T.C. DOĞUŞ UNIVERSITY
INSTITUTE OF SOCIAL SCIENCES
DEPARTMENT OF PSYCHOLOGY

THE EFFECTS OF MATERNAL CHARACTERISTICS ON PRENATAL ATTACHMENT IN FIRST-TIME MOTHERS

Ph.D. DISSERTATION

HİLAL ÇERÇEL
2011180004

SUPERVISOR:
PROF.DR. AYLİN İLDEN KOÇKAR

ISTANBUL, 2019

	DOKTORA TEZ SAVUNMA SINAV TUTANAĞI	Doküman No	FR.1.46
		Yürürlük Tarihi	1.11.2017
		Revizyon Tarihi	1.11.2017
		Revizyon No	1
		Sayfa	1 / 1

SOSYAL BİLİMLER / FEN BİLİMLERİ ENSTİTÜSÜ

Tarih : 13/06/2019

Anabilim Dalı : P.SİKOLOJİ

Öğrencinin Adı Soyadı : HİLAL ÇERÇEL

Öğrenci No : 2011180004

Tez Danışmanının Adı Soyadı : Aylin İlden Koçkar

İkinci Tez Danışmanının Adı Soyadı : —

Tezin Başlığı : The Effects of Maternal Characteristics on Prenatal Attachment in First-Time Mothers

Doğuş Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliği'nin 44.Maddesi uyarınca yapılan değerlendirmeler sonunda;

☒ **tezin kabul edilmesine** ☐ **tezde düzeltme verilmesine** ☐ **tezin reddedilmesine**

oy birliği / oy çokluğu ile karar verilmiştir. Gereği için arz olunur.

Danışman Üye

Aylin İlden

Üye
Hasan Bahçekapılı
H. Bahçekapılı

Üye
B. Turkular Aka

Üye
H. Nevzat Muhtar

Üye
Süreyya Elif Atsoy

Anabilim Dalı Başkanı Onayı:

Sirel Karakaş

Hazırlayan	Kalite Onayı	Yürürlük Onayı
Kalite Uzmanı Ceyda YILDIZ	Kalite Koordinatörü Prof. Dr.Mesut KUMRU	Rektör Prof. Dr.Abdullah DİNÇKOL

(Form No: FR-001, Revizyon Tarihi: 30.09.2016, Revizyon No:00)

To mothers and babies everywhere, including mine.

PREFACE

It is difficult to express in a few words my gratitude to those who has been supported me for this long journey. I know that this process would not have been completed without the support and understanding of my family, friends and tutors.

First of all, I would like to thank my supervisor Prof. Dr. Aylin İlden Koçkar for all her support, kindness, and soft, assuring attitude. If this would be the opposite, I don't think I would be able to relieve my anxiety and continue during the "ups and downs" of the Ph.D. process. To have a supervisor who is accepting and containing you with her manner is very precious. I would like to continue to learn from her in the years to come.

Secondly, I have special thanks to Prof. Dr. Falih Köksal, who has been the inspiration of my thesis subject and my professional field of interest especially for the parent-child relationship. Moreover he will always be a role model for me as an academician, a human and a parent. I feel very privileged to have had the opportunity to be a student of him. Another special thanks to psychologist Neşe Karabekir for being the second person of my inspiration for this subject. As she always mentioned, the world will be a better place, since we become more aware of the importance of pregnancy and the moment of birth. I am grateful to her for all the effort she has given to prenatal and birth psychology.

I also would like to thank Gynecologist Dr. Aslı Göker, Physiotherapist Alime Büyük Gönen, Midwifes Döne Ertuğrul Abbasoğlu and Özlem Karabulut for their support on data collection in their hospitals or private clinics. And thanks to all the people who share the online link to reach the pregnant women who meet the criteria to participate in my study and off course all the pregnant women who participated in my study.

I am also thankful to Dr. Hatice Nevzat Uçtum Muhtar, Dr. Süreyya Elif Aksoy, Dr. Hasan Bahçekapılı and Dr. Başak Türküler Aka for being a part of my jury and their valuable feedback for this thesis.

And there are also some other people who were in the back stage but did so much for me. Without them, this thesis would not have been possible. First of all very special thanks to Res. Asst. Yetkin Tuaç from Ankara University, who answered all my questions about statistics and moreover helped me with his in-depth knowledge on the subject. This part was one of the hardest part for me and his support made this work manageable. I am very grateful for his time and contribution.

Secondly I am extremely grateful to Dinç Barlas who did the proofreading and helped me whenever there is a forcing issue for me in terms of translation. His contribution was the art side of this thesis and very much appreciated.

And also Müge Fazlıoğlu, my best friend from Marmara Faculty of Law! Not only she has supported me as a friend at the down times but also as an academician for

all my last minute questions. Her optimism and energy has always been motivating and the support was so much valuable.

My dear classmates; Şebnem and Gökçen… We have walked all the way together in this long journey and the moments we shared were unforgettable for me. In these years I think more than anything we grew up together. There were both fun and hard times but being together, supporting and motivating each other was really the key point to continue and believe in myself again most of the time. And Şebnem we shared so many things in these years that make us sisters. Thanks for everything…

Merve Yılmaz, a friend and an academician who helped a lot for all the procedural and technical issues at very critical times during the process. After all those unfortunate incidents, she was the safe harbor for me in the university. Thanks for your patience, friendship and support.

And there are also so many valuable people I would like to thank; firstly Prof. Dr. Kadir Özer, Assoc. Prof. Dr. Serap Özer, Assoc. Prof. Dr. Aslı Akdaş Mitrani, Assoc. Prof. Dr. Ekin Eremsoy, Assoc. Prof. Dr. Nilüfer Kafesçioğlu, Assoc. Prof. Dr. Aslı Çarkoğlu, Assoc. Prof. Dr. Münire Özlem Çevik and Dr. Yudum Akyıl for making this possible and believeing in me in this Ph.D. journey. Even it was relatively short period, I have learned so many things from all of you and always felt privileged to be your student. Secondly I would like to thank to my proposal committee members Prof. Dr. Serdar Değirmencioğlu, Assoc. Prof. Dr. Engin Arık, and Dr. Aslı Vatansever for their support at the times of experiencing disappointment about the process and for their valuable feedbacks.

Finally I would like to thank to four precious people of my life, who deserve the biggest thanks above all; my parents, my husband and my little daughter. I always have been very lucky with their unconditional support, love and understanding. They were always my secure base and internal resources and gave so many effort to make this Ph.D. possible. Thus they are my biggest richness, I love all of you so much and feel gratitude for everything.

İstanbul, June 2019 Hilal Çerçel

ABSTRACT

This study aimed to explore the effects of the maternal characteristics on the attachment of the mother to her unborn child in the pregnancy period. To fulfill this aim 248 pregnant women aged between 18-41 years old (M = 30.2 years, SD = 4.42), were asked to fill the questionnaires about demographic, pregnancy-related and psychosocial variables. All subjects were restricted to women who were having their first child, and they were between 13 and 42 weeks gestation (M = 31.5 weeks, SD = 5.50) at the time they completed the instruments. The assessment battery consisted of Demographic Form, Prenatal Attachment Inventory (PAI), Difficulties in Emotion Regulation Scale (DERS), Experiences in Close Relationships-Revised Inventory (ECR-R), Brief Symptom Inventory (BSI), Multidimensional Scale of Perceived Social Support (MSPSS) and Multidimensional Anger Scale (MDAS). For the data analysis, firstly the associations between the demographic, pregnancy-related and psychosocial variables and prenatal attachment were investigated then regression analysis was conducted to understand the variables that predict prenatal attachment. The results revealed that gestation week, age, receiving treatment for fertility, having a psychiatric disorder history, feeling competent on infant care, deciding a name for the baby, gender of the fetus, romantic attachment style, perceived social support, lack of awareness in emotion regulation difficulties and difficulties in controlling cognitions and behaviors when distressed (goals) were significantly associated with prenatal attachment. In addition to this, age, romantic attachment style and anger level were predictors of prenatal attachment as well. Findings of the study were discussed in the frame of relevant literature with limitations, clinical implications and future suggestions.

Keywords: attachment, prenatal attachment, maternal characteristics, first-time pregnancy, fetus

ÖZET

Bu çalışma hamilelik döneminde anneye ait özelliklerin, anne adayının henüz doğmamış bebeği ile kurduğu bağ üzerindeki etkisini görmeyi amaçlamıştır. Bu kapsamda yaşları 18-41 (AO = 30.2 yıl, Ss = 4.42) arasında değişen 248 kadın çalışmaya katılmış ve demografik, hamilelik dönemi ve psikososyal değişkenlere yönelik envanterleri cevaplamışlardır. Bütün katılımcılar ilk çocuğuna hamile kadınlardan oluşmakta ve araştırmaya katıldıklarında hamileliklerinin 13 ile 42. hafta (AO = 31.5 hafta, Ss = 5.50) aralığında yer almaktadır. Katılımcılara verilen araştırma bataryası Demografik Bilgi Formu, Duygu Düzenleme Güçlüğü Ölçeği (DDGÖ), Yakın İlişkilerde Yaşantılar Envanteri Revize Formu (YIYE-II), Kısa Semptom Envanteri (BSI), Çok Boyutlu Algılanan Sosyal Destek Ölçeği (ÇBASDÖ) ve Çok Boyutlu Öfke Ölçeği (CBOO)'den oluşmaktadır. Verilerin analizi için öncelikle demografik, hamilelik dönemi ve psikososyal değişkenler ile prenatal bağlanma arasındaki ilişkiye ve daha sonra regresyon analizi uygulanarak hangi değişkenlerin prenatal bağlanma için yordayıcı olduğuna bakılmıştır. Sonuçlar hamilelik haftası, yaş, hamile kalmak için tedavi görmüş olmak, psikiyatrik hastalık geçmişi, yenidoğan bakımında yetkin hissetmek, bebeğin adına karar vermiş olmak, bebeğin cinsiyeti, romantik bağlanma stili, algılanan sosyal destek, duygu düzenleme güçlüğünde farkındalık eksikliği ve sıkıntılıyken bilişleri ve davranışları kontrol etmede güçlük (duygu düzenleme güçlüğünde amaç alt ölçeği) ile doğum öncesi bağlanma arasında anlamlı bir ilişki olduğunu göstermiştir. Buna ek olarak yaş, romantik bağlanma stili ve öfke düzeyi doğum öncesi bağlanmayı yordayan değişkenler olarak bulunmuştur. Çalışmanın bulguları, ilgili literatür ışığında tartışılarak, çalışmaya dair kısıtlılıklar belirlenmiş ve gelecek için yapılması uygun olacak araştırma ve uygulamalar önerilmiştir.

Anahtar Kelimeler: bağlanma, prenatal bağlanma, maternal özellikler, ilk gebelik, fetüs

TABLE OF CONTENTS

PREFACE……..i

ABSTRACT…….....iii

ÖZET……iv

TABLE OF CONTENTS……..v

LIST OF TABLES…….viii

LIST OF FIGURES……...x

ABBREVIATIONS…….....xi

1. INTRODUCTION…….…….....1

2. LITERATURE REVIEW.....3

2.1 Overview of Attachment Theory……3

2.1.1 Continuity of attachment from infancy to adulthood……...7

2.2 Bonding Starting from Pregnancy: Prenatal Attachment Theory…….10

2.2.1 Development of prenatal attachment…….....16

2.2.2 Determinants of prenatal attachment……..19

2.2.2.1 Relationship between prenatal attachment and demographic variables…….....20

2.2.2.2 Relationship between prenatal attachment and pregnancy related variables…….....22

2.2.2.3 Relationship between prenatal attachment and psychosocial variables…….....26

2.3 Aim of the Study…….....32

2.4 Research Questions and Hypotheses……32

3. METHOD…….……...34

3.1 Participants…….....34

3.2 Instruments.…….....34

3.2.1 Demographic Questionnaire……..…….....34

3.2.2 Prenatal Attachment Inventory……35

3.2.3 Difficulties in Emotion Regulation Scale……35
3.2.4 Experiences in Close Relationships-Revised Inventory…….....36
3.2.5 Brief Symptom Inventory……36
3.2.6 Multidimensional Scale of Perceived Social Support…….36
3.2.7 Multidimensional Anger Scale……37
3.3 Procedure…….....37
3.4 Data Screening and Statistical analysis…….....37
4. RESULTS…….....39
4.1. Descriptive Characteristics of the Sample……39
4.1.1. Demographic characteristics…….....39
4.1.2. Pregnancy characteristics…….....40
4.1.3. Psychological well-being characteristics……...41
4.1.4. Other characteristics…….....43
4.2. Descriptive Statistics for the Measures of the Study…….45
4.3 The Differences of Maternal Characteristics on Prenatal Attachment……...46
4.3.1 Demographic characteristics and prenatal attachment……...47
4.3.1.1. Age of the mother and prenatal attachment……47
4.3.1.2. Education and prenatal attachment……47
4.3.1.3. Employment and prenatal attachment……48
4.3.1.4. Socio-economic status and prenatal attachment…….49
4.3.2. Pregnancy characteristics and prenatal attachment……...49
4.3.2.1. Gestation week and prenatal attachment……49
4.3.2.2. Receiving fertility treatment and prenatal attachment……50
4.3.2.3. Gender of the baby and prenatal attachment……..51
4.3.2.4. Feeling competent for infant care and prenatal attachment……51
4.3.2.5. Deciding a name for the baby and prenatal attachment…….52
4.3.2.6. Previous miscarriage/abortion history and prenatal attachment.53

4.3.2.7. Obstetric complication and prenatal attachment……53

4.3.3 Psychosocial Characteristics and prenatal attachment……...54

4.3.3.1. Previous psychiatric disorder history and prenatal attachment..54

4.4 Correlational Analysis of the Study Variables……55

4.5 Regression Analyses: Predictors of Prenatal Attachment……...59

5. DISCUSSION.....61

5.1. The Effects of Demographic, Pregnancy-Related and Psychosocial Variables on Prenatal Attachment……61

5.1.1 Age, education and socioeconomic status of the mother and the effects on prenatal attachment……..62

5.1.2 Gestation week, gender of the fetus, fertility treatment, feeling competent for infant care and deciding a name for baby and the effects on prenatal attachment…65

5.1.3 Perceived social support, romantic attachment style, anger and prenatal attachment……68

5.2. Implications for Clinical Applications ……..73

5.3. Limitations of the Study and Future Directions…….75

References……...77

APPENDIX I……...90

APPENDIX II…….....92

APPENDIX III……94

APPENDIX IV…….…...97

APPENDIX V…….99

APPENDIX VI…….....102

APPENDIX VII……104

CURRICULUM VITAE……...110

LIST OF TABLES

Table 4.1. Demographic characteristics of the sample……....39

Table 4.2. Pregnancy characteristics of the sample…….41

Table 4.3. Psychological well-being characteristics of the sample…….....42

Table 4.4. Other characteristics of the sample……44

Table 4.5. Descriptive statistics for the measures of the study……...45

Table 4.6. Results of ANOVA for differences of age groups on prenatal attachment…47

Table 4.7. Results of Kruskal-Wallis test for differences of education status on prenatal attachment……48

Table 4.8. Results of *t*-test for differences of employment status on prenatal attachment……48

Table 4.9. Results of Kruskal-Wallis test for differences of socio-economic status on prenatal attachment……..49

Table 4.10. Results of Mann Whitney-U test for differences of the gestation weeks on prenatal attachment……..50

Table 4.11. Results of Mann Whitney-U test for differences of receiving fertility treatment and natural conception on prenatal attachment……...51

Table 4.12. Results of *t*-test for differences of gender of the baby on prenatal attachment……51

Table 4.13. Results of *t*-test for differences of competency feeling for infant care on prenatal attachment……..52

Table 4.14. Results of *t*-test for differences of deciding a name for the baby on prenatal attachment……53

Table 4.15. Results of *t*-test for differences of having and not having a previous miscarriage/abortion history on prenatal attachment……..53

Table 4.16. Results of Mann Whitney-U test for differences of having and not having any obstetric complication on prenatal attachment…….54

Table 4.17. Results of Mann Whitney-U test for differences of having and not having a previous psychiatric disorder history on prenatal attachment……55

Table 4.18. Intercorrelations between PAI and ECR-R, DERS, MDAS, BSI, MSPSS.57

Table 4.19. Means and standard deviations of predictors of PAI……...59

Table 4.20 Results of Multiple regression analysis for the predictors of PAI ……59

LIST OF FIGURES

Figure 2.1. A Developmental Model of Prenatal Attachment……..19

ABBREVIATIONS

AAI: Adult attachment interview
ANOVA: Analysis of variance
ART: Assisted reproductive technology
BSI: Brief symptom inventory
DERS: Difficulties in emotion regulation scale
DF: Degrees of freedom
ECR-R: Experiences in close relationships-revised
IVF: In vitro fertilization
MCAR: Missing completely at random
MDAS: Multidimensional anger scale
MSPSS: Multidimensional scale of perceived social support
MVA: Missing value analysis
PAI: Prenatal attachment inventory
PA: Prenatal attachment
SD: Standard deviation
SES: Socioeconomic status
SPSS: Statistical package for the social sciences

1. INTRODUCTION

The early mother-infant relationship is very important both for forming the basis of the child's future social, emotional, cognitive development (Siddiqui & Hagglöf, 2000) social and romantic relationship patterns (Hazan & Shaver, 1987) and psychological health later in life (Kim, Mayes, Feldman, Leckman & Swain, 2013). Because of these lifelong effects, early mother-infant relationship, especially the attachment relationship, between the mothers and infant has always been one of the most researched subjects in psychology literature. Researchers have tried to understand the important aspects of mother–infant relationship both from the mother's and the child's perspective but interestingly as Condon (1993) stated approximately ninety percent of attachment research has focused on the attachment of infant to parent, with parent to infant attachment having received much less attention (Turriff-Jonasson, 2004).

