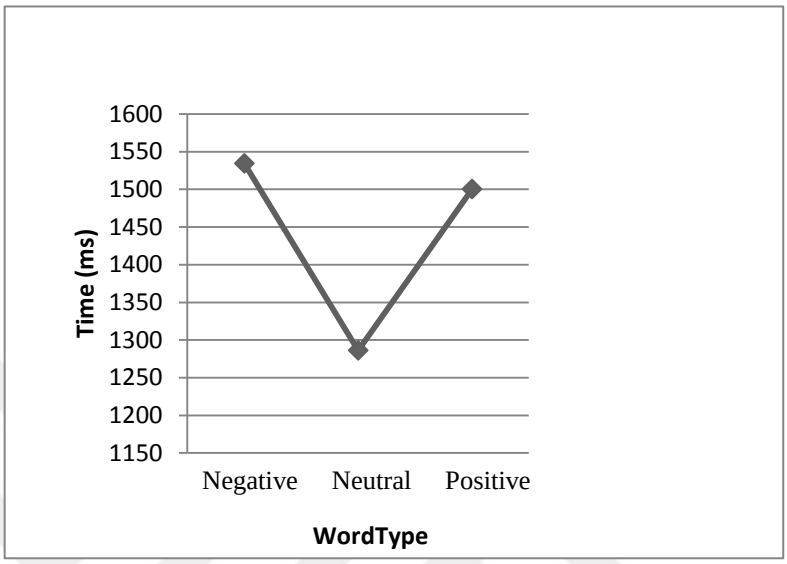

Figure 3.30: Participants' correct rejection response time according to word type.

There was a significant main effect of reaction type F (3, 63) =22.92, p<.001, $\acute{\eta}^2$=.52. The mean value of reaction time for hit response (M=2122.06, SD=531.83) was significantly higher than both false positive (M=1383.6, SD=847.18)and correct rejection response (M=1440.36, SD=384.25). Moreover the mean value of reaction time for miss respond (M=1932.43, SD=857.307) was significantly higher than false positive response (M=1383.6, SD=847.18) and correct rejection response (M=1440.36, SD=384.25).So it can be stated that recognition or rejection of presented words took more time comparing to non-presented words for anxious group. (see Figure 3.31)

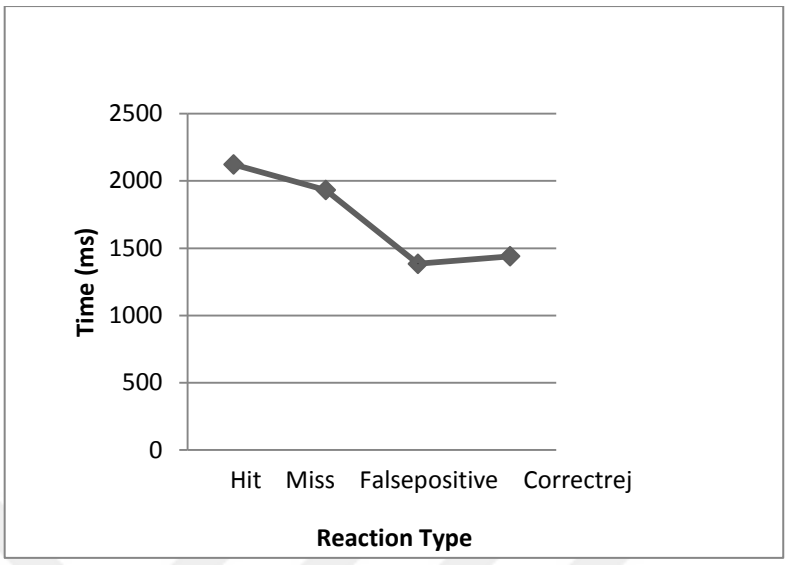

Figure 3.31: Comparison between response times of anxious group depending on reaction type to verbal stimuli.

Interaction effect of word type and reaction type was statistically significant, F (6, 126) = 37.46 p<.001, $\acute{\eta}^2$=.64.The mean value of hit response time for negative words (M=1248.07, SD=315.03) was lower than miss response time (M=2046.03, SD=731.15) and false positive (M=1411.87, SD=1005.91) and correct rejection response time (M=1534.43, SD=483.73). The mean value for miss response for negativewords (M=2046.03, SD=731.15) was significantly higher than false positive response (M=1411.87, SD=1005.91) and correct rejection (M=1534.43, SD=483.73). The mean value for hit response for neutral words (M=3862.2 SD=1026.32) was significantly higher than false positive response (M=1286.64, SD=931.56) and correct rejection (M=1286.27, SD=250.68). The mean value for miss response for neutral words (M=1806.52, SD=984.92) was significantly higher than false positive response (M=1286.64, SD=931.56) and correct rejection (M=1286.27, SD=250.68). The mean value for hit response for positive words (M=1255.91, SD=254.15) was significantly lower than false positive response (M=1452.30, SD=604.06) and correct rejection (M=1500.37, SD=418.33). The mean value for miss response for neutral words (M=1944.73, SD=1053.55) was significantly higher than false positive response (M=1452.30, SD=604.06) and correct rejection (M=1500.37, SD=418.33).

The mean value for hit response time for neutral words (M=3862.2 SD=1026.32) was significantly higher than negative words (M=1248.07, SD=315.03) and positive

words (*M*=1255.91, *SD*=254.15). It took more time for anxious group to recognize neutral words comparing to negative and positive words. On the other hand the mean value for correct rejection time for neutral words (*M*=1286.27, *SD*=250.68) was lower than negative (*M*=1534.43, *SD*=483.73) and positive words (*M*=1500.37, *SD*=418.33).So, anxious participants were able to reject non-presented neutral words in a shorter time comparing to negative and positive non-presented words. The mean value for false positive response time to neutral words (*M*=1286.64, *SD*=931.56) was lower than negative (*M*=1286.64, *SD*=931.56) and positive response (*M*=1452.30, *SD*=604.06).

According to results of avoidant group, WilksLamda was significant for word type, Wilks =.571, $p < .001 \acute{\eta}^2 = .43$ and reaction type Wilks =.128, $p < .001 \acute{\eta}^2 = .87$, interaction of word type and reaction type Wilks =.12, $p < .001$ $\acute{\eta}^2 = .88$, so model was significant for those.

Mauchly test was conducted to examine variances. Results indicated there was not significant variances for word type, Mauchly $W = .983 \chi^2$ (2) =.533, $p > .05$. The sphericity rule was not violated. However there was a significant variance for reaction type Mauchly $W = .444$ χ^2 (5) =25.79, $p < .001$, and interaction of word type and reaction type, Mauchly $W = .047 \chi^2$ (20) =93.84, $p < .001$. Thus it can be stated that the sphericity rule was violated for word type and interaction effect of word type and reaction.

The mean value of word type was statistically significant *F* (2, 66) =13.89, $p < .001$, $\acute{\eta}^2 = .3$.The mean value for hit response time for neutral words (*M*=4078.21, *SD*=1221.92) was significantly higher than negative words (*M*=1384.57, *SD*=443.9) and positive words (*M*=1309.97, *SD*=447.33). As anxious participants, avoidant participants were able to recognized negative and positive words in shorter time comparing to neutral words. (see Figure 3.32)

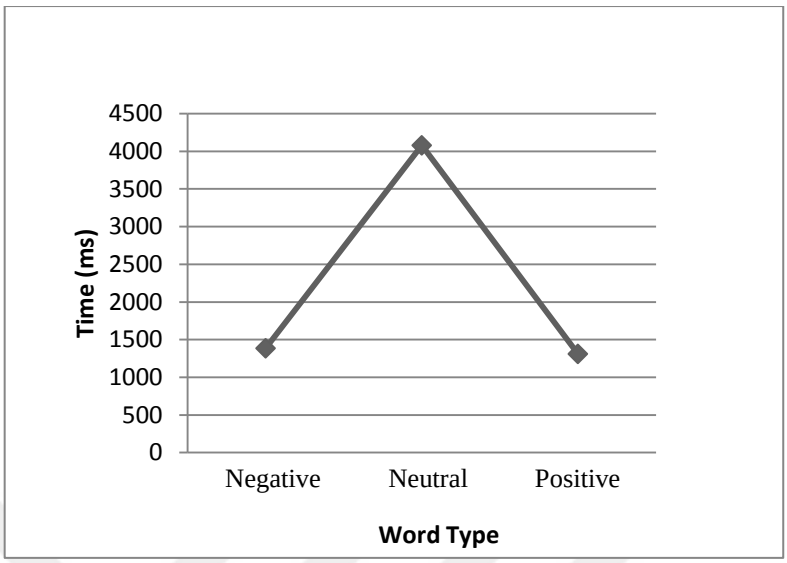

Figure 3.32: Avoidant Participants' hit response time according to word type.

The mean value for false positive response time to neutral words (*M*=899.2, *SD*=1052.69) was lower than negative (*M*=1773.09, *SD*=1647.61) and positive response (*M*=1482.67, *SD*=815.6). (see Figure 3.33)

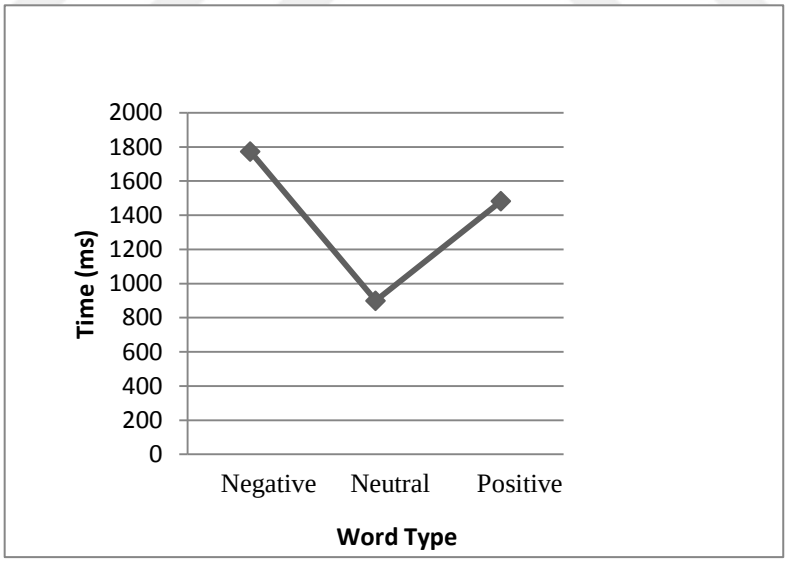

Figure 3.33: Avoidant participants' false positive response time according to word type.

The mean value for correct rejection time for neutral words (*M*=1267.86, *SD*=1543.02) was lower than negative (*M*=1543.02, *SD*=582.72) and positive words (*M*=1517.87, *SD*=433.18). (see Figure 3.34)

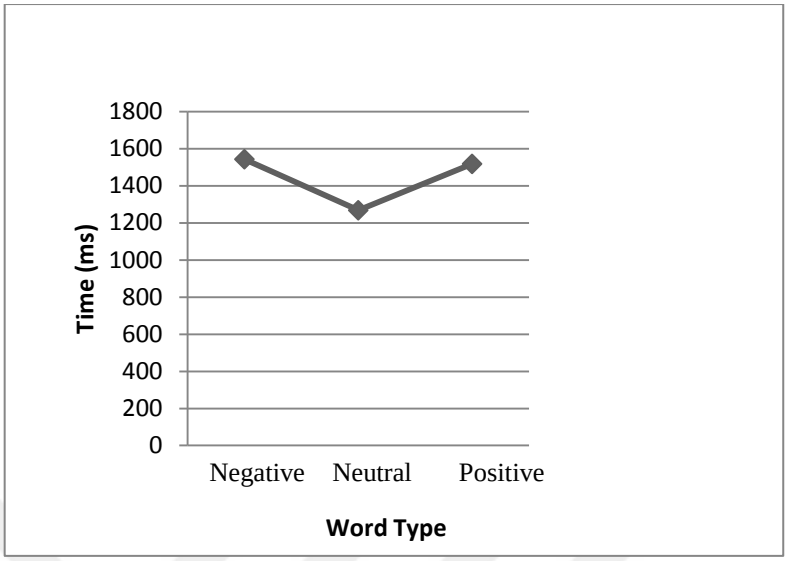

Figure 3.34: Avoidant participants' correct rejection response time according to word type.