From the parent's perspective, when we talk about mother, theory and research suggest that the mother-child relationship begins when the mother is pregnant and that the quality of this relationship influence the pregnancy process (Doan & Zimerman, 2008), postnatal relationship with the child (Brockington, 1996; Muller, 1994; Theran, Levendosky, Bogat & Huth-Bocks, 2005), early parenting behaviours (Bicking Kinsey & Hupcey, 2013; Cataudella, Lampis, Busonera, Marino & Zavattini, 2016) and the development of the child (Cataudella et al., 2016; Choe, Olson & Sameroff, 2013). Thus there is an increasing recognition that prenatal attachment (PA) is an important requirement to optimal maternal-infant adaptation (Alhusen, 2008). So these findings motivated the researchers to learn more about the maternal characteristics that are related with the maternal prenatal attachment.

In this study PA refers to the process through which a pregnant woman experiences feelings for her fetus, interacts with her fetus and her process developing a maternal identity (i.e. begins to identify herself as a mother) during pregnancy. So the nine months of gestation are not viewed just for the physical development of the fetus but also the preparation of the woman for her new role and develop a relationship with her unborn child. In this framework the purpose of this study is to contribute to several maternal variables that have shown inconsistent relationships with the dependent variable of prenatal attachment, by studying the psychosocial, demographic and

pregnancy-related factors from clinical and developmental psychology point of view. By considering this, we have also included only first-time mothers to eliminate the effect of prior experiences in the parental role. Although the quality of paternal bonding (Feldman, 2012) may also contribute to infant development, the maternal relationship will be the focus of this study. Knowing possible related variables would be supportive both for the clinical practice of pregnancy and preventive works.

In the first chapter of the present study, there is an introduction about the study and second chapter summarizes the theoretical background related with the construct "prenatal attachment". After that the method section gives general information about the sample, instruments, procedure and the analyses whereas the fourth chapter presents information about the sample characteristics and the results of the analyses. In the last chapter the results of the study are discussed in the light of previous researches, and limitations of the study, implications for future research and clinical applications are provided.

2. LITERATURE REVIEW

2.1 Overview of Attachment Theory

Attachment theory, originating in the work of John Bowlby and Mary Ainsworth in the 1960s, has provided the basis for subsequent research into the mother–infant relationship (cited in Ossa, Bustos & Fernandez, 2012). In the first and most well-known attachment model, Bowlby (1969/1982) drew on concepts from ethology, cybernetics, child observation, developmental psychology and psychoanalysis and defines attachment "the nurturing bond of physical and emotional love and care formed between a parent and the child in the early years of development" and stated that attachment, as a psychobiological system, innately begins from the moment of birth, continues throughout life and refers to the infant behaviour towards their attachment figure to ensure the child's survival and wellbeing (Bowlby, 1969). In most cases, this attachment figure is the mother; however, it may be another individual who consistently responds to the infant's signals (Goldberg, 2000).

Bowlby, as a British psychoanalyst, was more interested compared to other psychoanalists, in what goes between people in real life and was especially focused on what happens during the absence of the caregiver when establishing his theory. So he used his observations about the infants who had been separated from their parents. He saw those infants were under intense distress and have signalized attachment behaviors, such as crying and searching, to re-establish proximity with the missing primary caregiver again. And according to his observations when there was a prolonged separation, the maternal deprivation was traumatic for the infant. By this knowledge, Bowlby decided that current psychoanalytic and social learning theories did not explain sufficiently infant behaviour during separations from the primary caregiver. Because this proximity seeking behaviour is neither a learned behaviour to obtain food nor a gratification for libidinal drives. The mother (or the primary caregiver) means more than a "need-gratifying object" or "secondary reinforcer" to an infant. And what is also interesting at this point is, this is not only seen in humans but also it is common in other mammalian species as well. Bowlby then, with his close interest in the field of ethology, speculated that these adaptive responses have an evolutionary function, and hypothesised that the attachment system is developed to establish proximity between

the infant and the caregiver to ensure safety and survival. To explain this hypothesis, Bowlby defined four classes of attachment behaviour at this point. These are proximity maintenance, safe haven, separation distress and secure base. The infant tries to maintain its proximity with the mother, retreats to her as a safe haven when threatened, shows signs of distress when separated from the mother and sees her as its secure base to return to when exploring the environment (Bowlby, 1973). Similar to the infant searching for proximity, adults are also biased to show protective behaviour in response to signals of exhaustion, illness or danger perception coming from the infant, as well as to monitor, avert and/or change potentially dangerous situations (Goldberg, 2000).

When conceptualizing the attachment behavioural system, which serves the very basic function of survival against dangers and threats, Bowlby (1982) also defined the triggers, which activate the system. Danger includes physiological symptoms such as illness, pain, fatigue and hunger; while stress/threat points out to psychological symptoms that include behaviour and the uncertainty of the whereabouts of the attachment figure.

The activation of the attachment system by a physiological or psychological threat compels the infant to establish proximity with the primary caregiver. Because of this, the attachment behaviour may vary between a simple visual searching and stronger emotional responses. According to Bowlby's view, the attachment behavioural system always asks these questions: "Is the primary caregiver near? Is it available? Is it sensitive to my responses?" and if the infant's answers to these questions are positive, it feels loved, safe and ready to explore the surroundings, play with others and socialize. But if the answers are negative, an anxiety appears, which causes the attachment behavioural system to overexert itself, and forces the infant to show behaviours ranging between simple search and actively following or vocal signalling (Bowlby, 1969/1982). This whole system is vital for survival and Bowlby states that this is a biological based system that can be best understood within the concept of evolution (Goldberg, 2000; Hazan & Shaver, 1987).

According to Bowlby, this early relationship has also an impact on later relationships. The infant internalizes this first experience with the caregiver and uses it as a prototype for future relations. This prototype, or "internal working model" as Bowlby states, develops as expectations that are formed by the attentive and accessible

behaviour of the caregiver to the infant in times of distress (Bowlby, 1982). There are two mutually complementary components of working models: one refers the attachment figure, the other to the self. The attachment figure component defines whether the caregiver is available and responsive when needed, and the self-component is related to whether the self is worthy of being loved and cared (Bowlby, 1973). The working model for each individual's particular relationship includes expectations from the relationship as well as concepts of the self and the other (Shaver, Collins & Clark, 1996; Goldberg, 2000).

After these important conceptualizations of Bowlby, Mary Ainsworth expanded the attachment theory with her empirical studies. She observed mother-child relationships in Canada, England, Uganda, and United States and as the result of her observations; she suggested that physical care is not enough to develop a secure attachment. According to Ainsworth, the real difference is made by the quality of the relationship and the mother's emotional well-being during the care (cited in Brandell & Ringel, 2007).

Ainsworth has developed an empirical observation technique she calls "The Strange Situation" that continues to be relevant today (Ainsworth, Blehar, Waters & Wall, 1978). In this eight-stage test, the changes in the child's responses to a stranger (the observant) entering the room while in the presence and absence of the mother and to the mother's return after three minutes are observed and by this observation technique ambivalent, avoidant, and secure patterns of infant-mother attachment have been defined:

1. **Secure attachment:** The children in this group played comfortably and explored the surroundings when alone with their mother in the room, but exhibited less playful behaviour when a stranger enters the room. They cried for a brief time when their mother left the room and expressed their happiness when she came back. When the mother came back, they communicated with her, relaxed easily and returned to play. When they felt distress, they used the mother as "a secure base" to relax and feel safe, and after they continued with the exploration behaviour. Additionally, the mothers of these children displayed constant responsive, harmonious and cooperative behaviours. About 55-65% of the children were in this group.
2. **Insecure – avoidant attachment:** It was observed that the children in this

group, which included the 20-25% of the children, did not cry when the mother left and did not behave differently when she returned and showed less interest to the stranger. The reunion with the mother did not create happiness for both the mother and the child. The child actively refused to go to the mother and resisted when the mother tried to approach. According to Ainsworth, this behaviour is related to the mother's rejection, anger towards the infant's demands and the lack of cuddling the baby. The rejection, or the unavailability of the mother, has taught the child to be on its own and even not searching for the comfort of the mother when threatened. As a result, these children develop anxiety more commonly and avoid social interaction in order to hide their weakness and needs.

3. **Insecure – anxious/ambivalent attachment:** 10-15% of the children fell into this group and exhibited little interest in exploring the surroundings, even when the mother was present. In contradiction to avoidant children, these children were much more preoccupied with their mothers. They cried excessively and were not easy to calm even after the return of the mother. They approached to their mothers but either pushed them away or resisted to their embrace. They were very hard to soothe when distressed. Ainsworth associated this behaviour with the mother's lacking or inconsistent ability to respond to the infant and her insensitivity to the infant's needs. This is usually seen in mothers who are introverted or depressive. The demanding and rejective behaviours of the children may be regarded as way to arouse the interest and affection of the mother. These children always demand, but are never satisfied (cited in Goldberg, Muir & Kerr, 2013).

Ainsworth and her colleagues later introduced the concept of "sensitivity" as an important characteristic for the mother that correlated with secure attachment on the part of the infant (Ainsworth, Bell, & Stayton, 1974). According to them sensitive caregiving means to be able to (a) attune to infant's signals with attentiveness, (b) appropriately analyse the signals, (c) respond properly to the signals, and (d) react promptly, in a time period that did not provoke excessive frustration for the child. This emphasis has broadened the theory by highlighting the importance into the actions of the maternal part of the dyad (Bowlby, 1973; Sroufe & Waters, 1977).

After Ainsworth, Mary Main has greatly contributed to the literature with her fourth attachment style and her attachment studies on adults. In a longitudinal research

project that she and her colleagues conducted on the subject of attachment styles of the middle class children revealed that the attachment styles remain constant with a 79% ratio between 18 months and 6 years of age. Moreover, they also discovered a fourth group of attachment style that is out of line with Ainsworth's classification at the rate of 5%, which they named "disorganized/disoriented attachment". According to this research, the children who are in the fourth group seem more fearful/anxious and exhibit repeating or aggressive behaviour. They show a "freezing" response on the moment of separation and are unable to exhibit an organized pattern of behaviour. Because of this, their behaviour at the time of reunion with the mother cannot be predicted. For instance, contradictory behaviour patterns such as approaching then suddenly retreating, crying or rocking back and forth when the stranger leaves, pulling hair, or standing still can be observed. The mothers of these children are either depressive or individuals that have their own unresolved feelings due to the early loss of their own parents (cited in Brandell & Ringel, 2007).

Adults' attachment studies picked up speed in literature of attachment after Main's research and the literature has gravitated to studying the longitudinal process of attachment and its reflections in romantic relationships. In the next section we will be summarizing how attachment continues throughout life in different significant relationships.

2.1.1 Continuity of attachment from infancy to adulthood

Bowlby (1979) in his theory stated that attachment relation characterize human beings "from the cradle to the grave". He grounded this idea with the "internal working model" concept that is developed as the result of caregiver-child interactions and functions as a cognitive map that consists of cognitive/affective schemas, or representations, of the self in relation to close relationship partners, and influences a person's expectations, emotions, defences, and relational behaviour in all close relationships (Bartholomew & Shaver, 1998). This means that this early relationship functions as the prototypic relationship, if not the only, and continues to impact one's attachment behaviours during adolescence and adult relationships. In Bowlby's words (1980), "During the course of healthy development attachment behaviour leads to the development of affectionate bonds or attachments, initially between child and parent

and later between adult and adult. The forms of behaviour and the bonds to which they lead are present and active throughout the life cycle".

So with this presumption of the theory many researchers tried to explain the adult attachment process and how adult emotional and social interactions relate in the light of these working models of attachment. And it is widely accepted in adult attachment literature, that infant and adult patterns of attachment and representations go parallel (Hazan & Shaver, 1987; Simpson & Rholes, 1998).

Mary Main as a researcher working on adult attachment, developed Adult Attachment Interview (AAI), which is an interview model, constructed specifically towards the childhood attachment relationships of adults. Individuals are asked about their childhood experiences, and on the basis of the responses to these questions, Main and Goldwyn (1984) mention four adult attachment styles similar to Ainsworth's classification. The first one is *secure-autonomous style* that includes the adults who can talk about their unpleasant memories as well as happy ones. They can evaluate the parents objectively and they accept them with their limitations and problems. It is reported that many of the children of these adults have also secure attachment. Second one is *dismissive style* and these adults do not remember their childhood much. They are generally unwilling to talk about their past. Though describing their parents as perfect, they mostly exhibit completely opposite examples. Most of the children of these adults have avoidant attachment. Third group is defined as *preoccupied style* and these adults are mostly preoccupied with their past and are still full of pain and anger. They experience difficulty in emotionally separating from their parents and past memories. Their children mostly have ambivalent attachment. The forth and the last style is *unresolved-disorganized* and this type of attachment is related to loss and trauma. It is similar to disorganized attachment in children. These adults have unstable and disjointed mental states and show irrational beliefs, extreme behaviours, denial of loss or abuse and inability to integrate loss and trauma (Crowell & Treboux, 1995).

In contrast to Main's focus on representations of childhood experiences, Hazan and Shaver (1987) have conceptualized romantic love as an attachment process and proposed that individual differences in adult attachment styles paralleled as in infant-caregiver relationships with the three patterns (secure, anxious-ambivalent, avoidant). Secure adults establish intimacy in their romantic relationships and has a positive

attitude towards their current romantic relationships and past parental relationships, anxious-ambivalent adults feel jealousy and exhibit frequent emotional spikes towards their romantic relationships and worry that partners will leave, and avoidant adults feel insecure; have negative expectations about their romantic relationships and experience difficulty in establishing intimate relationships (Hazan & Shaver, 1987; Pietromonaco, Barrett & Powers, 2006).

Although initial work on adult attachment focused on these three attachment styles, with Kim Bartholomew and Leonard Horowitz's (1991) contribution recent adult attachment work adopted mostly the four-category (secure, preoccupied, fearful-avoidant, dismissive-avoidant) model of adult attachment. This four-category model is based on the combination of internal working models of the self and others. The *secure prototype* reflects an individual who has positive representations of him and others and is comfortable to be in intimate relationships. *The preoccupied prototype* has negative representations about himself but positive ones for others and generally needs the affirmation of others in order to accept themselves; and thus, they are preoccupied with their partners' points of view. *The fearful-avoidant* individual has negative representations for both himself and others and because of this, they avoid close relationships with others to protect himself from rejection. *The dismissive-avoidant prototype* is characterized by a person who avoids close relationships and also exhibit feelings of independency and invulnerability, because this individual has positive representations of himself and negative ones for others (Crowell & Treboux, 1995; Pietromonaco, Barrett & Powers, 2006).

As can be seen from the explanations up to this point, attachment literature puts forward some profound propositions to understand the world of the infant and the relationship between the caregiver and the infant and how this relationship affects other relationships through life. Especially popular pediatric practice and social policy planners have been adopted the knowledge came from attachment theory very easily. The importance of emotional warmth and sense of security in caregiving for the sake of a psychologically healthy child development has been understood by both the professionals and the society as well. Moreover Bowlby, in 1951 when he was invited to report on the mental health of London's many homeless children for World Health Organization, to formulate a principle for infant's and young children' mental health, he

mentioned the importance of attachment by these words: “What is believed to be essential for mental health is that the infant and young child should experience a warm, intimate and continuous relationship with his mother (or permanent mother-substitute) in which both find satisfaction and enjoyment” (cited in Bretherton, 1992). Besides this he reported that maternal deprivation, especially during the first 3 years of life, puts children at increased risk for physical and mental illness (cited in Hazan & Shaver, 1994).

Till here where we stand, over the development process and the definitions of the original attachment theory, attachment mostly refers to the child’s perspective that has three main characteristics:

- To be a bond from a child towards his/her primary caregiver (mother in most cases) to survive,
- Present from birth,
- Shaped as secure or insecure depending on the quality of the relationship.

But what about the primary caregiver’s perspective? Would those feelings, cognitions, behaviours and attitudes in other words characteristics of the caregiver also be defined within attachment theory? When this attachment relationship starts between the baby and caregiver; at the time of birth or even before? And which factors are crucial on attachment when the subject is primary caregiver (mother as we take into account in this study)?

After this review of attachment theory, to answer these questions above and to understand the maternal part of this dyadic attachment relationship, the next section is dedicated to bonding that occurs between the expectant mother and her unborn child that also called “prenatal attachment”, which is the main dependent variable to be evaluated in our study that we tried to understand the factors relevant to it.

2.2 Bonding Starting from Pregnancy: Prenatal Attachment Theory

For many years, birth was considered as the beginning of the relationship between the parents and their baby. Therefore, studies about the child’s attachment to the parental figure after birth were quite dominant in the attachment literature but with parent to infant attachment received much less attention (Condon, 1993). However, the

increasing knowledge about the physiology and psychology of pregnancy and seeing the effect of the pre-parental factors both on pregnancy process and postpartum parent-child interaction brought expanding consideration in the attachment relationships from parents to babies prior to birth.

Bowlby (1988), as explained in the previous chapter, has bilaterally conceptualized the attachment behavior between the child and the caregiver and suggested that it starts to develop with the fear of separation from the attachment figure and that it serves the purpose of "the search for safety". Therefore, within the general approach to attachment, the emotional bond that the woman establishes with her unborn baby was seen incompatible with the original attachment theory because it is not a "search for safety" behavior and it can only be investigated through one part (mother) of this system. Some theorists suggested using the term "maternal bonding" or "emotional bond" in this sense (Pollock & Percy, 1999; Ross-Davie, Butcher, Davidson, Allely, Fargie, Puckering & Trevarthen, 2013). Although prenatal and postnatal attachment has a consistent relationship, they may require different conceptual frameworks.