The main effect of reaction type was statistically significant F (3, 99) =29.55, p<.001, $\acute{\eta}^2$=.47. The mean value for hit response time (M=2257.58, SD=704.39) was significantly higher than miss responsetime (M=1832.81, SD=1040.9), false positive responsetime (M=1384.99, SD=1171.97) and correct rejection response time (M=1442.91, SD=443.35). The mean value of miss response time (M=1832.81, SD=1040.9) was also statistically significantly higher than false positive time (M=1384.99, SD=1171.97) and correct rejection response time (M=1442.91, SD=443.35). So, for avoidant group as anxious group, it can be stated that recognition or rejection of presented words took more time comparing to non-presented words. (see Figure 3.35)

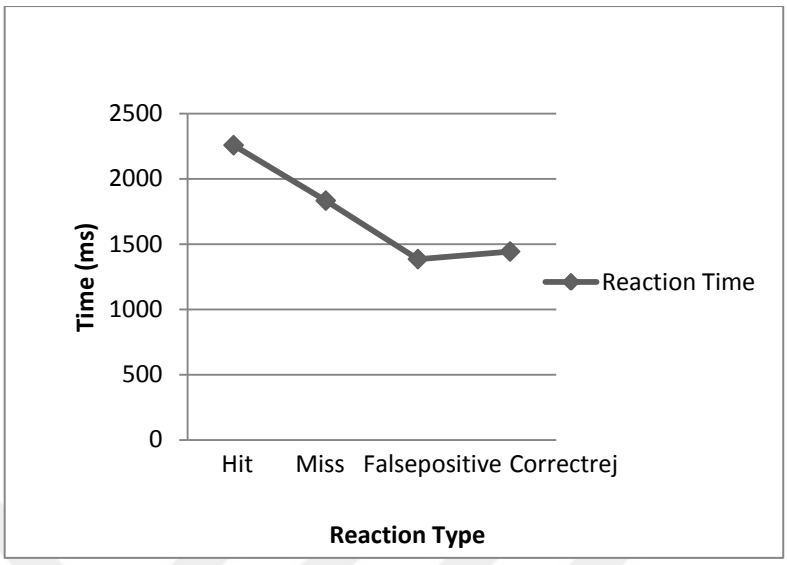

Figure 3.35: Avoidant participants' response times depending on reaction type to verbal stimuli.

The interaction effect of word type and reaction type F (6,198) = 50.55, p<.001, $\acute{\eta}^2$=.6.The mean value for hit response for negative words (M=1384.57, SD=443.9) was significantly lower than miss response (M=1884.89, SD=1084.25) false positive response (M=1773.09, SD=1647.61) and correct rejection response for negative words (M=1543.01, SD=582.72). The mean value for miss response to negative words (M=1884.89, SD=1084.25) was higher than mean value for correct rejection (M=1543.01, SD=582.72). The mean value for hit response to neutral words (M=4078.21, SD=1221.92) was significantly higher than miss respond (M=1668.94, SD= 984.92) false positive respond (M=899.2, SD=1052.69) and correct rejection respond (M=1267.86, SD=314.14). The mean value for miss respond to negative words (M=1668.94, SD= 984.92) was also higher than false positive respond (M=899.2, SD=1052.69) and correct rejection respond to neutral words (M=1267.86, SD=314.14). The mean value for miss respond to positive words (M=1944.61, SD=1053.55) was higher than hit (M=1309.97, SD=447.33), false positive (M=899.20, SD=1052.69) and correct rejection response to positive words (M=1517.87, SD=433.17). Moreover mean value for correct rejection to positive words (M=1517.87, SD=433.17) was significantly higher than hit responds to positive words (M=1309.97, SD=447.33).The mean value for hit response time for neutral words (M=4078.21, SD=1221.92) was significantly higher than negative words (M=1384.57, SD=443.9) and positive words (M=1309.97,SD=447.33). The mean value for correct rejection time for neutral

words(*M*=1267.86, *SD*=1543.02) was lower than negative (*M*=1543.02, *SD*=582.72) and positive words (*M*=1517.87, *SD*=433.18). The mean value for false positive response time to neutral words (*M*=899.2, *SD*=1052.69) was lower than negative (*M*=1773.09, *SD*=1647.61) and positive response (*M*=1482.67, *SD*=815.6).

Table 3.4

Variables		Anxious		Avoidant		Total	
		M	*SD*	*M*	*SD*	*M*	*SD*
Recognition Time for Words							
Negative	Hit	1248.07	315.03	1384.57	443.9	1330.94	400.8
	Miss	2016.04	731.16	1884.89	1084.25	1948.19	956.97
	False positive	1411.87	1005.91	1773.09	1647.61	1631.18	1430.67
	Correct rejection	1534.43	483.73	1543.02	582.72	1539.64	541.39
Neutral	Hit	3862.2	1026.32	4078.21	1221.91	3993.35	1144.28
	Miss	1806.52	665.02	1668.94	984.92	1722.99	869.19
	False positive	1286.64	931.56	899.2	1052.69	1051.41	1016.22
	Correct rejection	1286.27	250.68	1267.86	314.15	1275.09	288.59
Positive	Hit	1255.91	254.15	1309.97	447.33	1288.3	381.36
	Miss	1944.73	1175.74	1944.61	1053.55	1482.67	1092.61
	False positive	1452.3	604.06	1482.67	815.6	1470.74	733.94
	Correct rejection	1500.37	418.34	1517.87	433.18	1510.99	423.65

3.2.2.5Comparison between Attachment Anxiety and Attachment Avoidance for Reaction Type to Negative, Neutral and Positive Attachment Related Pictures.

To analyze effects of visual stimulus type (negative pictures, neutral pictures and positive pictures) reaction type (Hit, Miss, False positive, Correct rejection) and attachment type (Anxious and Avoidant) on recognition of visual stimulus, between subject design repeated measures ANOVA (3X4X2) was carried out. Independent variables were visual stimulus type, reaction type and attachment type and dependent variable was total number of recognized pictures. Within subject variables were word-type (Negative, neutral and positive) and type of reaction (Hit, Miss, False positive and Correct Rejection) and between subject factors was attachment type (Anxious and Avoidant). Multiple analyses were made on the data set thus a Bonferroni type adjustment was made for inflated Type 3 error for each of the analysis separately.

According to results WilksLamda was significant for reaction type, Wilks =.021, $p < .001$ and interaction of word type and reaction type Wilks =.723, $p < .01$, so model was significant for those. On the other hand WilksLamda was not significant for word type $p > .05$ and for interaction of word type, reaction type and attachment type $p > .05$.

Mauchly test was conducted to examine variances. Results indicated there was a significant variance for reaction type, Mauchly$W$=.102, χ^2 (5) =120.31, $p < .05$. Thus the sphericityrule was violated.

According to results there was not a significant main effect of picture type (Negative emotional, positive emotion and neutral), $p > .05$. The mean values of positive, negative and neutral visual stimulus were not significantly different from each other.

Repeated measures ANOVA revealed main effect of reaction type (Hit, miss, false positive and correct rejection) F (3, 162) =605.08, $p < .001$, $\acute{\eta}^2 = .92$. Mean of hit response (M=13.78, SD=2.389) was significantly higher than both mean of miss response (M=4.09, SD=2.114) and false positive response (M=2.44, SD=2.232). Moreover the mean value for both miss response (M=4.09, SD=2.114) and false positive (M=2.44, SD=2.232) were also significantly lower than correct rejection (M=15.59, SD=2.1). The mean value for correct rejection response (M=15.59, SD=2.1) was

significantly higher than hit response (*M*=13.78, *SD*=2.389) (see Figure3.9).Participants were able to recognized presented pictures in longer time comparing to their rejection to non presentedpictures.(see Figure 3.36)

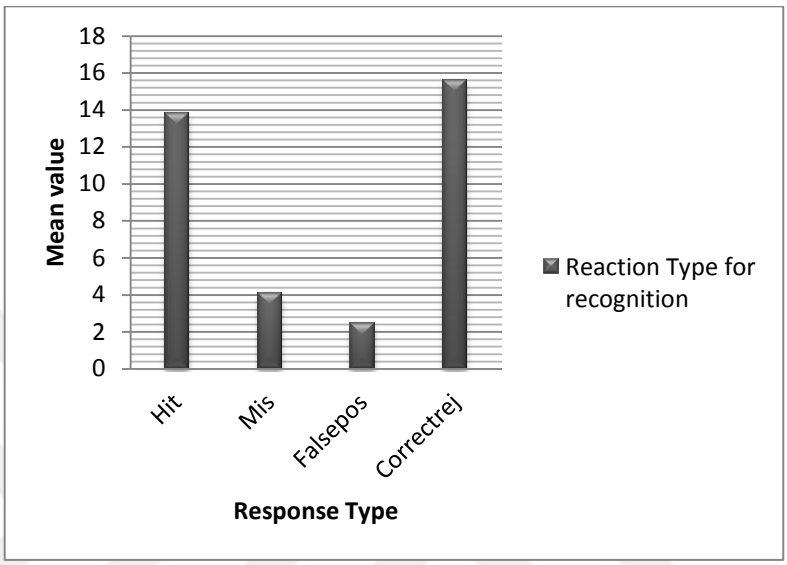

Figure 3.36: Comparison between response times depending on reaction type to visual stimuli.

There was a significant interaction effect of type of stimulus and type of recognition response (6, 324) =6.16, $p<.001$, $\acute{\eta}^2=.1$. The mean value for hit responds to negative pictures (*M*=13.75, *SD*=2.16) was higher than negative miss (*M*=4.25, *SD*=2.16) and negative false positive responds to negative pictures (*M*=1.8, *SD*=1.8). The mean value of correct rejection responds to negative pictures (M=16.2, SD= 1.8) was higher than hit responds (*M*=13.75, *SD*=2.16). The mean value for hit respond to neutral (*M*=14.41, *SD*= 2.36) was lower than correct rejection respond (*M*=15.2, *SD*=2.39) however it was higher than miss respond to neutral (*M*=3.37, *SD*= 1.78) and false positive respond (*M*=2.86, *SD*=2.62). The mean value for correct rejection respond to positive (*M*=15.37, *SD*=2.08) was higher than hit response (*M*=13.18, *SD*=2.64). Moreover the mean value for hit response to positive (*M*=13.18, *SD*=2.64) was higher than both miss (*M*= 4.66, *SD*=2.4) and positive false positive response (*M*=2.66, *SD*=2.26).

There was not significant interaction effect of stimulus type, response type and attachment type, $p>.05$.

In order to analyze the effect of visual stimulus type and respond type on reaction for total correct recognition in anxious and avoidant group separately, repeated measure ANOVA (3X4) for each group was conducted separately by using split half method. Dependent variable was reaction for total correct recognition and independent variables were visual stimulus type and respond type. Within subject variables were visual stimulus-type with three levels (Negative, neutral and positivepictures) and type of reaction with four levels (Hit, Miss, False positive and Correct Rejection). Multiple analyses were made on the data set thus a Bonferroni type adjustment was made for inflated Type 3 error for each of the analysis separately.

According to results of Anxious group, WilksLamda was not significant for picturetype, p>.05 andinteraction of picturetype and reaction type, $p>$ .05, However the model was significant forreaction type Wilks =.13, $p<$ .001, $\acute{\eta}^2$ =.87.

Mauchly test was conducted to examine variances. When anxious group was taken as a sample, results indicated there was significant variances for reaction type Mauchly$W$=.123χ^2 (5) =41.41, p<.001. The sphericity rule was not violated.

The main effect of picture type was not statistically significant p>.05. However, the main effect of reaction type was statistically significant (3, 63) = 36.42, $\acute{\eta}^2$ =.63, p<.001. The mean value for hit respond (M=6.21, SD=1.81) and correct rejection respond (M=6.45, SD=1.94) were statistically significant than miss respond (M=2.64, SD=1.64) and false positive respond (M=2.61, SD=1.94). (see Figure 3.37) However results indicated than the interaction effect of picture type and reaction type was not statistically significant p>.05.

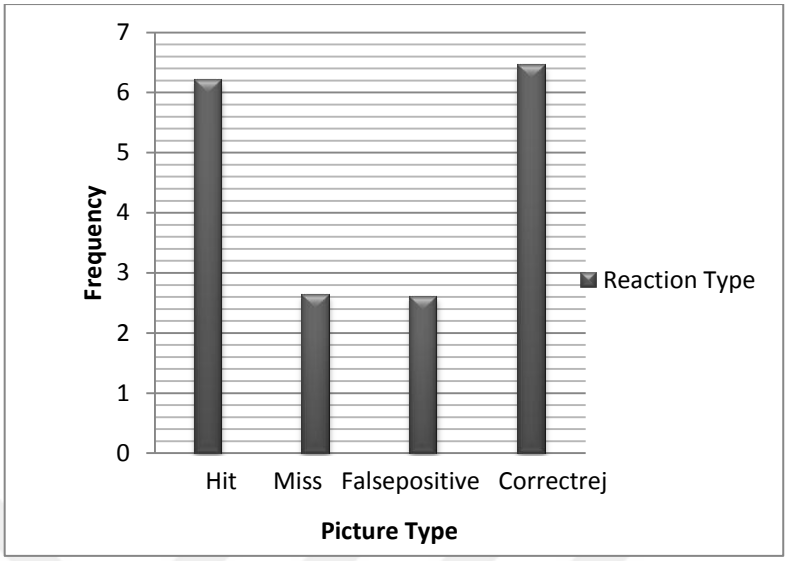

Figure 3.37: Comparison between frequencies of response types of anxious group to visual stimuli.