In addition, the issue of reciprocity may be less important if the expectant mother experience reciprocity as being in connection with the movement and activity of the fetus. Many studies emphasized that as quickening increases, reported prenatal attachment scores in questionnaires also increase (Muller, 1992). Likewise, Zeanah, Carr and Wolk (1990) found that mothers who attached to their babies in prenatal period perceived more movements from their fetus than those who had some difficulties to attach their babies in prenatal period.

However, "prenatal attachment" or "maternal-fetal attachment" terms were accepted and used by those who have defined its functional characteristics. In addition, researchers have suggested that since the baby's image, behavior and disposition do not affect this pattern, factors that are attributed only to the mother such as her personality, attachment type and the mental design of early caregiving experience can be purely interpreted (Yılmaz & Beji, 2013). Thus, the term "prenatal attachment" is used synonymously with the term "maternal bonding" as used in some sources to define the close emotional bond that the mother establishes with her unborn baby during the period of pregnancy. The theoretical background on this subject will be presented in this chapter.

Within the psychology of pregnancy, Helene Deutsch (1945), a female psychoanalytic theorist, was the first to suggest that attachment may begin during pregnancy. She suggested a continuous "incorporation" of the fetus. The woman gives it narcissistic love, in time becoming aware of the fetus apart from herself and progressively acknowledging a separate individual. Deutsch states that the bond between the mother and the fetus developing with this gradual awareness is based on motional, psychological and physiological events. Tanner (1969) also agreed on Deutsch's idea and associated this awareness with the physical events, such as quickening and subsequent foetal activity, of pregnancy (cited in Cranley, 1981). According to Deutsch, the pregnancy is a period of introversion and it defines a period that the mother dedicates all of her mental energy to the fetus inside her and her imagination about it. The first stage, which is referred as the first step of maternal love contains a period of time where the woman gradually realizes that she is carrying a living being inside her. This is followed by a period of time where she is occupied with the outside world and dreams about the baby. The second stage is the stage of reciprocal movement and the bonding between mother and baby becomes even more special with the quickening. In the final stage of pregnancy, the mothers are focused on their preparations for childbirth and sharing their expectations from birth and motherhood with those around her (cited in Gau, 1996).

After Deutsch, other psychoanalytic theorists, including Winnicott, Bibring (1961) and Benedeck (1959), also contributed to the understanding of pregnancy experience and explained PA as a "process in which a pregnant woman's psychic energy was emotionally invested into the fetus". According to them, as pregnancy progresses, the fetus becomes more human to the woman, and eventually the fetus becomes loved both as an extension of self and as an independent object (Brandon, Pitts, Denton, Stringer & Evans, 2009; Turriff-Jonasson, 2004). D.W. Winnicott (1956) also explained a very special psychological state called "primary maternal preoccupation", which begins in the late pregnancy period and continues through the first months of the infant's life. He described being in such kind of mental state as "almost an illness" but this state helps the woman to create and sustain an environment that can meet the physical and psychobiological needs of her infant (Brandon et al., 2009; Winnicott, 2012).

While these contributions were fascinating, Kennell and Klaus' observations of the immense grief shown by mothers who lost their infants in birth came as one of the first empirical suggestions that there was a prenatal connection between mother and fetus. The team found that maternal grief is not affected by whether or not the mothers had any physical contact with the babies after delivery (Kennell, Slyter, & Klaus, 1970). They also found that the pregnancy experience itself played a role on determining how a new mother responded to her child (cited in Muller, 1994). With their studies about the establishment of an emotional connection of the mother to the infant, Klaus and Kennell became the first to use the term 'maternal bonding' to describe the concept where "the mothers are pre-disposed to form an affectionate bond to their baby prior to and during the sensitive period immediately following birth" (cited in Ross-Davie et al., 2013). They also defined the important events on the formation of a mother's attachment to her infant before birth as: planning the pregnancy, confirming the pregnancy, accepting the pregnancy, foetal movement, and accepting the fetus as an individual (Lumley, 1982). All these works of Klaus and Kennell were very important to give rise to attachment studies in psychology literature extended towards the pregnancy to understand the mother's perspective with its precursors in this relationship and the importance of attachment to the fetus on woman's adaptation to pregnancy. But still, the most known studies have come from the nursing literature, with the contribution of R. Rubin.

Reva Rubin (1975) laid the foundation for a theoretical construct of attachment that begins before birth and mentioned the importance of this prenatal process on postnatal mother-infant relationship. Rubin (1975) suggested that four kinds of tasks are observed on women during the prenatal process. These are: (1) searching for safe passage for herself and her child, (2) ensuring the acceptance of the baby by the significant individuals in the environment, (3) establishing a relationship with her yet unborn child and (4) learning to dedicate herself and make sacrifices. These tasks that Rubin mentions, particularly "establishing a relationship with her yet unborn child", have created a framework for the mother-fetus relationship and the psychological conceptualization of the pregnancy experience. This framework was later called "prenatal attachment", defined as "the unique, affectionate relationship that develops between a woman and her fetus" in the nursing literature (Muller, 1993; cited in Turriff-Jonasson, 2004).

Leifer (1977) observed first time pregnant women' behaviors and proposed that the expectant mother's psychological functioning level (a combined index of body satisfaction, self esteem, pregnancy motivation, and mood tone) in early periods of pregnancy determined the quality of maternal attachment to the fetus and subsequently the child (Muller, 1992). She also emphasized that the personality factor is important on the pregnancy process and in early motherhood. Moreover Leifer explained the mother's engagement with her fetus and identified several attachment behaviors such as talking to the fetus, chiding it for moving too much, offering it food when she is eating, calling the fetus by a pet name, engaging the husband in conversations with the fetus, pushing the fetus around so that she and the husband can watch the movements. Leifer (1977) and Chojnacki (1976) described ways in which mothers prepare for their infants through selection of pediatricians and feeding methods; preparation of equipment, furniture and rooms; and purchasing of materials for nursery and layette (Cranley, 1981). He also stated that the quickening is a turning point that the emotional bond with fetus develops surprisingly soon after quickening (Muller, 1992).

Judith Lumley, an Australian perinatal period epidemiologist and one of the first researchers of PA, observed that the mothers imagine more and more about their babies as the pregnancy progresses. She found that the visualization of the baby through ultrasonography helps the expectant mother to conceptualize the baby as a "little human" and to increase her love towards it subsequently. She also tried to determine the first-time parents' attitudes towards the fetus through the interviews with the mothers both before and after the birth, and conducted one of the first empirical-longitudinal studies on PA. As a result of her studies, she has conceptualized attachment as the imaginative relationship with the fetus where the mother thinks of her baby as a real human being. Also, she found that women who developed an attachment to their fetus in early pregnancy had less negative physical symptoms than those who experienced later attachment (Muller, 1993).

Later, Cranley (1979), Muller (1993) and Condon (1993) contributed on the conceptualization of PA with their empirical studies, emphasizing the behavioral, cognitive, and emotional aspects of PA (Brandon et al., 2009). Cranley (1981) is recognized as the first official creator of the theoretical structure with the attachment relationship that she studied as her thesis, and the subsequent multidimensional model

she suggested and the scale she developed. Cranley tested her 6 sub-scaled; 24-question survey study on 71 subjects in the third trimester of pregnancy and defined the behaviors that represented the attachment of women to their unborn babies. The maternal-fetal attachment scale that she developed contains 6 subscales: differentiation of self from fetus, interaction with the fetus, attributing characteristics and intentions to the fetus, giving of self, role taking and nesting. According to the results of the study, the scores on the maternal-fetal attachment subscales supported that some behaviors are more common than others in the third trimester and the notion that this is a statement of attachment towards the fetus. After these findings, Cranley concluded that "there is a qualitative change in the mother's relationship with her infant at the time of birth, but by no means is it the beginning of their relationship". This represented the multidimensionality of prenatal attachment by identifying components that described the behaviors that represent affiliation and interaction with the unborn child (Cranley, 1981).

Another important researcher, Muller (1993), utilized Cranley's studies on this subject to develop a broader conceptualization, which considered not only behaviours but also a woman's thoughts and feelings towards her fetus. Muller defines the maternal-foetal attachment as "the unique relationship between the mother and her unborn baby" and designed a new inventory that she called Prenatal Attachment Inventory, to measure affectionate attachment or the personal relationship that develops during pregnancy between mother and fetus (Muller 1993). Muller also mentioned the importance of early experiences of expectant mother with her own mother (or primary caregiver) that leads to the development of internal representations, which then enabled a woman to adapt to pregnancy and attach to her fetus (Brandon et al., 2009; Doan & Zimerman, 2008; Turriff-Jonasson, 2004).

After her, Condon (1993) stated the core experience of love in the pregnancy period, a developing relationship between the mother and the fetus and the attitude of the mother and defined this as "to know, to be with, to avoid separation or loss, to protect, and to identify and gratify the needs of her fetus" (Brandon et al., 2009; Doan & Zimerman, 2008; Turriff-Jonasson, 2004) Later with their concept analysis, Shieh, Kravitz and Wang (2001) defines the three aspects of PA as cognitive (desire to know the baby), affective (pleasure related to interactions with the unborn child) and altruistic

(desire to protect fetus) attachment; and with their phenomenological study Sandbrook and Adamson-Macedo (2004) mentioned that PA is more than love and represents an innate desire to protect the unborn child (Yarcheski, Mahon, Yarcheski, Hanks, & Cannella, 2009).

Finally all these works on this construct combined in the most recent conceptualization is as follows: "Prenatal attachment is an abstract concept, representing the affinitative relationship between a parent and fetus, which is potentially present before pregnancy, is related to cognitive and emotional abilities to conceptualize another human being, and develops within an ecological system" (Doan & Zimerman, 2003).

2.2.1 Development of prenatal attachment

With their attachment theory, Bowlby and his colleagues stated the importance of a sensitive care of the human infant that caters to the needs of psychological health and survival. But with the subsequent contributions, especially from the field of nursing, showed that the mothers begin developing their capacity to care in various forms during the pre-pregnancy and pregnancy periods. The emotions of the expectant mothers towards their child develop throughout the period of pregnancy. Many women start to prepare themselves for motherhood with certain protective behaviors from the moment she realizes her pregnancy and sometimes, long before pregnancy. These behaviors may manifest as health behaviors such as quitting smoking and alcohol, maintaining a balanced diet and becoming conscious on drug usage (Lindgren, 2001); while for others these may be preparing a room, purchasing equipment and clothes, choosing names, preparing their other children for the arrival of the baby and keeping a pregnancy diary. And the literature emphasizes that the protective behaviors towards the baby and preparing the family and home for the arrival of the baby are crucial for the development of maternal emotions (Doan & Zimerman, 2008). Moreover this surely may facilitate the adaptation to pregnancy and so her transition to motherhood.

The mother-fetus attachment relationship is quite important because of its impact on both the pregnancy process and the post-natal parent-infant relationship (Brockington, 1996; Cataudella et al., 2016; Muller, 1994; Theran, et al., 2005) Thus, studying the factors that affect the development of prenatal attachment – which is

defined as the expectant mother's emotions and connection and interaction with her baby during the prenatal period – gains importance. As the literature shows, the development of prenatal attachment shows some consistent properties. It is also worth noting that the timing and intensity of prenatal attachment as well as the way it is expressed shows a progressive development (Doan & Zimerman, 2008). According to this, women have a capacity to imagine themselves as pregnant and attached to their unborn babies before pregnancy, but individual differences are effective on this imagination ability. Likewise some women show high attachment in the early stages of pregnancy and some other little or no attachment over the course of pregnancy (Doan & Howell, 1998; Mikulincer & Florian, 1999). But also as the pregnancy progresses, there is a consistent increase in the prenatal attachment measurements. This increase develops sequential (lower in the first trimester and growing higher in the second and third trimesters) and turns into attachment behavior (i.e. talking to the fetus, giving it a pet name) (Armstrong, 2002; Cannella, 2005; Doan & Zimmerman, 2008; Leifer, 1977; Olivier, 2016; Sandbrook and Adamson-Macedo, 2004; Vedova, Dabrassi & Imbasciati, 2008).

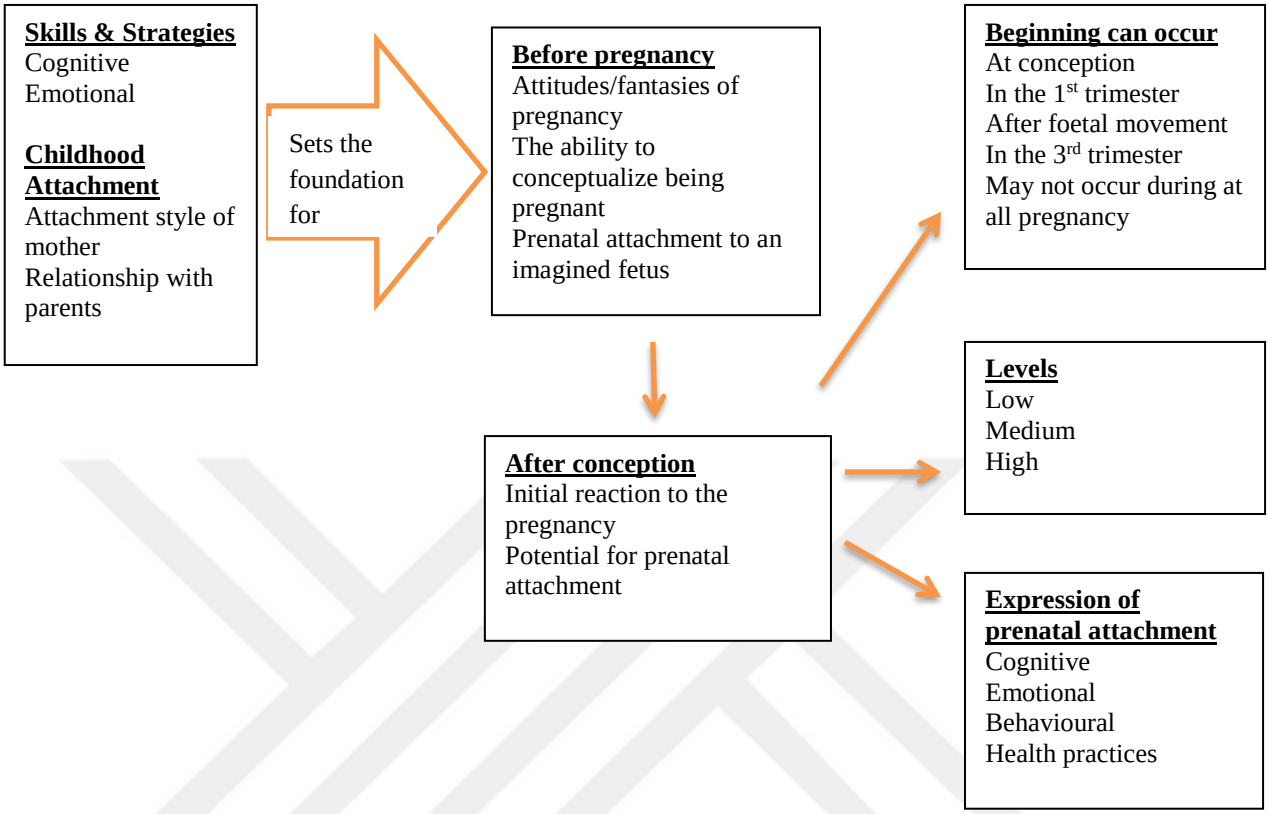
Rubin (1984) sees the psychosocial adaptation to pregnancy and identified tasks for pregnancy (mentioned in the previous section) from a developmental standpoint, using qualitative data on six thousand women that was gathered over twenty years. These tasks, "establishing a relationship with her yet unborn child" in particular, serve as a foundation for the psychological notion of the pregnancy experience and the relationship between the mother and the fetus. Rubin states that the behaviors connected to these tasks become apparent over the course of their development in each trimester (Muller, 1993). Lederman (1984) classifies a different developmental task group during pregnancy in his study on the connection between the pregnancy experience and delivery. According to him, accepting the pregnancy is the pregnant woman's most crucial and indispensable task, as he points to a significant association between the acceptance of the pregnancy and length of labor.

Many researchers state that prenatal attachment has a multidimensional nature and across pregnancy there is considerable individual variability in the levels of PA (cited in Hart, 2015). Cranley defines the components of the behaviors that represent the attachment to and interaction with the unborn child as cognitive (i.e. separating herself

from the fetus, attributing characteristics and intentions to the fetus), emotional (i.e. self-sacrifice) and behavioral (i.e. interacting with the fetus, exchanging roles) (Brandon et al., 2009; Cranley, 1981). Doan and Zimerman (2003) have also stated that prenatal attachment includes interaction between cognitive, emotional and situational factors. Factors such as the internal working model, the imagination skill and maternal representations of the fetus were discussed under cognitive factors. In particular, the cognitive ability to conceptualize the fetus as an individual was found to be a prerequisite for prenatal attachment. In terms of emotional factors, they stated that the most significant relationship was the one between empathy and prenatal attachment. Moving on from this information, they arrived to this hypothesis: Cognitive and emotional skills and strategies that are connected with prenatal attachment are based on skills and strategies that have developed during the childhood (Doan & Zimerman, 2003). Gluckman and Hanson (2004) also stated that the skills and strategies required for the development of PA may begin in a childhood and progress through adolescence and adulthood; and when a woman becomes pregnant they formed the baseline of PA (cited in Hart, 2015). Additionally, childhood attachment types (i.e. secure, avoidant) and the form of the relationship of the mothers with their own parents may be an important determinant for the timing and intensity of the subsequent prenatal attachment (Doan & Zimerman, 2003). The level of prenatal attachment after pregnancy may be connected to the situational (i.e. prenatal testing, social support, previous pregnancy or parental experience) and personal factors that interact across pregnancy. These situational factors may determine the timing, intensity and form of expression of the prenatal attachment (Condon and Corkindale, 1997; Doan and Zimerman, 2008; Siddiqui, Hagglof, & Eisemann, 2000; Yarcheski et al. 2009).

Doan and Zimmerman (2008) have compiled the information in the literature and proposed the following model for the development of prenatal attachment.

Figure 2.1. A Developmental Model of Prenatal Attachment (Doan & Zimerman, 2008)



2.2.2 Determinants of prenatal attachment

Parental-fetal emotional bonding serves as a fruitful theoretical backdrop for the study of care giving in what Condon (1993) refers to as "pure culture," an environment uncontaminated by infant temperament and the complexities of post-natality. During pregnancy, parents' internal representations of the fetus become increasingly sophisticated, to the point that they develop emotional ties with the image of the fetus in their minds. Several studies have shown that the ability of a woman to bond with her fetus has implications for behavioral capacity of the woman to promote the development and birth of a healthy baby (cited in Sandbrook, 2009) and being an effective, responsive parent (Siddiqui & Hagglöf, 2000) and facilitate the attachment process for the baby (Solomon & George, 2008). Clinically, the prenatal emotional bonding framework is also helpful in understanding the psychological problems around pregnancy and the post-natal period (Condon, 1993).

For this purpose many empirical studies conducted over the last decade to understand the associated factors with prenatal attachment. Although findings differ among studies, factors that have been shown to be associated with PA include foetal movement, age, education, race, level of income, pregnant woman's own attachment style, social support, anxiety, depression, maternal personality, perception of stress, childbearing attitude, physical symptoms, body image and first pregnancy (Alhusen, 2008; Cannella, 2005; Dereli-Yılmaz, 2013; Doan & Zimerman, 2008; Yarcheski et al. 2009). Investigating the implications of low levels of prenatal attachment and risk to the fetus has also been an important aim of the researches. Most of the early studies have confirmed that attachment scores increase from the beginning to the end of pregnancy and quickening correlates consistently with the development of maternal prenatal attachment (Heidrich & Cranley, 1989; Muller, 1993). But when it comes to other demographic, pregnancy-specific contextual and psychosocial factors, more research is needed to speak on the consistent association.

For this reason this part is going to summarize the findings about the most prominent and relevant determinants that are effective on prenatal attachment. By this way we will understand in what level the literature supports the relationship between the maternal characteristics (demographic, pregnancy-related, and psychosocial factors) and prenatal attachment as we considered in our study.

2.2.2.1 Relationship between prenatal attachment and demographic variables

Most of the studies that are conducted to understand the nature of PA have focused on the demographic variables that may have an impact on this early relationship. To know about demographic variables in this context, because they are used to classify individuals in terms of personal or family characteristics, are beneficial to determine which mothers are in risk groups in terms of developing an emotional tie with their unborn child and to work on the support systems to enhance their levels of PA.

Some demographic variables, such as the age of the mother, socio-economic status, education, ethnic group and number of children are investigated in many different studies. Despite the findings about the relationship between the demographic variables and PA, the findings on the influence of these variables are not seen

consistent. As one of the most studied variable, age of the mother shows this inconsistent tendency as well (Laxton-Kane & Slade, 2002). There are studies that found no correlation (Damato, 2004; Lerum & LoBiondo-Wood, 1989; Abasi et al., 2012but also a significant (mostly negative) correlation between the pregnant mother's age and PA (Hjelmstedt, Widström, & Collins, 2006; Lindgren, 2001; McFarland, Salisbury, Battle, Hawes, Halloran & Lester, 2011; Muller, 1990; Rubertsson, Pallant, Sydsjö, Haines & Hildingsson, 2015). It is thought that this may be because that the studies are distributed in the average age range, that less people are reached in the lowest and highest age groups or that age, in and of itself, is not a significant determinant over PA (Lerum & LoBiondo-Wood, 1989). However, in a broad study by Berryman and Windridge, a significantly weaker PA development was found in pregnant mothers over 35 during their second trimester compared to those between 20-29 years of age; though there was not a similar tendency in the third trimester. They suggested that older women might show a fear of attachment to the unborn child because of the increased risks of pregnancy due to their age (Laxton-Kane & Slade, 2002). The findings of another study on 342 pregnant women over 20 weeks of pregnancy in Turkey show that unemployed, undereducated, multipara women (who has more than one child) over 35 years of age or more who have unplanned pregnancies show a lower level of attachment (Dereli-Yılmaz & Kızılkaya-Beji, 2010). Rubertsson et al. (2015), in their studies in Sweden, have found that women over 25 years of age with university-level education who have multiple children show lower levels of attachment. Lindgren (2001) has also found a correlation between being younger and undereducated and high prenatal attachment levels. Also some other researchers found a negative correlation between the age and the PA, which means that when the age increases, the attachment to the unborn child decreases (McFarland et al., 2011; Muller, 1990). For maternal education same pattern with the age also found in some other studies which means the higher mothers were educated, the more bonding difficulties were reported (Dubber, Reck, Müller & Gawlik, 2015; Lindgren, 2001). But also there are studies that found no correlation (Dereli-Yılmaz & Kızılkaya-Beji, 2010; Kuo, Bowers, Chen, Chen, Tzeng & Lee, 2013; Ossa, Bustos & Fernandez, 2012) or positive correlation (Chen, Chen, Sung, Kuo & Wang, 2011) between the pregnant mother's education and PA at all. Thus, it can be said that education's effect on PA is not significant.

Another demographic variable, socio-economic status (SES) or level of income also studied in many studies and found that higher levels of socio-economic status positively correlated with health practices in pregnancy. And similarly positive health practices were found to be related to strong prenatal attachment (Alhusen, 2008; Lindren, 2001). Alhusen (2008) also associates SES with having better means of care and support during pregnancy and safer, more supportive relationships. This is because that, as seen in many studies, people under the highest risk of low birth weight, preterm birth and infant mortality come from the lowest socio-economical level of the society (Zachariah, 2009). Difficulties that these people experience in attaching to an unborn child, who is not certain to be born healthy, are not surprising. In another study with 244 pregnant women in Chile, being a housewife and being economically dependent pregnant women are found associated with the risk of developing poorer prenatal attachment (Ossa et al, 2012). Lerum and LoBiondo-Wood, (1989) also found that relatively modest incomes are associated with high levels of maternal-fetal attachment behaviors but there are also studies found no correlation between SES and PA. Due to these contradictive results, Kramer et al. (2001) suggested that socioeconomic factors may trigger psychosocial stress and in turn, adverse outcomes, instead of being independent causes (cited in Zachariah, 2009). A study of 342 pregnant women in Turkey revealed that while economic problems were associated with depressive symptoms, they did not affect prenatal attachment (Dereli-Yılmaz & Kızılkaya-Beji, 2010). Lerum & LoBiondo-Wood, (1989) also mentioned that sample size and parity might have an impact on SES.

2.2.2.2 Relationship between prenatal attachment and pregnancy-related variables

Pregnancy is an exciting process, which is full of uncertainties for many women. Studies show that the manner pregnancy is experienced affects the post pregnancy period (Redshaw & Martin, 2003; Siddiqui & Hagglöf, 2000). Thus, it is considered important to understand the variables specific to pregnancy, since they affect the mother's attachment during pregnancy.

Among all these variables, the gestation week comes into the picture having the strongest relationship with PA. Accordingly, PA increases and develops with the progression of pregnancy and is the strongest during the third trimester of pregnancy

(Armstrong, 2002; Cannella, 2005; Sandbrook and Adamson-Macedo, 2004; Vedova et al., 2008). A meta-analysis from 2000-2007 also showed that parental attachment increases as the pregnancy comes to term and higher prenatal attachment predicts better pregnancy-related health practices (e.g., seeking prenatal health care, eating a healthy diet, and getting regular exercise) (Alhusen, 2008). Therefore Yarcheski et al. (2009) suggested that in clinical settings inadequate levels of PA in the third trimester of pregnancy should be carefully dealt and the research studies especially should be directed to later stages of pregnancy.

As gestation, another strong association with PA found with the foetal movements, quickening in another saying (Cannella, 2005; Doan & Zimmerman, 2008; Muller, 1992). The onset and increase of foetal movements as the pregnancy progresses has been found to have a strong influence on the development of PA (Alhusen, 2008). This may be the result of quickening functions as a physical and cognitive awareness about the fetus that is a separate and real person and this awareness may contribute to the progression of the emotional connection to the unborn child (DiPietro, 2010). Studies also supported that there is a positive correlation between foetal movements and strong PA. Whether stronger PA leads to greater awareness of foetal movements, or vice-versa is unclear; however, the mental presentation of the unborn baby in the mother's mind is interrelated with this correlation (Laxton-Kane & Slade, 2002). Therefore Abasi, Tahmasebi, Zafari and Takami, (2012) mentioned the importance of teaching mothers how to improve their relationship by recording foetal movements, touching, talking to him, writing and etc.

Parity as another pregnancy factor has been studied in relation to PA. In a meta-analysis of 72 studies about maternal–fetal attachment it was shown to have low or trivial effect sizes (Yarcheski et al., 2009). A study of 342 pregnant women in Turkey found that prenatal attachment was higher in first-time pregnancies compared to second- or third-time pregnancies. The underlying reason for this was assumed to be the excitement and eagerness of first-time mothers (Dereli-Yılmaz & Kızılkaya-Beji, 2010).

Some pregnancies fall into the higher risk groups due to the diseases and anomalies that threaten the baby, the fetus or the expectant mother. Attachment studies have focused on PA in high-risk pregnancies with the hypothesis that the expectant mother's attachment to her child may be affected in the case of high risk; though the

results have shown variance. Some researchers maintained that if the woman has doubts about the health of the fetus, with the effect of increasing levels of stress and anxiety, this might have negative impact on the development of PA (Allison, Stafford & Anumba, 2011). But most of the findings recently show that woman cope with these feelings better and there isn't significant difference between the healthy and high-risk pregnancy prenatal attachment scores (Alhusen, 2008; cited in Lindgren, 2001; Üstünsöz & İnanç, 2001). Moreover there are studies that investigated that even when there is a fetal anomaly that is found by ultrasound screening, the women's levels of general anxiety and specific worries are higher but on the other hand they were strongly attached to their fetuses during pregnancy (Asplin, Wessel, Marions & Öhman, 2015). On the other hand in some cases physical health of the mother and fetus influences the development of PA. In particular unpleasant symptoms in pregnancy easily triggers the anxiety of the mother related with the health of the fetus. From the early theorists, Lumley (1980) also mentioned that unpleasant symptoms of pregnancy had a negative effect on the attachment of the mother to the fetus (Muller, 1993). However, Lerum & LoBiondo-Wood (1989) found no relationship between the physical symptoms of pregnancy (the presence of somatic signs and symptoms during pregnancy) and PA, and explained this result due to the mothers' attribution of these negative symptoms to the pregnancy not to the fetus. So their attachment relationship does not affected by these symptoms. Moreover when the pregnancy is planned, these symptoms even might serve as the affirmation of having a child and seem positive by the mother. Still, according to an interesting study result, physical difficulties at obstetric complication-level (such as anaemia, eclampsia, and placental abruption) are more commonly seen in women who are not accompanied by their spouses during their pregnancy (Cataudella et al., 2016).

Previous perinatal losses were also variables which taken into consideration due to their traumatic nature. Some studies confirmed that having obstetric problems (miscarriage or infertility treatment) in the past might predict low level of PA (Bielawska-Batorowicz & Siddiqui, 2008) but also most of the studies found that PA was not negatively influenced by a history of previous fetal loss/miscarriage (Alhusen, 2008; McMahon, Ungerer, Beaurepaire, Tennant & Saunders, 1997).

PA studies on the women who get pregnant via in vitro fertilization (IVF) are relatively limited compared to natural conception (Alhusen 2008, Yarcheski et al.

2009). In a study in Taiwan, two groups of women (n=125; one group getting pregnant via natural ways and the other being infertility-treated pregnant) in the third trimester of pregnancy found that infertility-treated pregnant women showed higher prenatal and perinatal attachment compared to naturally pregnant women (Chen et al., 2011). But another prospective, longitudinal study by the same researchers on 160 women in who conceived after successful in vitro fertilization at 9, 12 and 20 gestation weeks found that the duration of infertility, and number of IVF treatments were not identified as predictors of PA. These results were thought to be associated with only one means of treatment being used in the study (Kuo et al., 2013). Another study in Sweden has found that in vitro fertilization mothers show the same attachment to their unborn babies to the as other mothers (Hjelmstedt, Widström & Collins, 2006). Other studies have shown no difference between the PA of women who experienced natural conception and those who experienced a high-risk pregnancy (Yarcheski et al. 2009) or received fertility treatment (Alhusen, 2008).

Lumley (1980) in his research also found that viewing the fetus by ultrasound early in the pregnancy had a positive effect on the attachment of the mother to the fetus (Muller, 1993). Other researchers also supported this finding and found the impact of the ultrasound image on the development of PA (Alhusen, 2008; Sandbrook & Adamson-Maceda, 2004; Yarcheski et al., 2009). On the other hand in 1980s ultrasound imaging was quite new and its usage was not common in pregnancy period. But today nearly in every four weeks of pregnancy most of the pregnant women has this opportunity to visualize the fetus. Eventually in these circumstances ultrasound imagining is no more a significant variable. But the methodology used during ultrasound, such as the length of time spent performing an ultrasound, expertise of the technician, opportunity to ask questions, and amount of information provided to patients, are still important contributors on strengthening PA (Alhusen, 2008; Lerum & LoBiondo-Wood, 1989).

Studies also investigated the impact of planned or unplanned pregnancy and mentioned that to have a planned pregnancy has positive effect on the development of PA (Abasi et al., 2012; Janbakhishov, 2013; Laxton-Kane and Slade, 2002; Lerum & LoBiondo-Wood, 1989). This may be related to form a mental representation of her

unborn infant when planned and desired for pregnancy. But this does not mean that PA cannot develop during a pregnancy that was unplanned (Laxton-Kane & Slade, 2002).

Since the gender preference is still culturally important in many countries, researchers have also focused if the gender of the fetus affects the ability of a woman to bond with her fetus. Sandbrook and Adamson-Macedo (2004), have found that some pregnant women preferred a gender to the other and were disappointed in early pregnancy if the baby's gender was different from what they desired; though all of these participants stated that they would accept the baby after the birth. The gender that the pregnant mother believed to be the father's preferred gender was also found to be impactful on their feelings about the baby's gender and their beliefs on the father's support. In another study that investigates the association of the gender of the fetus with prenatal attachment and perceived social support level, 265 pregnant women in Turkey are included and the results show that if a woman has at least one more child before, male gender is preferred but in first pregnancies female gender is favored. And these choices have positive impact on prenatal attachment (Erdemoğlu & Derya, 2018).

Participation to prenatal childbirth educational classes enhanced the prenatal bonding (Nazik, Yıkar & Var, 2017). As Chen et al. (2011) stated, various studies have shown that women who attend to prenatal education classes show the highest scores of attachment and they have found that attendance to prenatal education impacts the mother-baby attachment after the birth as well. This high correlation may be explained by the knowledge and skills provided by prenatal education.

2.2.2.3 Relationship between prenatal attachment and psychosocial variables

From the psychological point of view and a clinical perspective, knowing about the association between prenatal attachment and psychosocial variables will be helpful for understanding and managing many of the psychological problems of pregnancy and the post-natal period. It is clear that there is an interconnection between a strong attachment with the unborn child and better psychological health (Walsh, Hepper, Bagge, Wadephul & Jomeen, 2013). Apart from this, as Cranley (1989) and Condon (1993) mentioned early bonding difficulties, foetal abuse, psychological symptom formation during pregnancy, and psychological reactions to antenatal diagnostic procedures may have been handled more efficiently by knowing these variables

beforehand (cited in Morales, 2005).

One of the most researched variables under the topic of psychosocial factors is the expectant mother's own style of attachment, which also has a consistent connection with prenatal attachment. Muller suggests in the model she proposed for prenatal attachment that the expectant mother's own early experience between herself and her mother (or primary caregiver) shape her internal representations and that these representations affect her relationships with family, partner and friends as well as her attachment to the fetus (Cataudella et al., 2016). Fonagy and his colleques' (1991) data gathered in their study from 100 first-time pregnant women during their final trimester and from their children during their first year show that there is a strong correlation between the attachment styles of parents and babies (r = 0.75). This means that the child's attachment style in its first year may be predicted with an accuracy rate of %75 (Fonagy, Steele, & Steele, 1991). Though this does not show that many events the child experiences do not have any impact on attachment, many later studies have confirmed the relationship between secure mothers - secure babies and insecure mothers - insecure babies (cited in Brandon et al., 2009; Mikulincer & Florian, 1999). Thus, it was seen the attachment style the woman develops with her own mother (or primary caregiver) is connected to prenatal attachment (Alhusen, 2008; Mikulincer and Florian, 1999; Siddiqui & Hagglöf, 2000), mental health and coping skills (Mikulincer and Florian, 1999) and the woman's prenatal attachment style to the fetus is associated with the baby's style of attachment to the mother after birth (Brandon et al., 2009). Considering that attachment literature assumes there is a continuity between early attachment and lifelong attachment, Chrzan-Detkos (2015) has also studied the relationship between the romantic attachment style of the expectant mother and prenatal attachment on 162 pregnant women and has found that the relationship between these two variables is more direct compared to postnatal period.