The interaction effect between picture type and reaction type was not statistically significant p>.05.

According to results of Avoidant group, Wilks Lamda was not significant for picturetype, p>.05 andinteraction of picturetype and reaction type, p> .05, However themodel was significant forreaction type Wilks =.239, p< .001, $\acute{\eta}^2$ =.76.

Mauchly test was conducted to examine variances. When avoidant group was taken as a sample, results indicated there was significant variances for reaction type Mauchly$W$=.969χ^2 (5) =624, p>.05. The sphericity rule was violated.

The main effect of picture type was not statistically significant, p>.05. However the main effect of reaction type was statistically significant, F (2, 42) =34.67, p<.001 $\acute{\eta}^2$ =.62. The mean value of hit responds (M=6.48, SD=1.56) was significantly higher than both miss (M=2.52, SD=1.56) and false positive (M=2.05, SD=1.44). Moreover the mean value of correct rejection (M=6.95, SD=1.44) was significantly higher than both miss (M=2.52, SD=1.56) and false positive (M=2.05, SD=1.44). (see Figure 3.38)

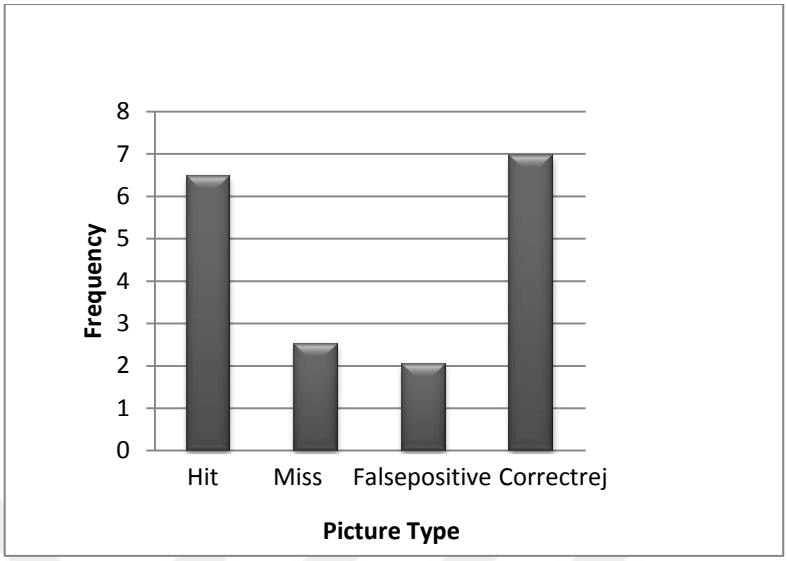

Figure 3.38: Comparison between frequencies of response types of avoidant group to visual stimuli.

The interaction effect between picture type and reaction type was not statistically significant $p>.05$.

Table 3.5

Variables		Anxious		Avoidant		Total	
		M	*SD*	*M*	*SD*	*M*	*SD*
Frequency for Pictures							
Negative	Hit	13.91	2.39	13.65	2.03	13.75	2.16
	Miss	4.09	2.39	4.35	2.03	4.25	2.16
	False positive	2.00	2.05	1.68	1.66	1.8	1.81
	Correct rejection	16.00	2.05	16.32	1.66	16.2	1.81
Neutral	Hit	13.95	3.2	14.71	1.6	14.41	2.36
	Miss	3.5	2.06	3.29	1.6	3.37	1.78
	False positive	3.68	3.62	2.32	1.55	2.86	2.62
	Correct rejection	14.45	3.2	15.68	1.55	15.2	3.39
Positive	Hit	13.41	2.77	13.03	2.59	13.18	2.64
	Miss	4.18	2.04	2.97	2.59	4.66	2.4
	False positive	3.00	3.12	2.44	1.48	2.66	2.26
	Correct rejection	15.09	2.79	15.56	1.48	15.37	2.08

3.2.2.6 Comparison between Attachment Anxiety and Attachment Avoidance for Recognition Time for negative, neutral and positive visual stimulus

Repeated measure ANOVA (2X3X4) was used to examine the main effect of picture type, reaction type and attachment type on reaction time for total recognition. Independent variables were picture type, reaction type and attachment type and dependent variable was reaction time for recognition. Within subject variables were picture-type with three levels (Negative, Neutral and Positive) and type of reaction with four levels (Hit, Miss, False positive and Correct Rejection) and between subject factors was attachment type.

According to results WilksLamda was significant for picture type, Wilks =.83, $p< .01$ and reaction type Wilks =.493, $p< .001$, interaction of word type and reaction type Wilks =.748, $p< .05$, so model was significant for those. On the other hand WilksLamda was not significant for interaction of word type, reaction type and attachment type $p> .05$

Mauchly test was conducted to examine variances. Results indicated there was not significant variances for word type, Mauchly$W$=.941χ^2 (2) =3.22, p>.05. The sphericity rule was not violated. However there was a significant variance for both reaction type Mauchly$W$=.78 χ^2 (5) =13.05, p<.05, and interaction of word type and reaction type, Mauchly$W$=.11 χ^2 (20) =112.57, p<.05. Thus it can be stated that the sphericity rule was violated for word type and interaction effect of word type and reaction.

Results revealed the main effect of the picture type was significant F (1.9, 101.99) = 6.72, p<.01, $\acute{\eta}^2$ =.11. The mean value for hit response time to negative pictures (M=2050.24, SD=888.77) was significantly higher than hit response to neutral (M=1643.89, SD=543.58) and positive pictures (M=1744.65, SD=751.45). So, results revealed that participants were able to recognize negative pictures in longer time comparing to both neutral and positive.(see Figure 3.39)

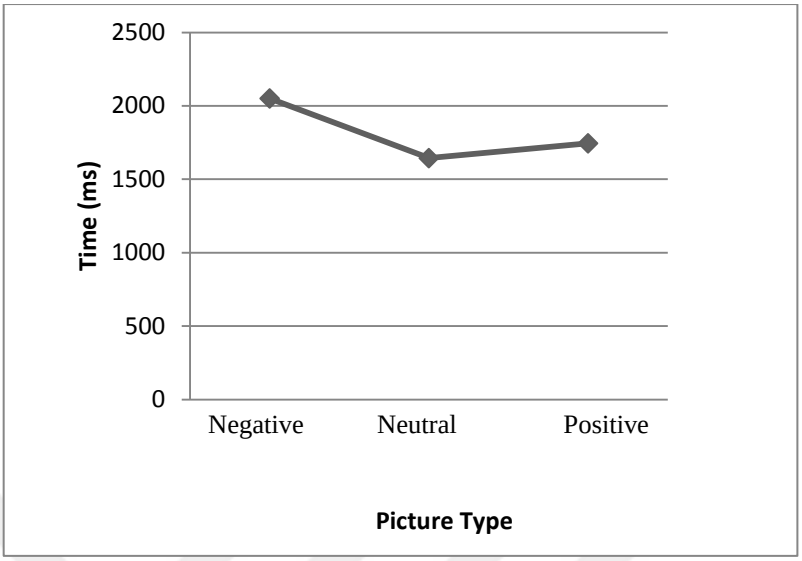

Figure 3.39: Participants' hit response time according to picture type.

The mean value for miss response to neutral pictures (*M*=2472.22, *SD*=1253.54) was significantly higher than negative pictures (*M*=2243.28, *SD*=1408.87) and the mean value for miss response time to negative pictures (*M*=2243.28, *SD*=1408.87) was higher than positive pictures (*M*=2030.06, *SD*=1170.07). (see Figure 3.40)

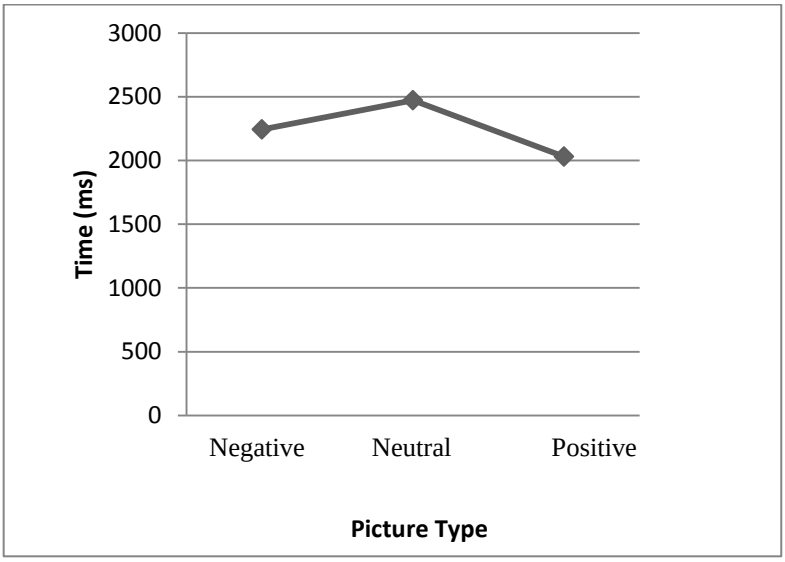

Figure 3.40: Participants' miss response time according to picture type.

Moreover the mean value for false positive response time to negative pictures (*M*=2355.57, *SD*=1614.65) was higher than both neutral (*M*=1764.39, *SD*=954.58) and positive (*M*=1870.77, *SD*=1582.01). (see Figure 3.41)

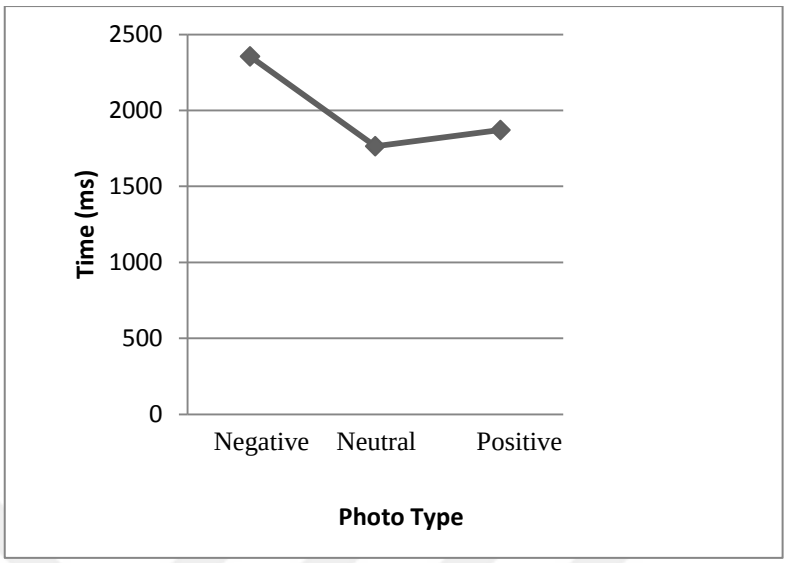

Figure 3.41: Participants' False Positive response time according to word type.

The mean value for correct rejection response time to negative pictures (*M*=2551.24, *SD*=1124.51) was higher than both neutral (*M*=2398.88, *SD*=849.21) and positive pictures (*M*=2328.42, *SD*=909.59). So it can be stated that participants were able to reject non-presented negative pictures in longer time comparing to neutral and positive. (see Figure 3.42)

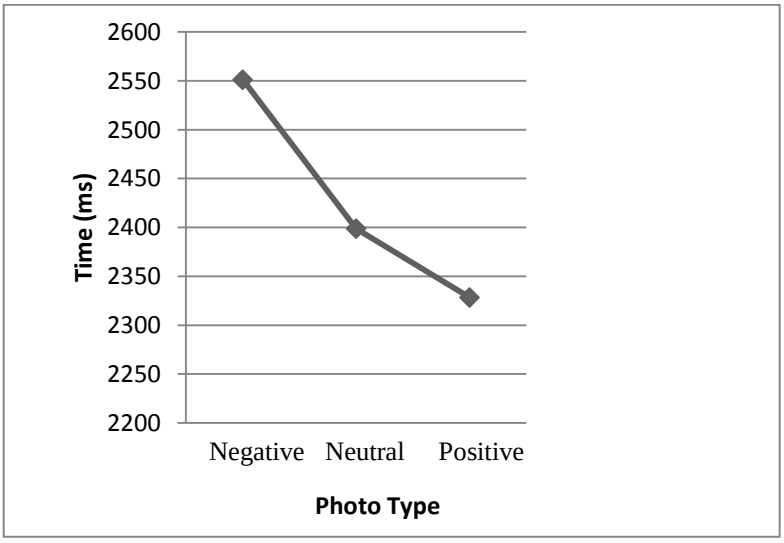

Figure 3.42: Participants' correct rejection response time according to word type.