Whether there is a connection between prenatal attachment and prenatal and perinatal psychological well-being or not is another significant topic of clinical research. According to this, many studies have found weak prenatal attachment to be connected to depression during and after pregnancy (Alhusen, 2008; Brandon et al., 2009; Lindgren, 2001) and anxiety after pregnancy (Blumberg, 1980; Gaffney, 1989; Lindgren, 2001). Moreover as many studies mentioned anxiety and depression during

pregnancy has been associated with adverse obstetric outcomes such as preterm birth, which has also an impact on bonding with the child (Dubber et al., 2015; Rubertsson et al., 2015). Depression during pregnancy has a ratio between 10% and 25% and depression has a negative impact on the relationship with the unborn baby just as any other relationship (Lindgren, 2001). Rubertsson et al.'s research (2015) on 718 pregnant women in Sweden which studied the impact of depressive symptoms on PA during the first and last trimester has found that the highest-risk group of women in terms of low-level attachment are those who have depression, negative feelings about the upcoming birth and parenthood and receive little support from their families and spouses. In another study where the connection between depression, health practices and PA and the factors that affect these are researched, 252 pregnant women over 20 weeks of pregnancy were included. Findings showed that this relationship could be understood when considered together with demographic variables. According to this, while there is no direct connection between depression and PA; when considered together with variables of age, income level and education, depression becomes an important predecessor of PA. Women with lower depression scores had higher PA and depression also indirectly impacted health practices through PA. Thus, it is considered important to take personal characteristics into view through a conceptual model when one tries to understand the connection between depression and PA (Lindgren, 2001). Alhusen, Gross, Hayat, Woods and Sharps (2012), have also found a connection between high depressive symptoms and low PA in low-income women. Moreover, low level of PA has a strong relationship not only with prenatal depression but also with postnatal depression (cited in Walsh et al., 2013) and prenatal depression with postnatal depression (Robertson, Grace, Wallington & Stewart, 2004).

Though pregnancy studies mostly focus on depression, the relationship between PA and anxiety, stress and trauma is also researched as a topic of psychological health (Walsh et al., 2013). Anxiety has a remarkable 25% prevalence during pregnancy in the studies on anxiety. While anxiety's impact mother-fetus attachment is not as clear as depression, it is thought that high anxiety levels have a particularly negative effect on prenatal attachment and sensitivity towards child's signals after birth (Dubber et al., 2015; Hjelmstedt et al., 2006; Zachariah, 2009). In many studies prenatal anxiety especially seem to interfere with the mother's ability to bond with their child after birth (Dubber et al., 2015; cite Rubertsson et al., 2015). Gaffney (1986) has taken two

different kinds of anxiety into consideration in his research and found that anxiety which is dispositional and stable over time damages attachment while anxiety of situational and transitional nature impacts the attachment process positively. This may be connected to situational anxiety's function of protecting the fetus and helping shape the behaviours necessary for motherhood (Janbakhishov, 2013). Like anxiety, high stress level in pregnancy is also found related with low level of PA. In addition the mothers who are emotionally less stable feel more stress, imagine as if they would have a baby with difficult temperament and have lower PA. Emotional risk factors that have negative effect on PA are seen as mental health problems, problematic childhood history and low cognitive functioning (Maas, Vreeswijk, Braeken, Vingerhoets & Van Bakel, 2014). And overall psychological well-being of the expectant mother is an important factor on enhancing prenatal attachment (Abasi et al., 2012; Alhusen et al., 2012; Brandon et al., 2009)

The pregnant woman's personality also plays a role in the development of PA (Maas et al., 2014). Optimistic personality, being an extrovert, conscientiousness and being agreeable (Maas et al., 2014) and a positive self-esteem has been found to lead to higher levels of PA (Abasi et al., 2012).

Social support is seen as important factor for healthy PA development as being a protective factor for the pregnant woman's psychological wellness (Abasi et al., 2012; Lindgren, 2001; Yarcheski et al., 2009; Zachariah, 2009). Rubertsson et al.'s study (2015) in Sweden on 718 pregnant women has found that inadequate social support from partners and parents is a significant factor for low attachment scores. Yarcheski et al. (2009), on the other hand, have found that the pregnant woman's perception of the social support given to her is more impactful on prenatal attachment than the actual support. Similarly, the quality rather than quantity of social support is important as the level of social support can change during the pregnancy period (Condon & Corkindale, 1997). Alhusen et al. (2012) stated that social support and depression symptoms serve as significant statistical PA predictors during pregnancy. Partner relationship is also thought to be a moderately mediating mechanism between PA and psychological health (Walsh et al., 2013). Lumley (1977) also states that inadequate support and/or interest from partners impacted PA negatively (Muller, 1993). Previous studies have found that obstetric complications are more common among women whose partners were not with

them over the course of pregnancy, as mentioned above before (Cataudella et al., 2016).

Another study variables, emotion regulation and prenatal anger, as we take into account in our study, have received less attention in the literature in relation to prenatal attachment. Emotion regulation, which is the capacity to influence the expression and experience of one's emotions, is functional establishing sensitive responding and caregiving parenthood behaviour. Emotion regulation may be an impactful factor on the relationships that are formed and maintained with others along with every aspect of functioning, including physical and mental health. While difficulties with emotion regulation are not considered a disorder in and of themselves, they are thought to be having connections with many clinical disorders. As such, changing the emotion regulation strategies may protect or pose risks for psychopathology (cited in Rutherford, Wallace, Laurent & Mayes, 2015). Further, individuals who are competent on emotion regulation are expected to show better adaptation skills compared to those who have emotion regulation problems (Sarıtaş, Gençöz & Özen, 2015). All of this data shows that successful emotion regulation seems crucial for parenting, while emotion regulation strategies are also thought develop based on the quality of early child-caregiver relationship (Rugancı & Gençöz, 2010). According to the studies, the caregiver's difficulties in emotion regulation and attachment may result in children having difficulties in emotion regulation (Mikulincer, Shaver & Pereg, 2003) and there is a meaningful relationship between the babies' attachment levels and emotion regulation (Bretherton & Munholland, 1999). Besides this there is a strong relationship between security of attachment and emotion regulation capacity (Waters, Virmani, Thompson, Meyer, Raikes & Jochem, 2010). Thus it's important to understand the relationship between the emotion regulation difficulties and PA as well. A research in Iran on 100 pregnant women has looked into the relationship between pregnancy anxiety, maternal-fetal attachment and cognitive emotion regulation strategies. The findings showed that there is a connection between cognitive emotion regulation strategies such as rumination and positive re-focusing catastrophizing and attachment styles. Further, emotion regulation serves as an intermediate for the relationship between attachment and anxiety as it reduces anxiety. Moving on from this point, Laurent and Powers (2007) and Long (2010) state that attachment can be considered as an emotion regulation strategy (cited in Saljoughi, Hosaini, Sharifzadeh & Soorgi, 2015). In another study the impact of generalized difficulties in emotion regulation (as a stable trait)

versus specific difficulties in emotion regulation (as pregnancy-related) in women with pre-pregnancy eating problems is examined with a sample of 15 previously overweight pregnant women. Findings showed that higher scores on the Difficulties in Emotion Regulation Scale's Impulse subscale as well as higher difficulties in handling emotional states related to pregnancy (e.g. fear of the delivery) are associated to the existence of dysfunctional eating behaviors during the 3rd trimester of pregnancy (De Campora, Guerriero, Magliano, Meldolesi, Delogu & Tambelli, 2015).

Anger as one of the primary emotion, ranging from discomfort or irritation to a fury or intense rage. According to different studies, anger has an impact on social relationships and is one of the most intense negative emotions (Guiu, Morente, Granado, Ignat & Clipa, 2016). But the effects of prenatal anger in relation with PA have received less attention in pregnancy period. Anger generally studied with other mood disorders and researchers pointed that depression, anxiety and anger feeling states are often confounded. Studies showed that as a frequent component of mood disorders, aggression regulation disturbances when turned outward, shows itself as anger attacks and this symptom has been observed in approximately 30–40% of depressed patients (cited in Field, Diego, Hernandez-Reif, Schanberg, Kuhn, Yando & Bendell, 2003). In a study that investigates the pregnancy anxiety and comorbid depression and anger effects on the fetus and neonate, 166 pregnant women in their 2nd trimester of pregnancy is considered and the results showed that high anxiety group women also had high depression and high anger scores both prenatally and postnatally (Field et al., 2003). In another study 270 pregnant women participated and the predictors of persistent smoking in pregnancy has been investigated. The results showed that maternal anger is an important predictor of smoking behavior in pregnancy in a low-income sample (Eiden, Leonard, Colder, Homish, Schuetze, Gray & Huestis, 2011).

All these findings are important in the sense that women with low attachment are identified and treated, because research shows that there is also an association between poor attachment and foetal or child abuse. For example, Pollock and Percy (1999) have found in their research on 40 women referred by social security in England that "negative preoccupied" prenatal attachment (as measured by the Maternal Antenatal Attachment Scale) is a precursor to anxiety, depression, irritation towards fetus and foetal abuse (Brandon et al., 2009). On the other hand, findings from other studies show

that underdevelopment in early attachment has a negative impact on the regulatory functions in the child's right brain and that this leads to maladaptive infant and adult mental health problems. Moreover, some researchers have found a relationship between hazardous behaviour during pregnancy (smoking, drinking, substance abuse, malnutrition, inadequate exercise etc.) and low PA and that this poses a threat to the health of the fetus (Ossa et al., 2012). Similarly, strong prenatal attachment was found to be related to positive health practices such as abstaining from smoking, alcohol or substances, wearing seatbelts, healthy eating and sleeping habits, proper exercise and acquainting oneself with pregnancy, birth and newborn care (Lindgren, 2001).

2.1 Aim of the Study

With a synthesis of current knowledge relating to the development of the mother-infant relationship starting from pregnancy, the aim of the current research was to investigate the maternal characteristics that may be predictors of the expectant mothers' attachment with their fetus in their first pregnancy. For this purpose the impact of the psychosocial, demographic, and pregnancy-related variables on prenatal attachment is studied. In terms of psychological variables, it is crucial to consider how it relates to some specific variables such as perception of support, emotion regulation, psychological disturbances, some specific emotions such as anger, and attachment style. In this study what role the maternal characteristics play in shaping the quality of maternal prenatal attachment among normative parents is assessed. These phenomena are going to be discussed from the perspective of attachment theory as well as in the light of development and implementation of early clinical intervention in transition to parenthood.

2.3 Research Questions and Hypotheses

From an examination of the literature on prenatal attachment, the attachment relationship from the expectant mothers' perspective is aimed to be understood. So the main research questions of this study are:

- Which maternal characteristics play a role on prenatal attachment?
- Is there any significant factor that would predict prenatal attachment?

The hypotheses are as the following:

1. Anxious and avoidant (insecure) adult romantic attachment style will be predictive of decreased prenatal attachment.
2. Women, who have perceived supported throughout their pregnancy from their partners, would exhibit increased prenatal attachment with their fetus than those who have not.
3. Higher scores of anxiety, depression and negative self and emotion regulation difficulties are related with decreased prenatal attachment.
4. Maternal education, socio-economic status and maternal age will be positively correlated with prenatal attachment.
5. Having a planned pregnancy and ultrasound screening will be associated with prenatal attachment.
6. Any physical disturbances (obstetric complication) that existed in the pregnancy would be related to and predictive of decreased prenatal attachment.
7. Perceived lower satisfaction about the partner's support is related with prenatal psychopathology.

4. METHOD

3.1 Participants

Subjects of the sample were 248 pregnant women who were between 18 and 41 years of age (M = 30.2 years, SD = 4.42), and in their second (13-27 weeks) or third trimester (28-42 weeks) of pregnancy (M = 31.5 weeks, SD = 5.50) for their first child. Participation to the study was on a voluntary basis and they attended the study by completing self-report measures via Internet or manually. Requirement for inclusion was that the woman had to be currently in their second or third trimester of pregnancy, expecting to be a mother for the first time, age 18 or older, and able to read and write in Turkish.

3.2 Instruments

In the process of transition to motherhood having some fundamental psychological capabilities are especially important. These capabilities help women to prepare an emotional and ideational room for the baby, to cope with the process more easily and in the postpartum process, to be more sensitive to the cues of the baby. From this point of view in order to assess these prenatal maternal characteristics and their effects on prenatal attachment, participants completed a demographic form (see Appendix I) and Turkish standardized versions of Prenatal Attachment Inventory (see Appendix II), Difficulties in Emotion Regulation Scale (see Appendix III), Experiences in Close Relationships-Revised Inventory (see Appendix IV), Brief Symptom Inventory (see Appendix V), Multidimensional Scale of Perceived Social Support (see Appendix VI), and Multidimensional Anger Scale (see Appendix VII). All the permissions are taken from the specialists who worked on the standardization of the original inventories into Turkish language. Details about the measure length, content, and reliability and validity are as follows:

3.2.1 Demographic Questionnaire

The demographic questionnaire was prepared by the researcher and used to obtain the following information: the participants' age, education, marital status, living

conditions, working status, gestational age of the fetus, whether the pregnancy was planned or unplanned, whether there was a treatment for being pregnant, whether there is any problem in the pregnancy, psychiatric/psychological history of the participant and her partner and the relationships in the family. The form consists of 42 questions.

3.2.2 Prenatal Attachment Inventory (PAI)

The Prenatal Attachment Inventory (PAI), which has been developed by Mary E. Muller (1989, 1993) is a measure of emotional attachment of the mother to her unborn child. The scale consists of 21 items that are rated according to a 4-point Likert type scale. Scores may range from 21 to 84 with higher scores indicating increased attachment quality/intensity. There isn't any reverse scored item. Cronbach's alpha values for the total scale have ranged from .85 (Muller, 1996) to .89 (Gau & Lee, 2003). A study using confirmatory factor analysis supported the unidimensional structure of the PAI (Gau & Lee, 2003). Yılmaz and Beji (2013) adapted the scale in our culture and found the internal consistency as 0.84. In the present study the prenatal attachment inventory was also found to be highly reliable (α = .87). The global attachment score will be used for analyses in the current study.

3.2.3 Difficulties in Emotion Regulation Scale (DERS)

Difficulties in Emotion Regulation Scale (DERS) was developed by Gratz and Roemer (2004). It consists 6 subgroups, namely Awareness, Clarity, Non-acceptance, Strategies, Impulse and Goals. High scores on 36 items in this scale mean high levels of difficulties in emotion regulation. The Cronbach'a alpha value was found as .93 for the total scale, and reliability values of subscales were found to range from .80 to .89 in different studies. Test-retest reliability was found to be .88. Rugancı and Gençöz (2010) adapted the scale in our culture and found same subgroups in the scale. They found the Cronbach Alpha coefficient value as .93 for the total scores and test-retest reliability as .83. In the current study the subscales' Chronbach Alpha is ranged from .74 to .87. The total scores of DERS were found to be positively correlated with anxiety, depression, negative self, hostility and somatization.

3.2.4 Experiences in Close Relationships-Revised (ECR-R)

Experiences in Close Relationships-Revised (ECR-R) was developed by Fraley, Waller and Brennan (2000) to measure adult attachment style. The ECR-R is a 7-point Likert-type scale, which has 36 items on two subscales, namely Avoidance and Anxiety. Cronbach's alphas for the 18 attachment-related avoidance and 18 attachment-related anxiety items were .87 and .85, respectively in the present study. Avoidance subscale measures how much an individual experience discomfort when he/she is in a state of closeness or/and when he/she needs and depends on others and Anxiety subscale measures how much an individual feels fearful and anxious about abandonment and/or rejection. Selçuk, Günaydın, Sümer and Uysal (2005) did the Turkish adaptation and in the factor analysis they found the same factors with a high internal consistency and test-retest reliability. Moreover, the avoidance and anxiety subscales were found to be correlated with the related variables in literature and supported the validity of the scale.

3.2.5 Brief Symptom Inventory (BSI)

The Brief Symptom Inventory (BSI) is the brief form of the Symptom Checklist–90 (SCL–90) that was adapted by L.R. Derogatis (1992). The scale consists of 53 items that are rated on a 5-point (0 to 4) likert type scale, with higher scores indicating a frequency of psychological symptoms. Şahin and Durak (1994) adapted the scale into Turkish culture. Anxiety, depression, negative self, somatization, and hostility are the 5 factors that have been emerged from the construct validity. The subscales' Chronbach Alpha is ranged from 55 to .86, and for the Global scale ranged from .96 to .95 (Şahin & Durak, 1994). In the current study reliability values of subscales were found to range from .73 to .89.

3.2.6 Multidimensional Scale of Perceived Social Support (MSPSS)

The Multidimensional Scale of Perceived Social Support (MSPSS) was developed by Zimet, Dahlem, Zimet and Farley (1988) to measure perceived social support from family, friends and significant others. It has 12-items on a 7-point Likert-type scale (1=very strongly disagree; 7=very strongly agree) and higher scores indicate higher

levels of perceived support. Eker and Arkar (1995) did the validity and reliability of its Turkish version and the internal consistency of the Turkish instrument had an alpha of 0.89. (Eker, Arkar & Yaldız, 2001). In the current study subscales also appeared to have good internal consistencies, .89, .91 and .94 respectively.

3.2.7 Multidimensional Anger Scale (MDAS)

The Multidimensional Anger Scale (MDAS) was developed by Balkaya and Şahin-Hisli (2003), is a five point Likert-type scale (1 = never and 5 = always) that has 145 items, to measure anger in many dimensions. This scale measures anger in terms of bodily symptoms, anger-related situations, anger-related cognitions, anger-related behaviours and interpersonal anger. Balkaya & Şahin-Hisli (2003) found the alpha coefficient values of the subscales between .64 and .95. In this study reliability values of subscales were found to range from .71 to .95.

3.3 Procedure

This current study is planned to examine the impact of specific maternal characteristics on prenatal attachment. In between May 2016 and September 2016 after the ethical committee confirmed this study, both with social media open announcement and with personal contact with the gynaecologists and midwifes, the data was collected. A set of self-report questionnaires as hard copy were given to pregnant women and 79 of the total questionnaires were collected manually by this way from Istanbul Zeynep Kamil Maternity and Children Hospital Pregnancy Preperation Class, Manisa Celal Bayar University Hospital and Alanya Private Physiotherapy Clinic. The rest of the data, which means 191 participants, were collected through Internet by responding online survey. Informed consent was obtained during data collection and the order of the scales was counterbalanced.

3.4 Data Screening and Statistical Analysis

Statistical analyses were performed by using the Statistical Package for the Social Sciences (SPSS) Programme version 21. In total 270 pregnant women completed the

questionnaires but after the Missing Value Analysis (MVA) is performed to clean and prepare the data for analyses, Multiple Imputation Analysis detected that there are 22 participants have the same pattern that displays most of the questionnaires were remained unanswered, so these cases are deleted from the data. After that, Little's Missing Completely at Random (MCAR) test, which is the most common test for missing cases, is performed. The test shows that these missing values considered as they are missing completely at random ($p>0,05$). Therefore, EM algorithm suggested by Little (1988) is used to predict the missing values for each quantitative variable. For the categorical cases, multiple imputation method is performed which is used linear regression method to predict the missing data in the categorical variables. After this preparation of the data the remaining analysis are conducted from 248 participants.

Afterwards, the data analysis is carried out in some steps. First before analysing the scales, the internal consistency of the scales is checked by using Cronbach alpha coefficients for each scale. The Cronbach alpha coefficient that is suggested by Cronbach (1951) can be used in Likert type scales to predict the internal consistency. More than 0,6 alpha coefficient is accepted for consistency. Also for p-value 0,05 is accepted to test the statistical significance of hypothesis outcomes.

Later the demographic data was analysed with frequencies and percentages for categorical variables and means and standard deviations (SD) were computed for quantitative variables. Then to find out the relationships between grouping variables, independent t-tests for two sample size variables and analysis of variance (ANOVA) for more than two sample size variables are applied for the normally distributed variables and for non-normally distributed variables, Mann-Whitney (M-W) U test and Kruskal-Wallis (K-W) tests are performed. Pearson or Spearman correlation test is conducted to realize if there are significant correlations between variables. And to find out the grouping variables, that are finally, a multiple regression analyses were conducted via stepwise method to examine the possible predictors of prenatal attachment. For the research purposes, the total scores of PAI were used in order to identify the overall effect.

3. RESULTS

The current study aimed to examine the association between maternal variables and prenatal attachment in the second and third trimester of pregnancy.

The results are presented in two steps: 1) descriptive analyses, and 2) the relationships between mothers' characteristics and prenatal attachment.

4.1 Descriptive Characteristics of the Sample

4.1.1 Demographic characteristics

The sample comprised 248 women, ranging in age from 18 to 41 years, with a mean age of 30.2 (SD=4.42). 70.2% of the participants have university graduate or graduate degree and 90.8% of them belong to higher-middle or middle socioeconomic status. 69.4% of the participants who volunteered for the study were attended the study via filling the online survey. The demographic makeup of the sample is shown in Table 4.1.

Table 4.1. Demographic characteristics of the sample (n = 248)

Variable	*n*	%
Participation place		
Zeynep Kamil Hospital	53	21.4
Celal Bayar University Hospital	18	7.3
Alanya Private Women HealthCenter	5	2.0
Internet survey	172	69.4
Age		
18-25 years	38	15.3
26-33 years	153	61.7
34-41 years	57	23
Employment status		
Employed	141	56.9
Nonemployed	107	43.1
Education status		
Mid-school	18	7.3
High school	28	11.3
Collage	28	11.3

University	123	49.6
Graduate	51	20.6
Socio-economical status		
High	7	2.8
High Middle	83	33.5
Middle	142	57.3
Low Middle	16	6.5
Duration of marriage		
0-1 year	10	4.0
1-3 years	99	39.9
3-5 years	62	25.0
5-10 years	59	23.8
Over 10 years	18	7.3
Marriage decision		
Love marriage	231	93.1
Arranged marriage	13	5.2
Other	4	1.6
Household members		
Husband	228	91.9
Husband and relative	9	3.6
Husband and animal	11	4.4
Longest living place		
Metropolis	180	72.6
City	39	15.7
Municipality	22	8.9
Village	7	2.8
Current living city		
İstanbul + Marmara Region	165	66.5
Ankara + Central Anatolia Region	12	4.8
İzmir + Aegean Region	40	16.1
Black Sea Region	8	3.2
Mediterranean Region	17	6.9
Abroad	6	2.4

4.1.2 Pregnancy characteristics

The gestational week of the participants ranged from 13 to 42 with a mean of 31.5 (SD=5.50). The participants are divided into two trimesters as between 13 to 27 weeks are called second trimester and 28 to 42 weeks are called third trimester. 43 (17.3%) of

the participants are in their second trimester (13-27 weeks) and 205 (82.7%) of them are in third trimester (28-42 weeks) in the study. The pregnancy characteristics are summarized in Table 4.2.

Table 4.2. Pregnancy characteristics of the sample (n = 248)

Variable	***n***	**%**
Gestation Week		
13-27 weeks	43	17.3
28-42 weeks	205	82.7
Pregnancy decision		
Planned-wanted	175	70.6
Unplanned-wanted	63	25.4
Unplanned-not wanted	10	4.0
Previous miscarriage/abortion		
Yes	67	27.0
No	181	73.0
Miscarriage/abortion number		
0	181	73.0
1	49	19.8
2	16	6.5
3	1	0.4
4	1	0.4
Gender of the baby		
Girl	114	46.0
Boy	126	50.8
Don’t know	8	3.2
Satisfaction with the gender of the baby		
Mother satisfied	244	98.4
Mother unsatisfied	4	1.6
Father satisfied	242	97.6
Father unsatisfied	6	2.4
Obstetric complication		
Yes	48	19.4
No	200	80.6

Type of the complication		
None	201	81.0
Diabetes	12	4.8
Risk of miscarriage	5	2.0
Severe nausea and vomiting	2	0.8
Preeclampsia	7	2.8
Anemia	6	2.4
Other	15	6.0
Any treatment for fertility		
Yes	28	11.3
No	220	88.7
Type of the treatment		
No treatment	225	90.7
Test-tube baby	15	6.0
Vaccination	4	1.6
Other	4	1.6

4.1.3 Psychological well-being characteristics

13.7% of the participants reported a history of psychiatric disorder, and from those who had a psychiatric disorder history, 11.2% of them had taken either a psychological counselling, psychiatric medication or both treatments. Psychological well-being characteristics of the sample are shown in Table 4.3.

Table 4.3. Psychological well-being characteristics of the sample (n = 248)

Variable	*n*	%
Previous psychiatric disorder history		
Yes	34	13.7
No	214	86.3
Type of the disorder		
None	214	86.3
Depression	16	6.5
Anxiety	12	4.8
Personality disorder	2	0.8
Anger problem	1	0.4
Other	3	1.2
Any Treatment		

Psychological counselling	13	5.2
Psychiatric medication	9	3.6
Both	6	2.4
None	7	2.8
Current psychological well being		
Very good	61	24.6
Good	137	55.2
Average	40	16.1
Bad	9	3.6
Very bad	1	0.4
Current physical well being		
Very good	43	17.3
Good	127	51.2
Average	63	25.4
Bad	13	5.2
Very bad	2	0.8
Partner's previous psychiatric disorder history		
Yes	14	5.6
No	234	94.4
Type of the disorder		
None	235	94.8
Depression	3	1.2
Anxiety	7	2.8
Anger problem	3	1.2

4.1.4 Other characteristics

Some questions about their relationships and their preparation about the birth of baby were asked to the sample. About infant care, 75.8% of the participants stated that they feel themselves competent and 78.6% of the participants had a name in their minds for their baby. Other characteristics are summarized in Table 4.4.

Table 4.4. Other characteristics of the sample (n = 248)

Variable	***n***	**%**
Feeling competent on infant care		
Yes	188	75.8
No	60	24.2
Having somebody to help at home		
Yes	136	54.8
No	112	45.2
Relationship with spouse		
Very good	131	52.8
Good	98	39.5
Average	16	6.5
Poor	3	1.2
Mother's mother alive		
Yes	241	97.2
No	7	2.8
Relationship with own mother		
Very good	147	59.3
Good	75	30.2
Average	20	8.1
Poor	3	1.2
Very poor	3	1.2
Mothers-in-law alive		
Yes	237	95.6
No	11	4.4
Relationship with mothers-in-law		
Very good	43	17.3
Good	122	49.2
Average	70	28.2
Poor	7	2.8
Very poor	6	2.4
Type of her own birth		
Vaginal	225	90.7
Caesarean	18	7.3
Epidural vaginal	2	0.8
Epidural caesarean	3	1.2
Support from the spouse		
Yes	218	87.9
No	30	12.1

Any decision on the name of the baby		
Yes	195	78.6
No	53	21.4
Any training for the preparation of birth/infant care		
Yes	102	41.1
No	146	58.9

4.2 Descriptive Statistics for the Measures of the Study

Regarding descriptive characteristics of the measures means, standard deviations, and minimum, maximum ranges were examined for the measures of the study. The measures are as follows: Multidimensional Anger Scale (MDAS), Difficulties in Emotion Regulation Scale (DERS), Prenatal Attachment Inventory (PAI), Experiences in Close Relationships-Revised Inventory (ECR-R), Brief Symptom Inventory (BSI), Multidimensional Scale of Perceived Social Support (MSPSS) and their subscales are shown in the Table 4.5.

Table 4.5. Descriptive statistics for the measures of the study

	N	Mean	SD	Min.	Max.
MDAS					
Bodily symptoms	248	29.43	6.32	11.00	56.00
Anger-related Situations	248	156.46	21.03	57.00	205.00
Anger-related Cognitions	248	57.17	14.47	30.00	130.00
Anger-related Behaviors	248	67.34	8.38	28.00	90.00
Interpersonal anger	248	126.34	24.23	54.00	209.00
MSPSS					
Family	248	23.13	4.99	4.00	28.00
Friends	248	21.86	6.61	4.00	28.00
Significant Other	248	21.86	6.61	4.00	28.00
PAI					
PAI total	248	94.07	13.53	62.00	142.00

DERS					
Non-acceptance	248	11.21	3.97	6.00	27.00
Awareness	248	21.13	3.83	9.00	30.00
Goals	248	13.75	3.86	5.00	25.00
Impulse	248	12.17	3.78	6.00	27.00
Strategies	248	16.09	5.57	8.00	37.00
Clarity	248	19.69	2.71	11.00	25.00
BSI					
Anxiety	248	10.44	6.22	.00	37.00
Depression	248	12.70	6.91	.00	38.00
Negative Self	248	8.45	5.64	.00	40.00
Somatization	248	7.96	4.05	.00	25.00
Hostility	248	6.54	3.71	.00	21.00
ECR-R					
Anxious	248	54.32	14.88	25.00	111.00
Avoidant	248	41.51	14.86	18.00	93.00

Note: MDAS=Multidimensional Anger Scale; MSPSS=Multidimensional Scale of Perceived Social Support; PAI=Prenatal Attachment Inventory; DERS= Difficulties in Emotion Regulation Scale; BSI=Brief Symptom Inventory; ECR-R: Experiences in Close Relationships-Revised.

4.3 Differences of Maternal Characteristics on Prenatal Attachment

In order to examine the possible differences of maternal characteristics on prenatal attachment, firstly test of homogeneity of variances and then two-sample independent *t*-tests for two sample sizes and Analysis of Variance (ANOVA) for more than two sample sizes in normally distributed variables were conducted. As the homogeneity of the variance assumption is violated for some variables, non-parametric analyses, Mann-Whitney (M-W) U test and Kruskal-Wallis (K-W) test were also performed. Below the differences are shown.

4.3.1 Demographic characteristics and prenatal attachment

4.3.1.1 Age of the mother and prenatal attachment

One-way between subjects ANOVA was conducted in order to investigate the differences among three levels of age group scores and prenatal attachment. There was a statistically significant difference between groups with different levels of PAI scores as determined by one-way ANOVA, [F (2, 245) = 9.551, p < 0.001] as shown in Table 4.6.

Table 4.6. Results of ANOVA for differences of age groups on prenatal attachment

Groups	N	Mean	SD	F-value	p
				9.551**	0.000
18-25 years	38	63.6842	7.64448		
26-33 years	153	59.8301	7.83614		
34-41 years	57	55.9825	10.60069		
Total	248	59.5363	8.81103		

** p < .01

The multiple comparisons test result showed that there is a significant difference between the 18-25 years and 26-33 years, 18-25 years and 34-41 years, 26-33 years and 34-41 years binary groups. This difference is due to the fact that the average PAI score of the 18-25 years age group (M=63.68, SD=7.64) is higher than 26-33 years age group (M=59.83, SD=7.84) (p< .05) and 34-41 years age group (M=55.98, SD=10.60) (p<.01) and the average score of the 26-33 years age group is higher than the 34-41 years age group (p< .01).

4.3.1.2. Education and prenatal attachment

The nonparametric Kruskal-Wallis (K-W) analysis of variance test was computed to determine if there is a significant difference in PAI scores between the different education statuses. This test was used as the assumption of equality of group variances was violated. The results indicated that there were no significant differences among the five groups of education on total number of PAI, [χ^2 (4) = 5.004, p = 0.287]

as shown in Table 4.7. Because the overall test results were not significant, pairwise comparisons among the five education groups were not completed.

Table 4.7. Results of Kruskal-Wallis test for differences of education status on prenatal attachment

Groups	N	df	Mean Rank	χ^2	p
				5.004	.287
Mid-school	18	4	138.00		
High-school	28	4	138.96		
Collage	28	4	128.48		
University	123	4	125.65		
Graduate	51	4	106.83		
Total	248				

4.3.1.3. Employment and prenatal attachment

An independent-samples t-test was conducted to compare two groups of the employment status according to the total PAI score. The results show that, there isn't a statistically significant difference exists between employed (M=59.1, SD=8.42) and nonemployed (M=60.11, SD=9.31) group according to the total PAI score; [*t* (246)= -.896, p = 0.371] as shown in Table 4.8.

Table 4.8. Results of *t*-test for differences of employment status on prenatal attachment

Groups	N	Mean	SD	t- value	p
				-.896	.371
Employed	141	59.0993	8.41623		
Nonemployed	107	60.1121	9.31455		
Total	248				

4.3.1.4. Socio-economic status and prenatal attachment

Kruskal-Wallis (K-W) analysis of variance test was conducted to examine the differences on PA according to socioeconomic statuses. This test was used as the assumption of equality of group variances was violated. The results indicated that there were no significant differences among the four groups of socio-economic status on total number of PAI, [χ^2 (3) = .240, p = 0.971] as shown in Table 4.9. Because the overall test results were not significant, pairwise comparisons among the four socioeconomic groups were not completed.

Table 4.9 Results of Kruskal-Wallis test for differences of socio-economic status on prenatal attachment

Groups	N	df	Mean Rank	χ^2	p
				.240	.971
High	7	3	125,57		
High Middle	83	3	126,78		
Middle	142	3	123,88		
Low Middle	16	3	117,72		
Total	248				

4.3.2. Pregnancy characteristics and prenatal attachment

4.3.2.1. Gestation week and prenatal attachment

Mann Whitney-U test was performed to examine the differences on PA according to gestation weeks. This test was used because the groups were not normally distributed. Table 4.10 shows the analysis of M-W U test and indicated a significant difference in the mean ranks of 13-27 weeks of gestation (90.36) and 28-42 weeks of gestation (131.66) on prenatal attachment scores; U = 2939.50, p = 0.001. According to the test, this difference is due to the high PAI score of the 28-42 weeks-old pregnant women.

Table 4.10. Results of Mann Whitney-U test for differences of the gestation weeks on prenatal attachment

Groups	N	Mean Rank	Sum of Ranks	U	z	p
				2939.50	-3.438**	.001
13-27 weeks	43	90.36	3885.50			
28-42 weeks	205	131.66	26990.50			
Total	248					

*p < .05, ** p < .01

4.3.2.2. Receiving fertility treatment and prenatal attachment

Mann Whitney-U test was performed to examine the differences on PA according to receive fertility treatment. This test was used because the groups were not normally distributed. Table 4.11 shows the analysis of M-W U test and indicated a significant difference in the mean ranks of the pregnant women who receive fertility treatment (159.05) and who have a natural conception (120.10) on prenatal attachment scores; U =2112.50, p = 0.007. According to the test, this difference is due to the high PAI score of the fertility treatment received pregnant women.

Table 4.11. Results of Mann Whitney-U test for differences of receiving fertility treatment and natural conception on prenatal attachment

Groups	n	Mean Rank	Sum of Ranks	U	z	*p*
				2112.50	-2.711**	.007
No	220	120.10	26422.50			
Yes	28	159.05	4453.50			
Total	248					

*p < .05, ** p < .01

4.3.2.3. Gender of the baby and prenatal attachment

After excluding eight participants who don't know the gender of their baby, an independent-samples t-test was conducted to compare two groups of gender of the baby, according to the total PAI score. The results show that, there is a statistically significant difference exists between participants' expecting a male baby (M=61.13, SD=8.68) and a female baby (M=57.91, SD=8.87) group; [*t* (238)=. 809, p = 0.005] as shown in Table 4.12. This shows that women who are expecting a male baby have higher PAI scores than women expecting a female baby.