There was a significant main effect of the reaction type$F$ (3,162) = 11.99, p<.001, $\acute{\eta}^2$ =.18. The average recognition time for hit response (*M*=1812.93 *SD*=727.94) was significantly lower than both miss response (*M*=2248.52,

SD=1277.49) and correct rejection response (*M*=2426.18, *SD*=961.1). Average recognition time for false positive (*M*=1996.91, *SD*=1383.75) was also significantly lower than recognition time for correct rejection (*M*=2426.18, *SD*=961.1). So it took longer to try to recognize non-presented stimulus comparing to presented stimulus. (see Figure 3.43)

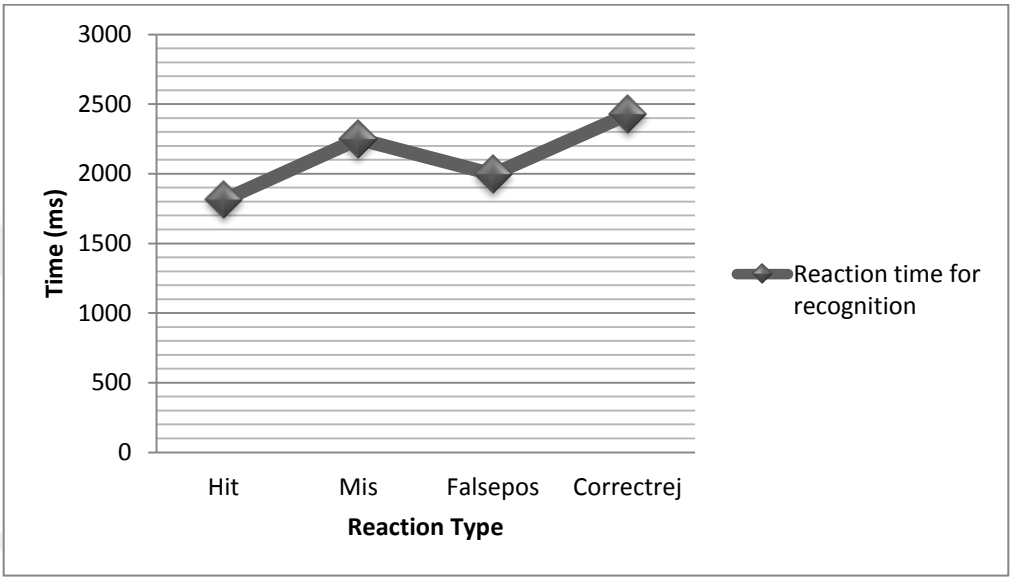

Figure 3.43: Comparison between response times depending on reaction type to visual stimuli.

Result revealed that interaction effect of the picture type and type of reaction was not significant $p>.05$.

Moreover, the main effect of the attachment type was not significant. In other pictures recognition time was not different between two groups for any kinds of stimulus and reaction type. Although there were mean difference in recognition time between anxious and avoidant groups (see Figure 3.13), the interaction effect of the picture type, reaction type and attachment type was not significant $p>.05$.

In order to analyze the effect of visual stimulus type and respond type on reaction time for correct recognition, miss, false positive and correct rejection response in anxious and avoidant group separately, repeated measure ANOVA (3X4) for each group was conducted separately by using split half method. Dependent variable was reaction time for total correct recognition and independent variables were visual stimulus type and respond type. Within subject variables were visual stimulus-type with

three levels (Negative, neutral and positivepictures) and type of reaction with four levels (Hit, Miss, False positive and Correct Rejection). Multiple analyses were made on the data set thus a Bonferroni type adjustment was made for inflated Type 3 error for each of the analysis separately.

According to results of Anxious group,WilksLamda was not significant for picturetype, $p>.05$ andinteraction of picturetype and reaction type, $p> .05$,However the model was significant forreaction type Wilks =.482, $p< .01$, $\acute{\eta}^2 =.52$.

Mauchly test was conducted to examine variances. Results indicated there were not significant variances for picturetype, Mauchly $W=.915\chi^2$ (2) =1.77, $p>.05$ and for reaction type Mauchly$W=.733\chi^2$ (5) =6.14, $p>.05$, and. The sphericity rule was not violated. However there was a significant variance for interaction of picturetype and reaction type, Mauchly $W=.115\chi^2$ (20) =40.68, $p<.01$. Thus it can be stated that the sphericity rule was violated for interaction effect of picturetype and reaction.

For Anxious group, the main effect of picture type was not statistically significant $p>.05$, $\acute{\eta}^2 =.08$. However the main effect of reaction type was statistically significant F (3, 63) =4.2, $p<.01$, $\acute{\eta}^2 =.18$. The mean value for hit response (M=1906.63, SD=764.49) was significantly lower than both miss response (M=2428.17, SD=1309.63) and correct rejection response (M=2461.70, SD=875.11). Recognition of presented pictures took less time comparing to missing presented pictures or rejecting non-presented pictures. (see Figure 3.44)

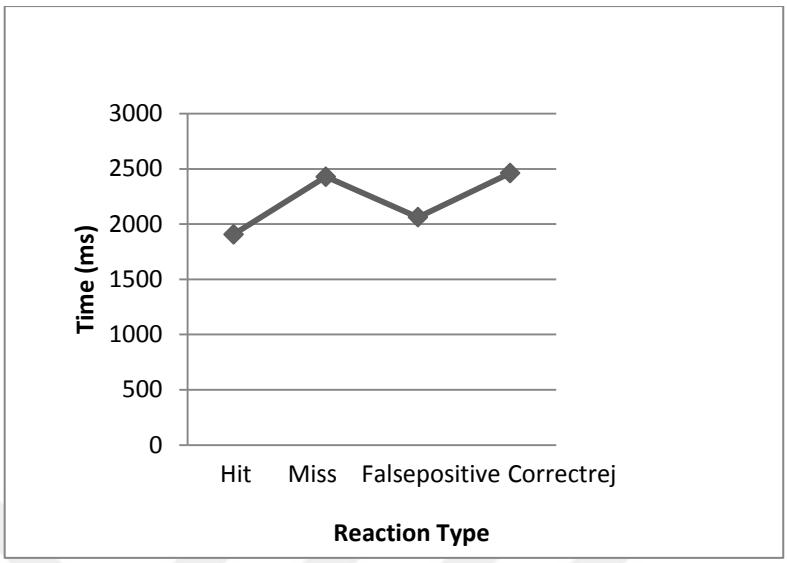

Figure 3.44: Comparison between reaction time of anxious group to visual stimuli.

Interaction effect of picture type and reaction type was not statistically significant for anxious group $p>.05$, $\acute{\eta}^2 = .08$.

According to results of avoidant group, WilksLamda was significant for picture type, Wilks= .774, $p<.05$, $\acute{\eta}^2 = .23$, reaction type Wilks =.464, $p< .001$, $\acute{\eta}^2 = .54$ and interaction of picture type and reaction type, Wilks =.632, $p< .05$, $\acute{\eta}^2 = .37$.

Mauchly'stest was conducted to examine variances. Results indicated there were not significant variances for picture type, Mauchly $W=.927\chi^2$ (2) =2.41, $p>.05$ and for reaction type Mauchly$W=.719\chi^2$ (5) =10.46, $p>.05$, and. The sphericity rule was not violated. However there was a significant variance for interaction of picture type and reaction type, Mauchly $W=.019\chi^2$ (20) =121.5, $p<.001$. Thus it can be stated that the sphericity rule was violated for interaction effect of picture type and reaction.

For avoidant group, the main effect of picture type was statistically significant F (2, 66) = 6.105, $p<.01$, $\acute{\eta}^2 = .16$. The mean value for hit response time for negative pictures (M=1920.42, SD=931.95) was higher than hit response time for neutral (M=1623.11, SD=565.92) and positive pictures (M=1713.35, SD=573.93). (see Figure 3.45)

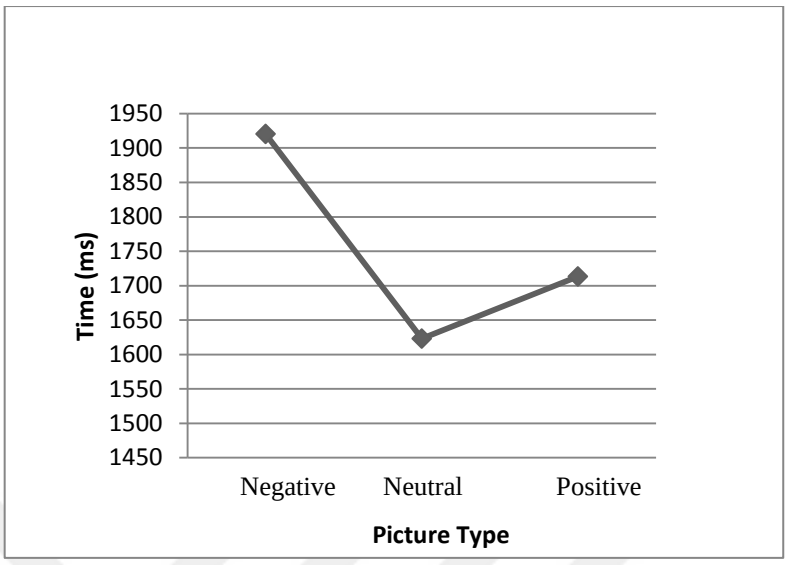

Figure 3.45: Avoidant Participants' hit response time according to picture type.

The mean value for miss response to negative pictures *(M*=2117.9, *SD*=1318.72) was significantly higher thanpositive pictures (*M*=1996.67, *SD*=1331.5). (see Figure 3.46)

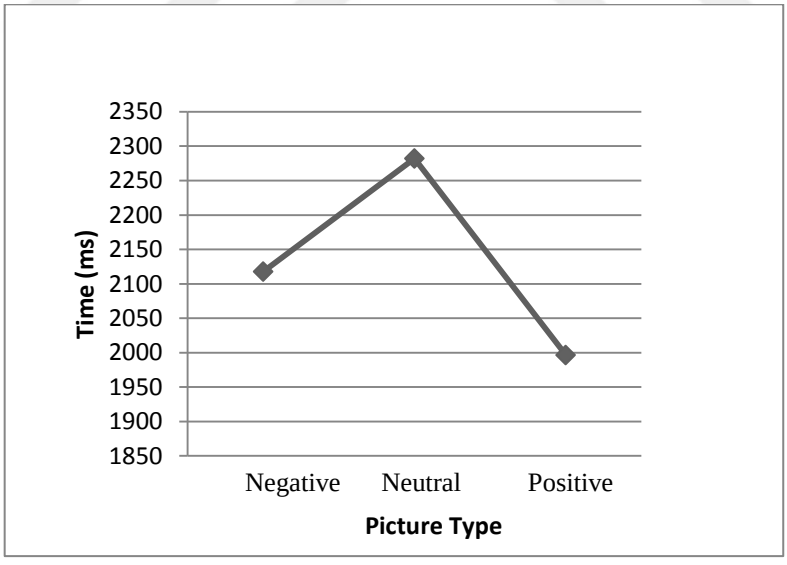

Figure 3.46: Avoidant Participants' miss response time according to picture type.

The mean value for false positive response time for negative pictures (*M*=2463.83, *SD*=1553.57) was higher than neutral (*M*=1765.5, *SD*=1006.89) and positive pictures (*M*=1634.02, *SD*=1504.31).(see Figure 3.47)

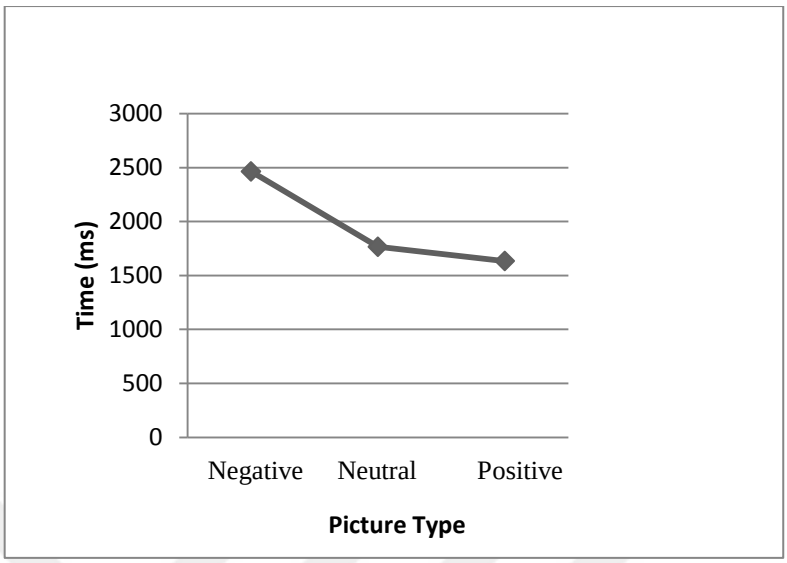

Figure 3.47: Avoidant Participants' false positive response time according to picture type.