Table 4.12. Results of *t*-test for differences of gender of the baby on prenatal attachment

Groups	N	Mean	SD	t- value	p
				-2.842**	.005
Girl	114	57.9123	8.86732		
Boy	126	61.1349	8.68410		
Total	248				

*p < .05, ** p < .01

4.3.2.4. Feeling competent for infant care and prenatal attachment

An independent-samples t-test was conducted to compare two groups of competency feeling on infant care, according to the total PAI score. The results show that, there is a statistically significant difference exists between two groups of the women who feel competent on infant care (M=60.28, SD=8.94) and who do not (M=57.20, SD=8.40) group; [*t* (246)=. 209, p = 0.018] as shown in Table 4.13. According to the test, this difference is due to the high PAI score of the women who feel competent on infant care.

Table 4.13. Results of *t*-test for differences of competency feeling for infant care on prenatal attachment

Groups	n	Mean	St. Dev.	t- value	p
				2.381*	0.018
Yes	188	60.2819	8.93532		
No	60	57.2000	8.3973		
Total	248				

*p < .05

4.3.2.5. Deciding a name for the baby and prenatal attachment

An independent-samples t-test was conducted to compare two groups of having a name decision for the baby, according to the total PAI score. The results show that, there is a statistically significant difference exists between two groups of the women who have a decision (M=60.28, SD=8.89) and who do not (M=56.79, SD=8.00) group; [*t* (246)=. 233, p = 0.010] as shown in Table 4.14. According to the test, this difference is due to the high PAI score of the women who have decided a name for the baby.

Table 4.14. Results of *t*-test for differences of deciding a name for the baby on prenatal attachment

Groups	n	Mean	St. Dev.	t- value	p
				2.586*	0.010
Yes	195	60.2821	8.89210		
No	53	56.7925	8.00086		
Total	248				

*p < .05

4.3.2.6. Previous miscarriage/abortion history and prenatal attachment

An independent-samples t-test was conducted to compare two groups of previous miscarriage/abortion history, according to the total PAI score. The results show that, there isn't a statistically significant difference exists between two groups of the women who have a miscarriage/abortion history (M=59.48, SD=8.76) and who do not (M=59.70, SD=9.02) group; [*t* (246)=. 310, p = 0.858] as shown in Table 4.15.

Table 4.15. Results of *t*-test for differences of having and not having a previous miscarriage/abortion history on prenatal attachment

Groups	n	Mean	St. Dev.	t- value	p
				-.179	0.858
No	181	59.4751	8.75695		
Yes	67	59.7015	9.02020		
Total	248				

4.3.2.7. Obstetric complication and prenatal attachment

Mann Whitney-U test was performed to examine the differences on PA according to obstetric complications. This test was used because the groups were not normally distributed. Table 4.16 shows the analysis of M-W U test and indicated that there isn't a significant difference in the mean ranks of the pregnant women who have obstetric complication (126.67) and who don't have (123.98) on prenatal attachment scores; U =4696.00, p = 0.815.

Table 4.16. Results of Mann Whitney-U test for differences of having and not having any obstetric complication on prenatal attachment

Groups	n	Mean Rank	Sum of Ranks	U	z	*p*
				4696.00	-.233	.815
Yes	48	126.67	6080.00			

No	200	123.98	24796.00
Total	248		

4.3.3 Psychosocial Characteristics and prenatal attachment

4.3.3.1. Previous psychiatric disorder history and prenatal attachment

Mann Whitney-U test was performed to examine the differences on PA according to previous psychiatric disorder history. This test was used because the groups were not normally distributed. Table 4.17 shows the analysis of M-W U test and indicated a significant difference in the mean ranks of the pregnant women who have a previous psychiatric disorder history (92.19) and who don't have (129.63) on prenatal attachment scores; U =2539.50, p = 0.005. According to the test, this difference is due to the high PAI score of the pregnant women who don't have a psychiatric disorder history.

Table 4.17. Results of Mann Whitney-U test for differences of having and not having a previous psychiatric disorder history on prenatal attachment

Prev. Psy. Disorder	N	Mean Rank	Sum of Ranks	U	z	*p*
				2539.50	-2.832**	.005
No	214	129.63	27741.50			
Yes	34	92.19	3134.50			
Total	248					

**p < .01

4.4 Correlational Analysis of the Study Variables

Correlational analyses were conducted in order to explore the associations between research variables. Since the studies highlighted the importance of prenatal attachment the research in the 3rd trimester of pregnancy, analyses were conducted only on 28-42 gestation weeks group, including 205 participants. The correlational matrix was analysed and the statistically significant ($p<0.05$ and $p<0.01$) correlations between total PAI and other variables' scores are shown in Table 4.18.

According to the results of correlational analysis, PAI scores revealed significant negative correlations with the age of the expectant mother ($r = -.34$, $p < .01$). This means that PAI scores increase while the age is decreasing. PAI scores were also found to be negatively correlated with the total score and subscales of ECR-R ($r = -.37$, $p < .01$); anxious adult attachment ($r = -.26$, $p <. 01$), avoidant adult attachment ($r = -.31$, $p <. 01$). In other words, subjects who had more insecure romantic adult attachment style had lower levels of prenatal attachment with their fetus as well. This result supported the assumption that our attachment relationship shows continuity and similarity through life.

Furthermore PAI scores were revealed significant positive correlations with the total score and subscales of MSPSS ($r = .24$, $p < .01$ perceived support from family ($r = .25$, $p < .01$), perceived support from friends ($r = .24$, $p < .01$), perceived support from significant other ($r = .22$, $p < .01$). In other words, subjects who felt highly supported by people in their inner circle had higher levels of prenatal attachment to their fetus. Similarly, PAI scores had significant low positive correlations with DERS awareness ($r = .19$, $p <.01$) and DERS goals ($r = .16$, $p <.05$) subscale.

On the other hand results showed that there is a statistically significant ($p<0.05$ and $p<0.01$) correlations among study variables total scores. According to correlational analysis, all the four study variables (ECR-R total, DERS total, MDAS total, BSI total) have positive correlations between eachother and negavite correlations with MSPSS total scores as shown in Table 4.18. This shows that emotion regulation difficulty, level of anger, psychopathology, and attachment insecurity increases together and the increased levels of these scales are related with perceived lower satisfaction about the social support.

Table 4.18. Intercorrelations between PAI and ECR-R, DERS, MDAS, BSI, MSPSS

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1.	PAI Total	1																		
2.	Age	-,34**	1																	
3.	ECR-R Total	-,37**	,03	1																
4.	ECR-Ravoidance	-,31**	,03	,83**	1															
5.	ECR-Ranxiety	-,26**	-,02	,75**	,36**	1														
6.	DERS Total	,13	-,05	,15*	,03	,32**	1													
7.	DERSclarity	,07	,01	-,29**	-,23**	-,21**	-,03	1												
8.	DERSawareness	,19**	,06	-,25**	-,21**	-,14*	,23**	,54**	1											
9.	DERSimpulse	,05	-,05	,11	,02	,22**	,70**	-,30**	-,12	1										
10.	DERSnonacceptan	,00	-,02	,23**	,17*	,27**	,59**	-,29**	-,17*	,38**	1									
11.	DERSgoal	,16*	-,09	,15*	,03	,30**	,75**	-,27**	-,02	,58**	,31**	1								
12.	DERSstrategies	-,02	-,08	,38**	,22**	,47**	,76**	-,38**	-,20**	,59**	,54**	,60**	1							
13.	MDAS Total	,08	-.02	,22**	,02	,41**	,45**	-,14*	,02	,32**	,36**	,33**	,47**	1						
14.	MDASbod.sym	,03	-,04	,12	,02	,23**	,31**	-,06	,03	,31**	,19**	,26**	,25**	,41**	1					
15.	MDASsituations	,14	-,10	,03	-,11	,25**	,36**	-,04	,08	,21**	,32**	,22**	,35**	,71**	,18*	1				
16.	MDAScognitions	,01	-,04	,33**	,17*	,46**	,39**	-,21**	-,08	,32**	,36**	,30**	,44**	,68**	,50**	,35**	1			
17.	MDASbehaviour	,03	,22**	,11	-,02	,20**	,18*	-,03	,08	,06	,16*	,16*	,18**	,59**	,13	,30**	,37**	1		
18.	MDASinterperson	,09	,01	,22**	,04	,36**	,43**	-,09	,02	,27**	,35**	,30**	,43**	,87**	,27**	,53**	,52**	,54**	1	
19.	BSI Total	,00	,05	,41**	,28**	,51**	,40**	-,24**	-,07	,31**	,37**	,37**	,46**	,56**	,32**	,40**	,55**	,34**	,49**	1

20.	BSIanxiety	-,07	,07	,37**	,23**	,48**	,39**	-,21**	-,02	,27**	,33**	,32**	,46**	,50**	,29**	,32**	,55**	,30**	,43**	,90**	1													
21.	BSIdepression	-,05	,05	,45**	,30**	,52**	,33**	-,27**	-,11	,25**	,32**	,34**	,43**	,49**	,21**	,35**	,49**	,36**	,47**	,90**	,79**	1											
22.	BSIneg.self	-,02	,06	,40**	,29**	,49**	,35**	-,25**	-,14*	,29**	,41**	,30**	,41**	,55**	,25**	,36**	,59**	,30**	,52**	,85**	,75**	,77**	1										
23.	BSIsomatization	,02	,08	,27**	,19**	,34**	,31**	-,11	,04	,20**	,23**	,32**	,29**	,44**	,34**	,32**	,40**	,27**	,36**	,78**	,75**	,64**	,55**	1									
24.	BSIhostility	,07	-,05	,33**	,17*	,49**	,34**	-,16*	-,14	,35**	,28**	,27**	,42**	,56**	,26**	,36**	,52**	,24**	,52**	,74**	,60**	,64**	,70**	,44**	1								
25.	MSPSS Total	,24**	-,00	-,45**	-,35**	-,40**	-,20**	,19**	,19**	-,17*	-,19**	-,23**	-,28**	-,19**	-,14*	-,05	-,35**	-,12	-,15*	-,36**	-,29**	-,37**	-,37**	-,22**	-,37**	1							
26.	MSPSSfamily	,25**	-,07	-,39**	-,42**	-,30**	-,22**	,13	,13	-,12	-,23**	-,16*	-,30**	-,05	-,10	,02	-,31**	,01	-,05	-,29**	-,32**	-,26**	-,34**	-,22**	-,26**	,71**	1						
27.	MSPSSfriends	,24**	-,03	-,35**	-,27**	-,29**	-,20**	,11	,14*	-,12	-,20**	-,16*	-,24**	-,13	-,10	-,05	-,26**	-,05	-,11	-,23**	-,20**	-,22**	-,24**	-,21**	-,20**	,78**	,50**	1					
28.	MSPSSsig.other	,22**	-,00	-,38**	-,27**	-,34**	-,14*	,18**	,17*	-,18**	-,15*	-,18**	-,18**	-,15*	-,10	,00	-,29**	-,10	-,10	-,29**	-,23**	-,31**	-,29**	-,14*	-,29**	,88**	,56**	,63**	1				

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Note: **PAI:** Prenatal Attachment Inventory**, MSPPS:** Multidimensional Scale of Perceived Social Support, **ECR-R:** Experiences in Close Relationships-Revised, **DERS:** Difficulties in Emotion Regulation Strategies, **MDAS:** Multidimensional Anger Scale

4.5. Regression Analyses: Predictors of Prenatal Attachment

Multiple regression analyses were conducted via stepwise method to examine the possible predictors of prenatal attachment. The stepwise regression method is used a statistical criterion to choose which independent variable will enter the model. The criterion based on choosing the highest correlation coefficients between dependent and independent variables. For the research purposes, the total scores of PAI, DERS, ECR-R, MSPSS, MDAS and BSI were used in order to identify the overall effect. And only the participants in their 3rd trimester of pregnancy (btw. 28-42 weeks) (N=205) were included as it is suggested the most appropriate time to measure PA by the literature. The results for means and standard deviations of the predictor variables are reported in Table 4.19 and for multiple regression analysis in Table 4.20.

Table 4.19. Means and standard deviations of predictors of PAI

Variable	N	M	SD
Age of the mother	205	30.02	4.34
ECR-R Total	205	94.38	24.00
MDAS Total	205	432.59	53.63

Note: **ECR-R:** Experiences in Close Relationships-Revised, **MDAS:** Multidimensional Anger Scale

Table 4.20 Results of Multiple regression analysis for the predictors of PAI

Variable	B	SE	β	t
(Constant)	75.83	5.75		13.20
ECR-R Total	- 0.14	0.02	- 0.39	- 6.19**
Age of the Mother	- 0.65	0.12	- 0.32	- 5.27**
MDAS Total	0.04	0.01	0.24	3.93**

**p < .001

Note. R=. 52, R^2=. 27, ΔR2=. 26, **ECR-R:** Experiences in Close Relationships-Revised, **MDAS:** Multidimensional Anger Scale

Multiple regression analyses was performed with prenatal attachment total score as the dependent variable, age of the mother and the total scores of DERS, ECR-R, MSPSS, MDAS, BSI as independent variables. The regression model was significant for age, ECR-R total and MDAS total scores ($F [3, 201] = 25.27$, $p < .001$), and accounted for 27 % of the variance in prenatal attachment ($R^2 = .27$, $\Delta R2 = .26$). Insecure romantic attachment style ($\beta = -0.39$, $p < .001$), younger age ($\beta = -0.32$, $p < .001$), and multidimensional anger ($\beta = 0.24$, $p < .001$) predicted higher levels of prenatal attachment.

5. DISCUSSION

This study examined the roles of maternal characteristics on prenatal attachment. Especially women in their third trimester of pregnancy were the focus of the study. The first chapter of the present thesis introduced the information about the study and second chapter the literature related with the construct "prenatal attachment" whereas the third chapter included the information about the method of the main study. In the fourth chapter, detailed information about the sample and the results of the analyses were presented. The results of the study will be discussed in the light of previous research, and limitations of the study, implications for future research and clinical applications will be provided.

5.1 The Effects of Demographic, Pregnancy-Related and Psychosocial Variables on Prenatal Attachment

This current study's aim was to contribute to the existing body of literature on prenatal attachment. Thus, the relationship between prenatal attachment and certain demographic, pregnancy-related and psychosocial variables, which are thought to affect prenatal attachment, was analyzed. The findings may be summarized as below:

It was found that there was not a significant relationship between prenatal attachment and factors like education, occupation, employment status, socioeconomical status, marital status, duration of marriage, habitual place, previous stories of miscarriage/abortion, planned or non-planned status of pregnancy, obstetric complications, satisfaction with the gender of the baby, the relationship levels of pregnant women with their spouses/mothers/mothers-in-law, the way they were born or their education status for preparing for birth and the following period in this study.

However, a significant relationship was found between prenatal attachment levels and factors of age, gestation week, the baby's gender, receiving fertility treatment, deciding on the baby's name, previous psychiatric disorder history and feeling competent for infant care.

Analysis of the study's primary variables and PAI scores shows that, while there is no significant relationship between psychological symptoms and emotion dysregulation total scores, a significant one can be found between perceived social

support, romantic relationship attachment style, multidimensional anger and lack of awareness in emotional regulation and difficulty engaging in goal-directed cognition and behavior when distressed.

It can be seen that there are many factors that may affect pregnancy and the literature lacks a total consistency on the effects of these factors. Some researchers explain this with the nature of variables while others connect it to methodological reasons and sometimes the need for more comprehensive research specific to accesible samples. The next section includes the evaluation of the study's results in light of the literature.

5.1.1 Age, education and socioeconomic status of the mother and the effects on prenatal attachment

In order to meet the aims of the main study, the differences were tested in terms of demographic information. In our study considering the total prenatal attachment scores, the only difference in terms of demographic factors, has been found between groups depending on age. This difference is due to the fact that the average score of the "18-25 age group" is higher than the others and the average score of the "26-33 age group" is higher than the "34-41 age group". This means that when the age increases, PAI scores decreases. Moreover younger age is an important variable to predict higher PA.

While it was found that the younger (between 18-25) participants have a stronger attachment to their babies compared to older participants, which is generally supported in the literature (Muller, 1990; Lindgren, 2001; Hjelmstedt et al., 2006; McFarland et al., 2011; Rubertsson et al., 2015), there are also other works which state that there is no significant relationship between age and PA (Abasi et al., 2012; Damato, 2004; Lerum & LoBiondo-Wood, 1989). Lindgren (2001) has stated, similar to our study, that pregnant women in younger age groups have higher PA levels than older ones; while Rubertsson et al. (2014) have found that pregnant women over 25 show lower attachment levels. The study by Ustunsoz, Guvenc, Akyuz and Oflaz (2010), has also reached the conclusion that PA and age are inversely proportional. However, the subject of the relationship between age and PA needs more study as there are studies which have found no significant correlation between the mother's age and PA (Abasi et al.,

2012; Damato, 2004; Lerum & LoBiondo-Wood, 1989; cited in Olivier, 2016) as well as studies that have found a weaker correlation (r = .16–.17) (Yarcheski et al., 2009).

The studies show that two age groups contain risk in terms of age-related complications for both the mother's and the fetus' health: groups below 19 and over 35. Though these risks can certainly be minimized with technological advancements, education and constant prenatal care; age is a significant variable that must be taken into account when it comes to pregnancy. Studies in the US show that teen pregnancy numbers are on the decrease, while pregnancy numbers over 35 years of age are increasing (cited in Mattson & Smith, 2016).