The mean value for correct rejection response time for negative pictures (*M*=2550.94, *SD*=1553.57) was significantly higher than positive pictures (M=2299.32, SD= 876.64).For all type of reaction if the stimulus type was negative, avoidant participants were able to give respond in a longer time. (see Figure 3.48)

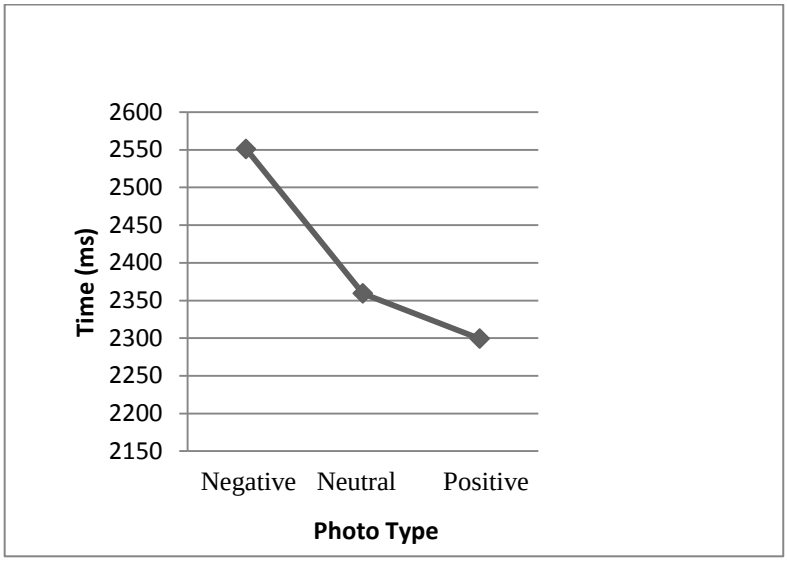

Figure 3.48: Avoidant Participants' correct rejection response time according to picture type.

The main effect of reaction type F (3, 99) = 9.180, p<.001, $\acute{\eta}^2$ =.22. The mean value for hit response (*M*=1752.3, *SD*=690.6) was significantly lower than miss response (*M*=2132.27, *SD*=1235.52) and correct rejection response (*M*=2403.19, *SD*=1018.23). Moreover the mean value for false positive response (*M*=1954.45,

SD=1354.92) was significantly lower than correct rejection response (*M*=2403.19, *SD*=1018.23). So it took more time for avoidant people to recognize the presented pictures comparing to missing presented pictures or rejecting non-presented pictures. Moreover it took more time to reject non-presented pictures comparing to give false response to non-presented pictures. (see Figure 3.49)

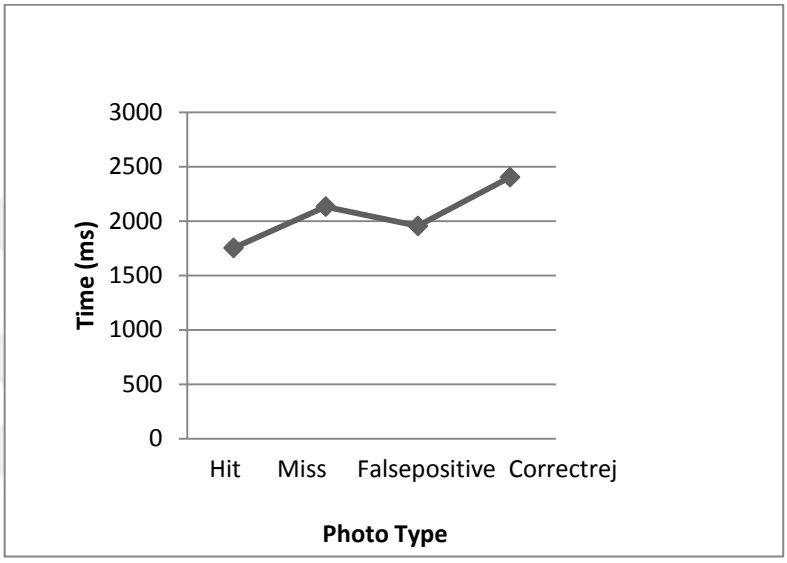

Figure 3.49: Comparison between reaction time of avoidant group to visual stimuli.

The main effect of attachment type was not statistically significant, $p>.05$. Moreover the interaction effect of picture type and reaction type was not statistically significant $p>.05$.

Table 3.6

Variables		Anxious		Avoidant		Total	
		M	*SD*	*M*	*SD*	*M*	*SD*
Recognition Time for Pictures							
Negative	Hit	2250.86	796.58	1920.42	931.95	2050.24	888.77
	Miss	2437.03	1549.54	2117.91	1318.72	2243.28	1407.87
	False positive	2188.25	1728.32	2463.84	1553.57	2355.57	1614.65
	Correct rejection	2551.71	882.76	2550.94	1269.51	2551.24	1124.51
Neutral	Hit	1676.01	518.47	1623.11	565.92	1643.89	543.58
	Miss	2765.83	1487.68	2282.23	1056.36	2472.22	1253.54
	False positive	1762.68	890.72	1765.5 100	6.89	1764.39	954.58
	Correct rejection	2459.99	764.96	2359.34	908.54	2398.88	849.21
Positive	Hit	1793.01	978.41	1713.35	573.93	1744.64	751.45
	Miss	2081.66	891.67	1996.67	1331.5	2030.06	1170.07
	False positive	2236.65	1663.65	1634.02	1504.31	1870.77	1582.01
	Correct rejection	2373.41	977.62	2299.32	876.65	2328.42	909.59

CHAPTER 4

DISCUSSION

4.1 Overview

Given previous research supported the idea that there was a link between attachment avoidance and deficits in emotional memory (e.g Fraley et al, 2000), avoidant people recall emotional memories less when they were asked to remember emotional childhood memories (Eldestein et al., 2005; Milkulincer&Orbach, 1995; Mikulincer, 1998) due to secondary attachment strategies which individuals with avoidant attachment style used in order to regulate their attachment activation. Moreover, there was no consensus on results of the studies which were conducted to investigate the relationship between attachment anxiety and memory bias. Some studies showed that anxious people were able to recall emotional memories easier and faster than other attachment groups; other studies did not find any association between attachment anxiety and emotion. Some research mentioned that individuals with anxious attachment style had tendency to use hyperactivating strategies, while another study found that individuals with anxious attachment style diverted attention away from an attachment related stimulus.The goal of current study was to investigate the source of the attachment related memory deficits in individuals with avoidant attachment style, and to investigate defenses that anxious and avoidant groups used. Therefore, attachment

related differences in cognitive processing of attachment related stimuli were investigated through working memory and divided attention tasks. Moreover, two kinds of defenses, namely preemptive defenses (defined by defensive processing of information during encoding) and postemptive defenses (defined by defensive processing of information already encoded), were examined.

First of all, direct relationship between working memory capacity and attachment type was examined by conducting word-span memory task. Secondly, anxious and avoidant groups' correct recall for positive attachment related words, negative attachment related words and non-attachment related words were compared. Besides, current study investigated attention biases and recognition biases of anxious and avoidant groups by analyzing the result of divided attention task that consists of both verbal and visual stimuli.

4.2 Comparison between Attachment Anxiety and Attachment Avoidance on Working Memory

4.2.1. Comparison between Attachment Anxiety and Attachment Avoidance on Working Memory Capacity

In the present study, how attachment anxiety and attachment avoidance varied in working memory performance was investigated. Some studies claimed that working memory capacity is related to ability of one's focusing his eyes away from a salient visual stimulus (Kane et al, 2001 cited in Schmeichel et al., 2008). Working memory capacity contributes in maintaining goal relevant processing of information while simultaneously processing other information or other cognitive operations (Schmeichel et al., 2008). We expected difference in working memory capacity between anxious and avoidant groups. However, current study contradicted with previous research on the WM. Results revealed nosignificant differences between anxious and avoidant groups in working memory capacity. Previous research claimed that highly avoidant people had decreased in working memory performance when attachment related stimuli were used. On the other hand, attachment anxiety was unrelated to working memory capacity (Edelstein, 2006). However, in current study the results revealed that anxious group was not able to recall the words even in the first trial which included three word-operation

pairs. On the other hand, avoidant group failed to recall words after the first trial. However, this difference between groups was not statistically significant.One explanation for this result might be related to the fact that working memory capacity of the sample regardless of attachment group was low (*M*=3.14, *SD*=1.9). Thus, this nonsignificant difference might be resulting from limited number of word-operation pairs and lower numbers of subjects. Previous studies determined working memory capacity of attachment group according tothe number of words which were fully recalled in the trial (Conway et al, 2005, Edelstein, 2006). In study conducted by Edelstein (2006), working memory capacity was defined as "Number of words correctly recalled across all perfectly recalled trials". There are different scoring procedures of WM capacity, and this causes difference in rank order of subjects and implications of data analysis (Conway, 2005). The reason why results of current study was differed from previous studies (e.g. Edelstein et al, 2006) might be consequence of inconsistencies in scoring. In current study, traditional scoring of WM span task was used. The task began with an item consisting of three elements, and word operation span task was terminated when participants failed to recall words. Working memory capacity score was defined as the last item size in trial in which all words were correctly recalled. Underlying mechanism of this traditional scoring was explained by threshold mechanism. When the absolute score is used, the task continues until subjects' accuracy falls below the threshold. Following this, the task is ended, and the information collected in all other trials is discarded (Conway et al., 2005).Furthermore, as the scores might be between 3 and 9, this might limit the sensitivity of the measure. Thus traditional scoring is regarded as inappropriate for individual-differences research (Conway et al., 2005). Edelstein et al (2006) used partial credit scoring instead. Conway et al (2005) stated that partial credit scoring enables clear advantage. On the other hand, partial credit scoring seems to be more appropriate measurement of working memory performance than working memory capacity. Thus, difference in analysis might be caused by differentiation in scoring. If WM task is replicated by using partial credit scoring, task assesses working memory performance and this might enable more clear understanding for interpretation of results of current study. Kane et al. (2004) conducted a study with 236 participants with three verbal WM tasks (operation span task, counting span task, reading span task) and

compared four different types of scoring methods including absolute scoring and partial scoring. This study showed that an internal consistency was lower for absolute scoring and empirical results of the study supported that partial-credit scoring procedures had more advantages (Kane et al., 2004).

Working memory capacity of total sample in our study (*M*=3.14, SD=1.9) was found lower than expected. Another explanation of this might be related to emotional load of the task. Some forms of anxiety might reduce working memory capacity (Ashcraft & Krik, 2001; Beilock & Carr, 2005). Moreover, there was evidence that negative emotional content caused decrease in working memory related brain activation. Thus, it caused decrease in performance on working memory tasks (Perlstein, Elbert &Stenger, 2002 cited in Kensinger&Corkin, 2003).In order to understand whether low working memory capacity is associated with emotional load or not, this task might be replicated by using only neutral words. Then results of two forms of task should be compared for more clear understanding.

4.2.2 Comparison between Attachment Anxiety and Attachment Avoidance on Working Memory Performance across Word Type

In the literature, attachment avoidance was related to WM deficits for positive and negative attachment related verbal stimuli while they were unrelated to working memory capacity for non-attachment related stimuli (Edelstein, 2006). On the other hand attachment anxiety was associated with working memory capacity for neither attachment related nor non attachment related stimuli (Edelstein et al, 2005; Edelstein, 2006; Fraley et al, 2000). However, some other evidence claimed that individuals with anxious attachment style are hypervigilant towards attachment related information (Fraley et al, 2006; Majer et al., 2005; Mikullincer& Shaver, 2003), and they have cognitive accessibility to attachment related information (Mikulincer&Orbach, 1995; Miller &Noirot, 1999).

In the present study, it was expected that avoidant participants would be able to recall less attachment related words compare to non-attachment related words. On the other hand, we expected anxious participants would be able to recall attachment related words more accurately than non-attachment related words. Results of the current study

supported the previous studies which claim that individuals with anxious attachment style are vigilant to attachment related information, the results of our study showed that anxious group recalled more positive and negative attachment related words compare to non-attachment words. On the other hand, results of the current study regarding avoidant group was contradicting to previous studies. The number of correct recall for attachment related words (Negative and positive) was more than non-attachment related words.

Furthermore, there is some evidence in line with current study supportingthat attachment related stimuli can be processed relatively automatically and there is not any conscious awareness (Kensinger & Corkin, 2003; Öhman& Dahl, 1998). This enabled enhanced processing of emotional information compare to non-emotional information in working memory performance (Kensinger & Corkin, 2003). However, depending on task requirements, attentional bias related to emotional content might cause a negative effect on working memory performance; while individuals focused their attention to attachment relevant stimulus; they diverted their attention from the other stimulus dimensions (Kensinger&Corkin, 2003). It was stated that attachment relevant stimulus is likely to divert attention away from non-attachment related stimulus (e.g. Williams et al, 1996). Operations in word-operation span tasks in current study were non emotional. However, the correct scores of mathematical equations were not analyzed. In order to measure this, correct scores of operations and response time for equations should have been analyzed. Moreover, delay for recall was not recorded; reaction times might be more sensitive to small changes caused by emotional content compare to its accuracy (Kensinger& Corkin, 2003). Further studies should record latency for recalling in order to investigate attentional bias in WM more clearly.

Results of current study related to individuals with avoidant attachment style' WM performance cannot be generalized due to insufficient number of items. Participants did not see the sufficient number of items because of low working memory capacity. The task was terminated when there was a fail or a miss in recalling. Thus insufficient item sizes might cause difficulties in comparisons between groups and within groups in working memory performance across word types.

4.3 Comparison between Attachment Anxiety and Attachment Avoidance on Divided Attention Task

In the present study, how attachment anxiety and attachment avoidance differed in attention and recognition for attachment related stimuli (positive and negative) and non- attachment related information (neutral stimuli) was investigated by conducting divided attention task. This task required participants to attend visual and verbal stimuli at the same time. Results of the divided attention task will be discussed in two dimension; results related to aural attention and visual attention.

4.3.1 Comparison between Anxious and Avoidant group for frequency of reaction type to Negative, Neutral and Positive Words

Our findings showed that attachment anxiety and attachment avoidance were not differed in recognition of bothverbal and visual stimuli.Both anxious and avoidant groups recognized less negative words than neutral and positive words; and they missed more negative words than neutral and positive words. Thus, it can be stated that both anxious and avoidant groups might have attentional bias for negative attachment related words. This result contradicted to attachment theory which supposed that there was a clear difference in attentional bias between anxious and individuals with avoidant attachment style. According to attachment theory and some previous research, anxious people are assumed to be alert to attachment related information whereas avoidant people are less attentive to attachment related experiences. Defense mechanism used by individuals with avoidant attachment stylewas activated preemptively to avert the attachment related information before encoding to deactivate attachment information processing (Bowly, 1980; Cassidy, 2000; Edelstein & Shaver, 2004). That was possible that insignificant difference between anxious and avoidant groups for response frequency depending on word type might be caused by lower and unequal number of subjects.Moreover, the words presented in task might not have potential to differentiate attachment anxiety and attachment avoidance. There might be an individual variability while determining whether a word was regarded as positive attachment related or not. The words categorized as neutral group in current study might be regarded as positive attachment related words for some individuals. There was not exact validation of category of words; and this might lead to difficulty in differentiation.

On the other hand, there are some studies supporting our results. Kirsh and Cassidy (1997) conducted a study with children to investigate selective attentional processing. In this study, two kinds of drawings presented to participants. These were attachment relevant positive stimuli and attachment-irrelevant neutral stimuli. The results of this study claimed that both anxiously and avoidantly attached children were more likely to avoid looking at attachment related drawings.Another study was conducted byZejmals Van Emmichoven et al., (2003)in order to examine the relation between attachment anxiety and attention allocation to threatening, positive and neutral stimuli in both clinical and non-clinicaladultsample by using emotional Stroop Task. The results indicated that in clinical group, secure individuals were more open to process threatening words compare to insecure groups. Insecure groups were avoiding and ignoring threatening stimuli. As well as results of the study conducted with children, the results of studywith adult claimed that both attachment anxiety and avoidance showed attentional avoidance towards attachment related threatening words. Moreover, in a study conducted by Dewitte et al. (2008) with dot probe task, it was found that highly attachment individuals with anxious attachment style avoided threatening faces. Dewitte et al. (2007) also found that people who are high in attachment anxiety and avoidance had tendency to shift their attention away from attachment-related verbal stimuli. This indifference in bias regarding attachment related threat was explained by adopting dimensional approach to measure individual difference in attachment. It was supposed that using categorical assessment does not allow examining interaction effects between anxiety and avoidance. However attentional avoidance is best predicted by investigating this interaction. By using dimensional assessment, results claimed that combination of high attachment anxiety and avoidance might be related to an avoidant attachment style (Dewitte et al., 2007). In current study, attachment groups were determined by using ECR-R which is constructed on two dimensions; attachment anxiety and avoidance. Thus, each participant had a score on both attachment dimensions. In other words, an individual who was assigned to anxious group had also an avoidance score or vice-versa. Thus, it can be stated that anxious group might also have avoidant tendency. This expectation was supported with work of Bartholomew (1990). In this study, two forms of adult avoidance of intimacy were differentiated; namely fearful avoidance and

dismissive avoidance.Afearful style was defined as a conscious desire for social contact but this desire is blocked by fears due to its possible consequences. On the other hand a dismissing style of avoidance was defined as a defensive denial of the need or desire for social contact (Bartholomew, 1990).

Results of the current study revealed that avoidant group was able to recognize less number of negative words than neutral and positive words. Moreover, they missed negative words more than neutral and positive words. This result was in line with the assumption that avoidant people use defensive strategies in order to avoid from information that might activate attachment system and cause pain (Edelstein & Shaver, 2004; Edelstein &Gillath, 2008; Fraley, 1998).These defense mechanisms may help them to limit their attention to attachment related information and protect themselves from re-experiencing such distress (Bowly, 1980).These protective defenses were most likely activated when an individual processes potentially painful negative information. However, they were also activated when an individual processes potentially painful positive social information (Dykas& Cassidy, 2011). Results of current study revealed that participants were able to recognize higher number of positive and neutral words than negative words. However, results did not allow making a comparison between positive words and neutral words.

4.3.2 Comparison between Attachment Anxiety and Attachment Avoidance for Reaction time for recognition of Negative, Neutral and Positive Words

It was expected that people would respond faster to stimuli in which they are supposed to be attended rather than unattended. Thus recognition time for hit, miss, false positive and correct rejection were investigated for both anxious and avoidant groups across word types. Results showed that there was no difference between anxious and avoidant groups in response latencies for recognition words. Both avoidant and anxious participants were able to recognize negative and positive words faster than neutral words. Moreover, for both group,it takes more time to reject attachment related words (negative and positive) than non-attachment related words(neutral). These two results were discussed in the following section.

This indifference between anxious and avoidant group in recognition time contradicts with findings of previous studies. Due to deactivating styleswhich is secondary attachment strategy avoidant group used, they were expected to be slower in recognition of emotional material whereas anxious group was expected to be faster in recognition of emotional material due to the hyperactivating strategies (Bowlby, 1980; Cassidy &Kobak, 1988; Maier et al, 2005). Results related to anxious group supportsthe results of previous studies and theories related to cognition bias in anxious people. Mikulincer and Orbach (1995) showed that anxious group retrieved negative emotional memories relatively faster than avoidant and secure attachment groups. Moreover, some other studies supported that anxiously attached participants made lexical decisions about names of their attachment figures faster; and they showedselective hypervigilance toward attachment names (Dewitte et al, 2007,a,b; Mikulincer et al., 2002). It can be stated that hyperactivating strategy that anxious group used might serve as facilitator for attention allocation while trying to recognize negative words. In our study, it was reported that both negative and positive words were recognized in shorter time compare to neutral words. This result supported findings of study conducted by Pool et al. (2016). This study aimed to investigate attentional bias for positive attachment related stimuli and results showed that individuals attended positive stimuli more than neutral ones. This might be because positive stimuli enabled individuals positive affect in (Frederickson, 20001); and it was stated that positive stimuli might have high motivational value (Pool et al., 2016). If the positive stimuli presented as a word rather than as a photograph, attentional bias was expected to be smaller (Pool et al, 2016).It is supported that words are less powerful in attracting attention compare to pictures (Kindt & Brosschot, 1997).

One explanation of results related to avoidant group might be explained with studies related to perceptual processing of attachment related stimuli. Perceptual processing of affective material might work in two different ways which are perceptual defense or perceptual vigilance. Perceptual defense makes recognition of emotional material slower, whereas perceptual vigilance makes recognition of attachment related stimuli faster. Maier et al (2005) conducted a study aiming to investigate relationship between attachment state of mind and perceptual processing of attachment related

stimuli. Furthermore, study examined perceptual thresholds of different types of visual stimuli by conducting experimental task (Maier et al, 2005). Results of the study indicated that individuals with higher dismissing tendencies process affectively laden stimuli (positive and negative) more quickly than neutral stimuli. This perceptual vigilance might help avoidant people to prepare defensive processing of emotion arousing information (Mailer, 2005). It can be stated that there was some similarities between anxious group's averting attention away from stimuli and avoidance group's vigilance strategy. The result of this study was supported with another study which suggested that early vigilance to threat enables strategic avoidance of threat (Mogg& Bradley, 1998). Some research indicated that defensive strategies are used by avoidant people effortlessly and without consuming cognitive resources (Fraley & Shaver, 1997). However, there is growing evidence that the efficiency of defense strategies declines over time when concurrent tasks are used (Mikulincer et al., 2004; Berrant et al; 2001). In current study, divided attention task might be regarded as challenging due to demands of attention to visual and aural attachment related stimuli at the same time, and so it needs some cognitive efforts. This notation suggests another explanation for results of avoidant participants.

Another explanation to faster recognition of negative and positive words compare to neutral words in avoidant group might be explained with cognitive load.Individuals with avoidant attachment style were found more likely to shift attention away from attachment related stimuli that might cause pain (Kirsh& Cassidy, 1997). Thus, for individuals with avoidant attachment style, encoding and recalling take longer (Edelstein, 2005; Fraley et al., 2000).However if there is a cognitive or emotional load, this defense is disappearing (Mikulincer et al., 2004). Emotional load of both pictures and words might cause collapse in defense mechanism (secondary attachment strategy)of avoidant participants in our study. This theoretical approach that Mikulincer et al. (2004) presented was tested by Gillath et al (2007). They conducted a study and examined whether the ability of individuals with avoidant attachment style to block and disengage from attachment related information is disappeared due to a cognitive or emotional load. Three tasks were conducted in order to test this hypothesis.Attachment groups were determined by using ECR-R (Gillath et al, 2007). Results revealed that

although avoidant sample was performed better on the task than less avoidant by ignoring the incongruent flankers, avoidance performance was diminished when they were asked to think about a prior relationship in which they did not feel secure.Their need for suppression while recalling memories might diminish their performance in neutral attention task (Gillath et al., 2007).

Study conducted by Aydınoğlu (2014) found difference between anxious and avoidant groups in neurobiological results while behavioral results do not enable distinction between two groups. Neurobiological results of this study claimed that anxious group selectively attended to attachment related words more compare to avoidant group. Processing of attachment related words for anxious group is more rapid compare to avoidant group (Aydınoğlu, 2014). Although, behavioral analysis did not allow firm conclusions, neurobiological results showed difference between two groups. Thus, taken as a whole, more direct assessment should be conducted such as neurobiological or physiological measurement while behavioral recordings were carried out.

There was a debate whether threatening words are less powerful in attracting attention than threatening pictures and whether pictorial stimuli are more instrumental to elicit anxiety (Kindt & Brosschot, 1997). It was suggested that photos are more ecological valid than words(Bradley et al, 1997) and Mogg et al (2004)indicated that pictures are more complex and so enable more warrant information related to maintained attentional process. On the other hand after a word has been processed semantically, individuals might not need for continuing to attend its visual representation. Thus in the divided attention task, both words and pictures in negative, positive and neutral dimensions were used. Examining respond time gives notation about attention. In the following section, visual recognition time of anxious and avoidant group in divided attention task will be discussed.

4.3.3Comparison between Attachment Anxiety and Attachment Avoidance for Reaction Time for Recognition of Negative, Neutral and Positive Visual Stimulus

Latency in recognition of visual negative, positive and neutral stimuli was investigated for anxious and avoidant attachment groups.When people attend the stimuli,

they respond faster to that stimuli compare to unattended (Posner, Snyder & Davision, 1980). Thus visual recognition time for anxious and avoidant group were examined. The results of recognition of visual stimuli showed that although, there was no effect of visual stimuli on reaction time of anxious participants, avoidant participants spent more time for any kind of response (hit, miss, false positive and correct rejection)to picture frames that was cut from negative pictures compare to picture frames that was cut from positive pictures. In recognition part of visual task, participants were asked to recognize some pieces of the picture including an object or clothes rather than people's face or interactions. It was expected that avoidant participants would need to distance themselves from attachment related stimuli.They were expected to use defense mechanism when they face to visual attachment related stimuli. Therefore, they were expected to attend firstly to the valance of figure in the photo, and then change the direction of this attention from emotional figure to object in the picture.Due to the need of diverting attention from negative emotional figure (emotionally negative face or interactions), avoidant participants were expected to focus on objects rather than attachment related stimuli. Therefore, they were expected to recognize objectsin negative photos faster than the objects in positive and neutral ones. In other words, objects might help them to divert their attention from attachment related information. However, results showed that for avoidant group, recognition time for an object in negative picture was longer than the objects in both positive and neutral pictures.

This result contradicted with some previous studies which indicated that individuals with avoidant attachment style tend to shift their attention away from stimuli those are triggering attachment system activationas secondary attachment strategy.Thus, it took longer to identify attachment related information (Kirsh & Cassidy, 1997; Mikulincer et al, 2002).Therefore, it can be concluded that encoding and recalling such information became difficult (Edelstein et al., 2005). In another study, more attachment avoidant children were associated with reduced viewing time ofmothers' neutral, happy, and angry faces (Vandevivere et al., 2014). However, when a cognitive load was imposed to a task, such memories about rejection and separation that individuals with avoidant attachment style try to suppress generally become accessible (Mikulincer et al., 2000; Wegner, Erber & Zakanos, 1993).Gillath et al (2009) conducted a study to

examine the effects of attachment style on performance in non-attachment related attention task and to examine individuals with avoidant attachment style' switching attention from one decision to another.Individuals with avoidant attachment style used attentional advantage because they were able to switch their attention more easily.However, it was reported that when participants were forced to think about a past insecure relationship, their attentional advantage might disappear (Gillath et al., 2009). It can be concluded that individuals with avoidant attachment style' regulation of attention might collapse due to effects of cognitive or emotional load. In divided attention task of the present study, participants were asked to attend both photographs and words they were hearing. Following this, they were asked to recognize some objects which were located at the background of pictures rather than main emotional figures in pictures. Avoidant participants were expected to shift their attention from attachment related stimuli and focus on demands of task, and so they would be able to recognize objects at the background of photo faster. However, results revealed that they spent more time for recognition of object in negative photo. Cognitive load might be caused by attachment related stimuli captured by different sense organs at the same time (demands of divided attention task). This cognitive load might inhibit their defense system.It can be concluded that in order to control attention,avoidant people might consume cognitive effort even though they are used to practice defensive attentional control for years (Gillaht et al, 2009). When cognitive load is added, their attentional control for attachment related stimuli became disabled. Although, some research advocated that avoidant defensive strategies can be used without cognitive effort (Fraley & Shaver, 1997), other studies showed that efficiency of such strategies are diminished over time when concurrent tasks are conducted (Mikulincer et al, 2004).

In our study, anxious participants were expectedto focus on attachment related visual stimuli more than attachment unrelated objects in the picture, regardless of emotional type of the stimuli. Thus for anxious group, it was expected to have longer recognition time of objects in both negative and positive pictures compare to neutral one. However, current study did not show any association between type of stimuli and attachment anxiety on recognition time for an object. There was no consensus on literature for understanding the association between attachment anxiety and memory

bias. Some previous studies supported that individuals high in attachment anxiety would activate their attachment system due to hypervigilance toward facial attachment related stimuli (Bartholomew and Horowitz, 1991; Fraley et al., 2006; Maier et al, 2005; Nidenthal et al, 2002). They are chronically relying on hyperactivating strategies. Thus, they had heightened vigilance towards threatening aspects of their surroundings (Mikulincer& Shaver, 2003). These behavioral results were also in line with neurological studies. There is evidence from neuroimaging research that there is an association between attachment anxiety and enhanced neural activation in response to both negative and positive social stimuli (DeWall et al, 2012; Vrticka et al, 2008; Virticka; 2011).Mikulincer and Shaver (2003) stated that individuals with anxious attachment style chronically rely on hyperactivating strategies and they tend to increase their vigilance for negative attachment related stimuli which is assumed as threatening. However,hyperacting strategies includes mechanisms that are activated at the late stages of processing rather than at the early stages. Insecure individuals might consume more resources while processing information that already assumed as threatening and emotional. However, regarding to perceptual level, they might have similar pattern as securely attached people (A. Zilber et al, 2007).

Dewitte and Houwer (2008) conducted a study which examined joint effect of attachment anxiety and avoidance.They explained attention allocation by dimensional manner of attachment group. It was claimed that in combination of high attachment anxiety and high attachment avoidance was related to reduce in attention of angry and happy faces. Results suggested that high anxious-high individuals with avoidant attachment style more likely to redirect their attention from all kinds of emotional cues. Anxious people's continuous fear of being rejected by others might reduce to use emotional minimizing strategies including preemptively redirecting attention away from threatening information in order to protect themselves from encoding and experiencing negative affect. Thus, they might use their avoidant attentional mechanism, and this might serve as "protective bias". This might enable them not to be overwhelmed by negative emotions and memories (Dewitte& Houwer, 2008; Main & Hesse, 1990).Moreover; results also claimed that anxious attachment was related to decrease in attention of happy faces. This might be because,fearfully attached individuals might

avoid intimacy as they fear that they might lose this intimacy, and thus positive information and affect(Dewitte&Houwer, 2008). In present study ECR-R was used in order to determine attachment groups of participants. Due to dimensional feature of ECR-R, participants who were assigned to anxious group had also avoidant score. Thus participants regarded as anxious in present study might redirect their attention from all kinds of emotional cues. This might result in no difference in recognition time for objects in negative and positive pictures. However, this hypothesis does not explain indifference between neutral and emotional pictures.

On the other hand, results of the current study were in line with results of Dan &Raz (2012). Dan &Raz investigated not only behavioral results, but also early ERP correlations of emotional face-processing in both anxious and avoidant group. Results indicated that individuals with avoidant attachment had different early ERP results for the emotional and neutral faces. There was no difference between ERP reaction to angry and neutral faces for people with secure and anxious attachment orientations. Vandevivere et al., (2014) found similar findings. This study was conducted with 62 children by using ECR-R. Attentional process of participants while looking at their mothers' photos of face was measured by using eye-tracking. Results revealed that more attachment avoidant children was associated to reduced viewing time of mothers' neutral, happy, and angry face. However, attachment anxiety was not consistently associated with processing of mothers' face (Vandevivere et al., 2014). It was stated that attachment anxiety might cause reduced capacity to discriminate between threat and non-threat stimuli. Neutral stimuli might be perceived as ambiguous, so that they might be regarded as threatening as angry faces (Dan &Raz, 2012). This interpretation might explain the reason indifference in reaction time for negative, positive and neutral visual stimuli in anxious group in current study. However, further studies are necessary in order to clarify attachment anxiety and attention to visual emotional related stimuli.

4.4 Limitations

Throughout the discussion we have already mentioned some limitations of the present study and made suggestions for further studies. However, there are still some issues that remain to be discussed.

Firstly, stimulus (words and pictures) were used in the study were determined by evaluation of 20 judges. According to study conducted by Chavis and Kisley (2012), highly secure people were more likely to regard neutral images as positive valence than anxious and avoidant group.However, in the current study the attachment type of judges was not known. Thus it can be stated that attachment type of judges might have an effect on their assessment. Moreover, the pictures were taken from movies. Therefore, participants who knew that scene of the film might recognize faster and better regardless of types of the pictures. All in all, more standardized words and pictures might be used in further studies to increase reliability of results of divided attention task.

Behavioral task was conducted with a small sample. There was not equal number of people in attachment groups (N=22 for anxious group and N=34 for avoidant group). Although participants were willing to reply questions of ECR-R and stated that they were willing to attend behavioral tasks when they were invited to join behavioral task, most of them rejected to participate in. Thus, further research might be conducted with bigger sample to increase generalization of findings of study.We do not regard the unequal distribution of gender as problematic because previous studies showed that there was no or weak gender differences in attachment styles (Schmitt et al., 2003). Our sample consisted of individuals with age 17 to 30. Vandevivere et al (2014) stated that generalizing results of one age group to others might be difficult due to biases related to cognitive and perceptual maturity. Moreover how long the romantic relationship last might be differentiated between individuals with age 17 and age 30. Thus age range in current study might be wide. This probability might also have an influence on our findings.The present findings should be replicated with larger, more representative sample.

Another limitation of this study might be the fact that participants' trait and state anxiety were not controlled. There are some studies which support that the anxiety is a mediating variable between attachment and memory (Aydınoglu, 2014; MacLeod & Mathews, 1998). Thus information related to participants' state and trait anxiety levels would have been regarded for more clear interpretations of results of future studies.

From methodological point of view, the nature of our experimental procedure might be speculated to lead to bias. In divided attention task, merelyobject at the background was asked to be recognized. Therefore, demands of task might cause to direct participants' attention towards objects at the background. This might create another attentional bias due to directing attention. If participantswould have been asked to recognizenot only non attachment related objects but also emotional faces, different pattern of findings might have emerged. Thus both attachments related and non attachment related stimuli should have been asked in the future studies.

It was suggested that visual recognition and attention depends on perceptual category people made. Some of these categories base on location, color and brightness of the stimuli (Bundesen, 1990). However, in current study, the locations of picture frames were disregarded. This might cause to bias in attention and recognition. Posner et al (1980) conducted a study to investigate spatial attention. Results of this study indicated that respond time to stimuli at cued location was faster than respond time to uncued location.There was a decrease in perceptual quality when there was a distance between current location of stimuli and the location where a target is expected (Downing, 1988). In current study, participants might have attended the location in which stimuli mostly were located. When the location of stimuli was fixed, it might be assumed as cue for the following stimuli and cause bias in type of reaction. Moreover, the color and brightness of picture was not regarded. Thus, black and white pictures with same brightness should have been divided into four pieces and the number of quarters in which stimuli located should be equal in order to eliminate this bias.However, it is not easy to findeven attachment related pictures. Therefore, these physical features of stimuli that might be potential to cause to bias in recognition was not able to be controled in present study.

Experience in close relationships scale revised (ECR-R) was used to measure two dimensions of attachment. While dimensional feature of ECR-R was enabling to test the joint effect of attachment anxiety and avoidance, however this scale did not allow us to examine secure group. Thus, in present study there was not a control group. After the Turkish adaptation of Adult Attachment Interview (AAI) is made, the study might be replicated by using AAI to assign attachment groups. AAI provided greater sensitivity

and reliability for individual differences in adult attachment (Bartholornew& Horowitz, 1991).

In sum, this study was among the first to examine memory and attention bias by conducting divided attention task which might be regarded as more direct measurement of attention. Furthermore, previous studies mostly used threatening stimuli as negative stimuli and this might cause "negativity bias" however current study include stimuli with other expressions of emotions such as sad, lonely, happy, fearful, lovely.

4.5 Clinical Revelance

Attentional bias of two attachment groups (anxious and avoidant) investigated in the present study are relevant to cognitive styles and pathology in a manner of strategies anxious and individuals with avoidant attachment style used.

Individuals with avoidant attachment style may have abilities to distract themselves from attachment related information and maintain adequate well being and functioning against minor hassles and stressors (Mikulincer & Florian, 1998). However, previous studies supported that there was a positive relation between avoidant attachment style and psychiatric and posttraumatic symptomatology in high-threat situations (Mikulincer et al., 1999). While facing extreme life stressors, insecurity of individuals with avoidant attachment style become overtly activated. Distinction between difficulty in attention and rehearsal is important to understand the mechanism of defense and the psychological well-being of defensive individuals. There is a difference between psychological well-being of people who are not attending to potentially painful events and who are attending them but have some struggle to recall them. Fraley et al (2000) suggested that if people do not attend potentially painful attachment related stimuli, they are not affected by them. If the attachment-related information is less accessible, the possibility it causes the avoidant individual to feel threatened or overly emotional is less. On the other hand, if the problem is related to processing of information, they may vulnerable to the unwanted effects of this defense.Such inhibition and suppression of emotion were related with negative results for mental and physical health (Gross & John, 2003). Individuals with avoidant attachment style' tendency to divert attention to attachment related information was an

effortful process (Edelstein &Gillath, 2008). This inhibitory strategy and biases in attention might associate with later adverse consequences that related to mental health. When individuals with avoidant attachment style face chronic stressful life circumstances, they may be overwhelmed by persistent and negative emotions which might collapse their coping strategies, in other words defense mechanisms (Mikulincer et al., 1999). Thus clear understanding of cognitive and emotional load is important in order to understand mental health problems of avoidant.

Anxious-ambivalent attachment style was found to be associated with global psychiatric and posttraumatic symptomology (Mikulincer et al., 1999). Present study might give notion about the possible reason of distress in anxious group. This distress might be related to their tendency to be hypervigilanttowards attachment related information. They overemphasize the threatening aspects of daily life and they regard themselves as unable to solve these problems.

The results of the study showed that even though there was no significant difference between in anxious and avoidant group in recognition of attachment related and unrelated information, it was discussed that attentional bias might function differently in different individuals. Identifying attentional mechanism and function of this mechanism in individual could enable us to explain how individuals' distress and anxiety are maintained. This helps us understand mental health problems of individuals. Moreover, understanding and identifying the attention mechanisms might provide ameliorative interventions. Further studies in this area might provide more clear information about how and when this attentional process occurs and interventions can be customized according to individual needs.

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APPENDICES

APPENDIX-A

Bilgilendirilmiş Onam Formu

Değerli katılımcı,

Bu çalışma, Bahçeşehir Üniversitesi Klinik Psikoloji yüksek lisans programına devam etmekte olan Özlem Özel tarafından, Doç. Dr. Metehan Irak'ın danışmanlığında yürütülen tez çalışmasıdır.Çalışmanın amacı, yetişkin bağlanmasının bilişsel temellerini incelemektir.

Çalışma iki oturumda gerçekleşecektir. İlk oturumda size sunulan demografik bilgilendirme formunu ve anketi eksiksiz ve dikkatle doldurmanız istenmektedir. Formların tümünü doldurmak yaklaşık olarak 10 dakika sürmektedir. Ankette yer alan soruların doğru ya da yanlış yanıtları yoktur. Bu sebeple sizin için en uygun olan cevabı işaretleyiniz.Yapılacak olan puanlamalar sonucunda uygun bulunan katılımcılarla, çalışmanın ikinci oturumu için iletişime geçilecektir. İkinci oturumda dikkat ve bellek süreçleriyle ilgili bazı deneylere katılmanız istenmektedir. Çalışmanın ikinci oturumuna çağrılmanız için lütfen bu formun sonunda yer alan iletişim bilgileri kısmını doldurunuz.

Çalışma, Bahçeşehir Üniversitesi Bilimsel Araştırma ve Yayın Etiği Komisyonu tarafından onaylanmıştır ve hiçbir fiziksel ya da psikolojik risk taşımamaktadır. Çalışmanın sonucunda elde edilecek bulgular bu alandaki bilimsel literatürün gelişmesine katkıda bulunacaktır. Katılımcı bilgilerinin gizliliği esas tutulmaktadır ve vereceğiniz bilgiler yalnızca araştırmacı tarafından değerlendirilecektir.

Çalışmaya katılım tamamen gönüllülük esasına dayanmaktadır. Katılmayı reddedebilir ya da çalışmadan istediğiniz zaman ayrılabilirsiniz. Araştırma sürecinde çalışmaya ilişkin sormak istediğiniz sorularınız olduğunda, araştırmacı Özlem Özel ile iletişim kurabilirsiniz (Tel: 0505 780 81 28, e-posta adresi: ozlm.ozel@gmail.com).

Çalışmaya katılımınız ve ilginiz için şimdiden teşekkür ederiz!

Araştırma ile ilgili yukarıda yer alan metni onudum. Çalışmaya tamamen gönüllü olarak katılmayı kabul ediyorum. Bu çalışmayı istediğim zaman ve herhangi bir neden belirtmek zorunda kalmadan bırakabileceğimi biliyorum.

Yapılacak olan puanlamalar sonucunda uygun bulunursa, çalışmanın ikinci oturumu için BahçeşehirÜniversitesiBeyinveBilişAraştırmaLaboratuvarına çağırılmak üzere benimle iletişime geçilmesini kabul ediyorum.

Evet ☐ Hayır ☐

Katılımcının:
Adı- Soyadı:

Telefonnumarası:

E-postaadresi:

İmza:

Araştırmacının:
Adı-Soyadı: Özlem Özel

İmzası:

Tarihi:__/__/____

APPENDIX-B

Demografik Form

1. Yaşınız: ____
2. Cinsiyetiniz:_____
3. Doğum tarihiniz? (GG/AA/YYYY) _____
4. Devam etmekte olduğunuz ya da bitirdiğiniz okulunuz_____
5. Bölümünüz:_____

6. Sınıfınız: Hazırlık ☐ 1. sınıf ☐ 2. Sınıf ☐ 3. Sınıf ☐
4. Sınıf ☐ Yüksek Lisans ☐ Doktora ☐

7. **Şu anda**,romantik bir ilişkiniz var mı?

- Var ☐
- Yok ☐

8. 7.Soruya cevabınız VAR ise, Romantik ilişkinizin türünü belirtiniz:

Flört ediyoruz ☐ Nişanlıyız ☐ Sözlü ☐ Evliyiz ☐

9. Ne kadar zamandır birliktesiniz?
Yıl _____ Ay_____

10. DAHA ÖNCEDEN romantik ilişkiniz oldu mu?

Evet ☐ Hayır ☐

Eğer cevabınız EVET ise, kaç tane romantik ilişkiniz oldu ? _____

11. Bu ilişkilerinizden son 5 tanesinin ne kadar sürdüğünü belirtiniz.

	Yıl	Ay	1 aydan az
1. İlişki	_____	_____	_____
2. İlişki	_____	_____	_____
3. İlişki	_____	_____	_____
4. İlişki	_____	_____	_____
5. İlişki	_____	_____	_____

Lütfen arka sayfaya geçiniz

12.Şu anda kiminle yaşıyorsunuz?

- Evde tek başıma ☐
- Evde arkadaşlarımla birlikte ☐
- Evde romantik partnerimle ☐
- Yurtta tek başıma ☐
- Yurtta arkadaşlarımla ☐
- Ailemle birlikte ☐

13.Daha önce psikiyatrik ya da nörolojik bir sorununuz oldu mu?

Evet ☐ Hayır ☐

Eğer cevabınız EVET ise, belirtiniz.

_____

14.Şu anda kullanmakta olduğunuz psikiyatrik veya nörolojik bir ilaç var mı?

Evet ☐
Hayır ☐

Eğer cevabınız EVET ise, ilaç ya da ilaçların isimlerini belirtiniz.

_____

15. Görme sorununuz var mı?

Evet ☐

Hayır ☐

Eğer cevabınız EVET ise, belirtiniz.

_____

16.Renk körlüğünüz var mı?

Evet ☐

Hayır ☐

17. Günlük hayatta hangi elinizi daha çok kullanıyorsunuz?

Sağ ☐

Sol ☐

Cevabınız sol ise Mouse'u sağ elinizle kullanabilir misiniz?_____

Yapılacak olan puanlamalar sonucu uygun görülen katılımcılarla, araştırmalarla, araştırmanın yaklaşık 20 dakika sürecek olan ikinci aşaması için iletişime geçilecektir.İletişim bilgilerini doğru ve eksiksiz olarak doldurmanız size ulaşabilmemiz için gereklidir.

Ad:_____

Şehir/ ilçe:_____

E-posta:_____

Telefon numarası:_____

APPENDIX C

YAKIN İLİŞKİLERDE YAŞANTILAR ENVANTERİ (YIYE-II)

Aşağıdaki maddeler romantik ilişkilerinizde hissettiğiniz duygularla ilgilidir.Buaraştırmada sizin ilişkinizde yalnızca şu anda değil, genel olarak neler olduğuylaya da neler yaşadığınızla ilgilenmekteyiz. Maddelerde sözü geçen "birlikte olduğumkişi" ifadesi ile romantik ilişkide bulunduğunuz kişi kastedilmektedir. Eğerhalihazırda bir romantik ilişki içerisinde değilseniz, aşağıdaki maddeleri birilişki içinde olduğunuzu varsayarak cevaplandırınız. Her bir maddenin ilişkilerinizdekiduygu ve düşüncelerinizi ne oranda yansıttığını karşılarındaki 7 aralıklı ölçek üzerinde,ilgili rakam üzerine çarpı (X) koyarak gösteriniz.

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

Hiç Kararsızım Tamamen

katılmıyorumfikrim yok katılıyorum

1.Birlikte olduğum kişinin sevgisini kaybetmekten korkarım.	1	2	3	4	5	6	7
2.Gerçekte ne hissettiğimi birlikte olduğum kişiye göstermemeyi tercih ederim.	1	2	3	4	5	6	7
3. Sıklıkla, birlikte olduğum kişinin artık benimle olmak istemeyeceği korkusuna kapılırım.	1	2	3	4	5	6	7
4.Özel duygu ve düşüncelerimi birlikte olduğum kişiyle paylaşmak konusunda kendimi rahat hissederim.	1	2	3	4	5	6	7
5.Sıklıkla, birlikte olduğum kişinin beni gerçekten sevmediği kaygısına kapılırım.	1	2	3	4	5	6	7
6.Romantik ilişkide olduğum kişilere güvenip dayanmak konusunda kendimi rahat bırakmakta zorlanırım.	1	2	3	4	5	6	7
7.Romantik ilişkide olduğum kişilerin beni, benim onları önemsediğim kadar önemsemeyeceklerinden endişe duyarım.	1	2	3	4	5	6	7
8.Romantik ilişkide olduğum kişilere yakın olma konusunda çok rahatımdır.	1	2	3	4	5	6	7

9.Sıklıkla, birlikte olduğum kişinin bana duyduğu hislerin benim ona duyduğum hisler kadar güçlü olmasını isterim.	1	2	3	4	5	6	7

10.Romantik ilişkide olduğum kişilere açılma konusunda kendimi rahat hissetmem.	1	2	3	4	5	6	7
11.İlişkilerimi kafama çok takarım.	1	2	3	4	5	6	7
12.Romantik ilişkide olduğum kişilere fazla yakın olmamayı tercih ederim.	1	2	3	4	5	6	7
13.Benden uzakta olduğunda, birlikte olduğum kişinin başka birine ilgi duyabileceği korkusuna kapılırım.	1	2	3	4	5	6	7
14.Romantik ilişkide olduğum kişi benimle çok yakın olmak istediğinde rahatsızlık duyarım.	1	2	3	4	5	6	7
15.Romantik ilişkide olduğum kişilere duygularımı gösterdiğimde, onların benim için aynı şeyleri hissetmeyeceğinden korkarım.	1	2	3	4	5	6	7
16.Birlikte olduğum kişiyle kolayca yakınlaşabilirim.	1	2	3	4	5	6	7
17.Birlikte olduğum kişinin beni terkedeceğinden pek endişe duymam.	1	2	3	4	5	6	7
18.Birlikte olduğum kişiyle yakınlaşmak bana zor gelmez.	1	2	3	4	5	6	7
19.Romantik ilişkide olduğum kişi kendimden şüphe etmeme neden olur.	1	2	3	4	5	6	7
20.Genellikle, birlikte olduğum kişiyle sorunlarımı ve kaygılarımı tartışırım.	1	2	3	4	5	6	7
21.Terk edilmekten pek korkmam.	1	2	3	4	5	6	7
22.Zor zamanlarımda, romantik ilişkide olduğum kişiden yardım istemek bana iyi gelir.	1	2	3	4	5	6	7
23.Birlikte olduğum kişinin, bana benim istediğim kadar yakınlaşmak istemediğini düşünürüm.	1	2	3	4	5	6	7
24.Birlikte olduğum kişiye hemen hemen her şeyi anlatırım.	1	2	3	4	5	6	7
25.Romantik ilişkide olduğum kişiler bazen bana olan duygularını sebepsiz yere değiştirirler.	1	2	3	4	5	6	7
26.Başımdan geçenleri birlikte olduğum kişiyle konuşurum.	1	2	3	4	5	6	7
27.Çok yakın olma arzum bazen insanları korkutup uzaklaştırır.	1	2	3	4	5	6	7
28.Birlikte olduğum kişiler benimle çok yakınlaştığında gergin hissederim.	1	2	3	4	5	6	7

29.Romantik ilişkide olduğum bir kişi beni yakından tanıdıkça, “gerçek ben”den hoşlanmayacağından korkarım.	1	2	3	4	5	6	7
30.Romantik ilişkide olduğum kişilere güvenip dayanma konusunda rahatımdır.	1	2	3	4	5	6	7
31.Birlikte olduğum kişiden ihtiyaç duyduğum şefkat ve desteği görememek beni öfkelendirir.	1	2	3	4	5	6	7
32.Romantik ilişkide olduğum kişiye güvenip dayanmak benim için kolaydır.	1	2	3	4	5	6	7
33.Başka insanlara denk olamamaktan endişe duyarım	1	2	3	4	5	6	7
34.Birlikte olduğum kişiye şefkat göstermek benim için kolaydır.	1	2	3	4	5	6	7
35.Birlikte olduğum kişi beni sadece kızgın olduğumda önemser.	1	2	3	4	5	6	7
36.Birlikte olduğum kişi beni ve ihtiyaçlarımı gerçekten anlar.	1	2	3	4	5	6	7

APPENDIX D

(5*1)+3=?	7	Y	EVLİ
(3/4)+2=?	1	Y	DAKTİLO
(7*1)-4=?	3	D	GEZEGEN
RECALLING PHASE			
(2*1)-3=?	1	Y	İhmal
(1*7)+1=?	8	D	Görsel
(3/2)+7=?	8	Y	Bağlanma
RECALLING PHASE			
(1*7)-4=?	3	D	İnkar
(5*1)-6=?	4	Y	Hizmet
(1*6)+5=?	9	Y	Baba
(6/6)+3=?	4	D	Kavgacı
RECALLING PHASE			
(4/2)-1=?	1	D	Haftalık
(1*5)-3=?	2	D	İlişki
(5/5)+7=?	2	Y	Kederli
(1*1)+3=?	4	D	Birlikte
(1/2)+6=?	8	Y	Firma
RECALLING PHASE			
(4/8)+3=?	7	Y	Korkmuş
(4/1)-1=?	3	D	Kablo
(6/5)+3=?	4	Y	Nişanlı
(2/5)+5=?	1	Y	Istırap
(7*1)+2=?	8	Y	Öpücük
(4*4)-7=?	9	Y	Kapı
RECALLING PHASE			
(3*1)+6=?	9	D	Kamyon
(4/2)+1=?	3	D	Masa
(2/2)+3=?	4	D	Ruhsuz
(1/5)+7=?	7	Y	Palto
(4/2)-1=?	1	D	Sıkıntı
(3/3)-4=?	2	Y	Övgü
(4*1)+5=?	9	D	Tatmin

...

APPENDIXS E