The negative correlation between age and PA is thought to be connected to several reasons: the studies generally include participants from average age groups – meaning that there are less participants from younger and older groups (Lerum & LoBiondo-Wood, 1989), moreover, women over 35 have fears towards attachment due to the pregnancy-related risks (Laxton-Kane & Slade, 2002), and also, women of this age group generally have higher education levels generally since they have high psychological investment in their career and therefore are under more responsibilities and stress. This is because those women with advanced careers struggle with the dilemma of balancing their careers and children when transitioning to the role of motherhood (cited in Mattson & Smith, 2016). Certain established personal and environmental factors in advanced maternal age (which is over 35 according to the general majority of the studies) may have negative effects on PA. Though when we take into account urban life, it may be connected to a higher level of desire to have children in a younger age and being more ready for childbirth (Dereli-Yılmaz & Kızılkaya-Beji, 2010). Moreover, since our study only includes women who are pregnant for their first children, more eager older women with multiple children might be excluded. Also, those who experience motherhood for the first time in an advanced age may have made this decision because they think they must have a child due to their advanced age, rather than the actual desire to have a child. Cannella (2005) also states that since younger motherhood and first-time motherhood occur simultaneously in many cases, it is not easy to methodologically determine which has the stronger effect. It can be said that the effect of younger age is independent from the number of children in the scope of our study, since it only includes first-time mothers. This finding can be explained through

the importance of motherhood in the identity formation of women who married and became pregnant at a younger age that what is deemed appropriate by cultural expectations. Naturally, though, a more detailed research on PA and the relationship between first-time motherhood and maternal age is needed to generalize this data.

No demographic variable other than age could be found significant in the study. Our expectation was to find maternal education and socio-economic status to affect PA, but this expectation was not confirmed. This result is thought to be connected to the fact that the participants carried similar characteristics; because most of the participants were well-educated (81.5% college or higher education level), and of high socio-economical status (93.6% middle or higher income). These similar characteristics and especially the high number of subjects participating to the study online or during pregnancy courses make one think that the study could reach informed individuals who were highly interested in pregnancy-related issues, but could not reach ones from lower socio-economic backgrounds and thus, was unable to achieve a significant distribution. The literature contains studies that support these findings. Zachariak (1994) also couldn't find a significant relationship between economic status and attachment scores. However, it was thought in the same study that lower SES was a risk factor due to the many stress factors that come with it. Another study in Turkey conducted with 342 pregnant women has similarly found that economic factors have no effect on PA (Dereli-Yılmaz & Kızılkaya-Beji, 2010). On the other hand, there are also studies which state that higher SES brings better conditions and support, leading to a high-level PA (Alhusen, 2008; cited in Doan & Zimerman, 2008). Similarly, no consistent correlation between the mother's educational level and PA was reported in the literature. Some state that there is no correlation (Dereli-Yılmaz & Kızılkaya-Beji, 2010; Ossa et al., 2012; Kuo et al., 2013), while others have found an increasing attachment in accordance with educational level (Chen et al., 2011) or vice-versa (Dubber et al., 2015; Lindgren, 2001; Rubertsson et al., 2015). Because of this, the relationship between educational levels, SES, PA needs better understanding. The reason for the effects of these variables to be inapparent in our research may be that the sample wasn't distributied homogenously or that people with similar characteristics have participated in the study.

5.1.2 Gestation week, gender of the fetus, fertility treatment, feeling competent for infant care and deciding a name for baby and the effects on prenatal attachment

Literature highlights that prenatal attachment is likely to be contextual (Doan & Zimerman, 2003). Therefore, analysing the personal experiences, which are specific to pregnancy gains importance. In this regard, variables specific to pregnancy were evaluated and significant results for most of them were found in our study.

For example, gestation week, which is considered in the literature to be the most consistent variable in its relationship with PA, was also supported in our study. According to this, PAI scores of pregnant women who were in the 28th to 42nd weeks of their pregnancy were found to be higher than of those who were in the 13th to 27th weeks. This means that PA increases with each passing week of pregnancy. Studies in the literature state that PA increases over the course of pregnancy and reaches its highest level during the 3rd trimester (Alhusen, 2008; Brandon et al., 2009; Mehran, Simbar, Shams, Ramezani-Tehrani & Nasiri, 2013; Rowe, Wynter, Steele, Fisher & Quinlivan, 2013; Sandbrook, 2009; Sandbrook & Adamson-Macedo, 2004; Yarcheski et al., 2009). Moreover, PA is seen progressive in nature (Sandbrook and Adamson-Macedo, 2004). This may be explained with increased preoccupation with the pregnancy over the course of its progress, more apparent fetal movements which makes the mother feel that the baby is an separate individual (Kesebir, Kavzoğlu & Üstündağ, 2001) and the effects of ultrasound images (Alhusen, 2008; Lumley, 1982; Yarcheski et al., 2009). Oxytocin levels which increase starting from the 12th-13th weeks of the pregnancy are also thought to have effect on this condition (cited in Ross-Davie et al., 2014). Thus, focusing the studies on the final trimester and determining women who still have low attachment are considered important for averting future problems in mother-infant relationship (Yarcheski et al., 2009). This study's results also show coherence with the theoretical framework and the previous studies. According to the results, women who are in the third trimester of their pregnancy exhibit higher prenatal attachment compared to those in the second trimester.

The gender of the fetus becoming evident during the prenatal period is seen as a factor which increases PA by itself (Alhusen, 2008; Ossa et al., 2012). Whether the baby is male or female and its gender is the one desired by the parents are effective on the PA are subjects of interest in the literature. Our study has found higher fetal

attachment levels in pregnant women who expect male babies. It is still commonly seen to desire a male baby in the rural areas of Turkey, and our study has found that this traditional perspective has not changed in the urban life as well. Although some studies state that having a healthy child rather than one of a specific gender has become the prominent preference in our country during the recent years (Öztürk, Kavlak & Sevil, 2012), having a male child is still seen as a factor which empowers the status of the woman in many regions of Turkey (Ökten, 2009). Other studies in different countries also show that the gender of the fetus is a culturally significant variable and male is the gender of preference in both developed and developing countries (Hesketh, Lu & Xing, 2011). Moreover, it was found that the gender being the one preferred by the husband is a factor that affects the woman's feelings on the baby's gender and her beliefs on the support her husband will give (Sandbrook & Adamson-Macedo, 2004).

Another variable of which we have seen the effect on pregnancy was fertility treatment. According to this, there is a significant difference between women who have received fertility treatment and those who have not, and the attachment of those who have received treatment is higher. There is a variety of data in the literature on this subject. For example, Hjelmstedt, Widstrom and Collins (2006) could not find a meaningful difference between the two groups in their research about the effects of whether the pregnancy is natural or through medical means on PA. But some other researchers found as in our study, that mothers conceiving through assisted reproductive technology (ART) have higher PA with the fetus than mothers conceiving spontaneously in a study in Australia (McMahon, Boivin, Gibson, Hammarberg, Wynter, Saunders & Fisher, 2011). The higher attachment of those who have received treatment can be explained with the "precious baby" view. This means that since the pregnancy is the result of many years and much effort, the higher preoccupation and sensitivity on the baby may be affecting the mother's attachment positively (McMahon et al., 2011).

Individuals who feel competent for infant care were also seen to have higher attachment scores. This variable can be taken into account in connection with the concept of self-esteem. There are studies in the literature, which state that, positive self-esteem is connected to high PA (Abasi et al., 2012). However, a meta-analysis research including 72 studies has looked into the relationship between self-esteem and PA in 10

studies, and it was seen that there is a correlation of low significance between the two (Yarcheski et al., 2009). Another study has found that low self-esteem is a risk factor in terms of depression during pregnancy (Leigh & Milgrom, 2008). In addition, the pregnant woman's mental representation of competency as a mother develops as a result of the relationship with her own mother. Thus, women with insecure attachment to their mothers may be considered to feel less competent (Brandon et al., 2009). But in our study the results show that, there isn't any statistically significant difference exists between two groups of feeling competent on infant care according to the total ECR score ($p > 0.05$). This means that feeling competent on infant care doesn't have any relation with secure attachment. But in our study, "feeling competent" was measured through self-evaluation with one question. It is important to conduct more detailed research on this to have even more robust findings.

Our study has also found higher PA scores in parents who have decided on their baby's name. Taking into account the "I imagine myself calling my baby with its name" item in the PAI scale makes one think that naming a baby is related to seeing it as an separate individual, communicating with it more often (sometimes with a pet name) and creating a clearer internalized image; all of which are seen as important constituents of a strong prenatal attachment (Brandon et al., 2009; Lumley, 1982; Muller, 1993).

Our expectation was to find planned pregnancies and ultrasound screening to affect PA, but this expectation was not confirmed. This result may be connected to the fact that the participants carried similar characteristics; because most of the participants have planned (70.6%) or unplanned but desired pregnancy (25.4%) and all of them stated that they used ultrasound screening. Many studies in the literature have found planned pregnancies to be related to PA contrary to our study (Abasi et al., 2012; Janbakhishov, 2013; Lerum & LoBiondo-Wood, 1989; Laxton-Kane and Slade, 2002). Planning the pregnancy and thereby having it during the desired time are considered to be important for pregnancy-readiness and a healthy pregnancy process (Dereli-Yılmaz & Kızılkaya-Beji, 2010), though this does not mean that PA cannot develop during unplanned pregnancies (Laxton-Kane & Slade, 2002).

5.1.3 Perceived social support, romantic attachment style, anger and prenatal attachment

As its known that the earliest relationship established in the life does not start with the birth. The pregnant woman's attributions to her unborn baby often start with the mental representations she creates and her feelings, which include prenatal attachment, increase over the course of pregnancy. Though there is a large body of literature on factors specific to pregnancy, which affect this connection process (ultrasound screening, fetal movements, etc.), less is known about the psychological functionality variables, which affect the fetus specific to the mother (DiPietro, 2010). Thereby, contributing to what we know on the subject by the determination of which psychosocial variables can be connected to prenatal attachment through certain scales and self-report methods, which are standardised and proven to be valid and reliable became one of the aims of this study.

According to the results of our research, perceived social support is positively correlated with PA. This means that a positive perception toward the existence of social support, especially from the family or the significant other, can be seen a factor which increases PA. Social support positively affects the woman during both pregnancy and the postpartum period in adapting to motherhood. Being supported physically and psychologically during pregnancy ensures a softer adaptation process for motherhood and taking care of the baby. The lack of social support, on the other hand, has an equally strong negative effect (Rubertsson et al., 2015; Şolt, 2011). Another finding of the study associated with this is the connection between the decreasing perceived support from the family or the significant other and increased anxiety and depression scores. Studies in the literature on this subject emphasize that social support is a protective variable in terms of the occurrence and the progression of physical and mental disorders and the development of prenatal attachment (Abasi et al., 2012; Bloom, 1998; Maas et al., 2014; Yarcheski et al., 2009). While certain studies state that support received from the spouse is significantly effective on PA (Cannella, 2005; Condon & Corkindale, 1997; Janbakhishov, 2013; Maas et al., 2014), Yarcheski et al. (2009) indicate that the important thing is the pregnant woman's perception of this social support. In other words, the pregnant woman's positive perception of the social support affects PA, even though it does not correspond to the actual support she

receives. The existence of social support is a coherent variable, which positively affects the pregnancy and the adaptation to motherhood (Maron, Holt & Martin, 1997; Ustunsoz et al., 2010; Yarcheski et al., 2009). Bouchard (2011) argues that mothers-to-be who do not have a strong attachment to their own parents derive more from their partners' support.

Adult Attachment theory's internal working models state that attachments in the early relationships play the role of prototype for the later relationships in life. Therefore adult attachment theorists have demonstrated that romantic relationships in adulthood have several parallels to the infant-caregiver bond and serve the same function (Nielsen, Lønfeldt, Wolitzky-Taylor, Hageman, Vangkilde & Daniel, 2017). Thus the present study also observes the effect of romantic attachment style to the PA, which is another psychosocial variable, in order to see this early relationship and to analyze the attachment relationship of the pregnant women with her partner, which she needs the most support from. The results showed that there is an inverse correlation between the two; meaning that when insecure romantic attachment scores increase, PA decreases moreover romantic attachment style is an important predictor variable of PA. This also verifies the hypothesis that our attachment relationships show similarities and continuity through life. It is also stated in the literature that the pregnant woman's own attachment style highly affects her attachment to the fetus during the pregnancy and the baby after the birth (Alhusen et al., 2013; Brandon et al., 2009; Maas et al., 2014; Siddiqui, Hagglöf & Eisemann, 2000). In a longitudinal study, the relationship between PA during pregnancy and infant and toddler outcomes and the role of mothers' attachment style on early childhood developmental outcomes in an economically disadvantaged sample of women (n=166) and their children was examined and it was found that high PA scores correlated with secure attachment style and low PA scores correlated with especially avoidant attachment style (Alhusen, Hayat & Gross, 2013). In our study, insecure attachment style and particularly avoidant attachment style also points out to a negative correlation. In relation to this subject, there is a discussion in the literature if PA is an "attachment" or a "relationship" (Van den Bergh & Simons, 2009) or a foundation of a "caregiving system" (Walsh, 2010) (cited in Alhusen et al., 2013). Because of this when we try to explain the correlation between PA and maternal attachment style, it will be helpful to think of prenatal attachment as a component of the broader concept of "attachment" Because the avoidant attachment style is found to be

threatening to close relationships, and therefore complicates the communication of prenatal attachment with the unborn baby and the behavioral expressions of protecting the baby, it is likely correlated with lower levels of PA (cited in Alhusen et al., 2013). Maas et al. (2014) also found that pregnant women with an insecure attachment style were more introverted, and have problems to behave warmth and with positive feelings towards their unborn babies.

Pregnancy is a period where many mental states can be experienced at the same time. It can be said within the scope of previous research that these emotional fluctuations are sometimes seen in the form of depression and anxiety symptoms and that depression and anxiety affect PA negatively (Abasi et al., 2012; Alhusen et al., 2013, Brandon et al., 2009). Particularly, individuals with a history of depression have higher risk for experiencing depression during their pregnancy as well (cited in Lindgren, 2001). The woman's psychological health also affects the quality of her relationship with the fetus. For instance, studies show that higher depression scores lead to weaker attachment (Dereli-Yılmaz & Kızılkaya-Beji, 2010; Janbakhishov, 2013; Ossa et al., 2011). In present study, no significant increase was observed in any sub-step of the BSI scores of the participants who constitute the sample group. Pregnant women participating in our study had a psychologically healthy pregnancy period in general, and no significant difference in terms of their prenatal attachment scores was found. However, they were asked about their previous psychiatric disorder history in the demographic information form and it was found that the participants with no psychiatric disorder history have higher PA scores. Thus, it wouldn't be a surprise to think that there is a correlation between mental health and PA, because mental health helps the expectant mother to care for her unborn baby, communicate with it more often, watch over her own health (eating healthy, exercising, abstaining from alcohol, smoking or substances etc.) and prepare an emotional and ideational room for the baby. Many studies have emphasized that the mother's psychological health is an important factor for strong PA (Abasi et al., 2012; Alhusen et al. 2013; Brandon et al., 2009; Maas et al., 2014) and haven't got any psychiatric disorder history before the pregnancy is seen as a protective factor. In the same vein, depression symptoms in particular were found to be connected to low PA (Rubertsson et al., 2015) because they decrease the woman's self-esteem and her confidence for the role of motherhood (Alhusen et al., 2013). As depression and anxiety disorders' probability of recurrence can be considered a general

vulnerability to emotional distress (Lovibond, 1998), it can also explain the relationship between psychiatric disorder history and low PA. Mental health problems, problematic childhood history and lower cognitive functionality come to the front as emotional risk factors, which affect PA negatively. Moreover, individuals with less emotional stability feel more stress, expect their baby's temperament to be difficult and have lower attachment as a result (Maas et al., 2014).

Another finding of the study is the low positive relationship between PA and the "lack of awareness" and "difficulty engaging in goal-directed behaviour" subscale of the Difficulty in Emotion Regulation Scale (DERS). Accordingly, individuals who lack emotion regulation awareness and have difficulty engaging in goal-directed cognition and behavior when distressed have higher PA. For awareness subscale, while this data is hard to interpret from the psychological perspective, it can be explained with the problematic results of this subscale of the scale. In other words, the items regarding this subscale (i.e. "I'm attentive to my feelings"; "I care about what I'm feeling"; "When I'm upset I taketime to figure out what I'm really feeling"; "I pay attention to how I feel"; "When I'm upset I believe that my feelings are valid and important") reflect the individuals' tendency to focus on their feelings rather than defining negative feelings. Thus, there is a problem regarding what is actually being tested with the awareness subscale (Rugancı & Gençöz, 2010). Morover as a consistent result from many different studies the Awareness subscale is evidenced by weak or absent associations with the other subscales of DERS (Hallion, Steinman, Tolin & Diefenbach, 2018). Lastly for low positive relationship between having difficulties in controlling cognitions and behaviors when distressed (goals subscale of DERS) and prenatal attachment, personality characteristics may be a reason but there should be more assessments of these potential mediators to test this relationship.

Furthermore total score of Multidimensional Anger Scale's (MDAS) is found as an important predictor for PA. This means that having higher level of anger in pregnancy explaining higher prenatal attachment to the unborn child as well. As mentioned before the effects of prenatal anger in relation with PA have received less attention in pregnancy period so in the literature. As Balkaya & Hisli-Şahin (2003) make evident the increase at some subscales of the scale can be explained by the relevancy of self-respect. Even this type of reaction related to anger may have called as

functional anger. Additionally the healthy expression and working through of the anger, is generally thought as an important skill that leads to increased self-esteem, greater trust and intimacy with others, and a general feeling of wellbeing (Sonkin, 2019). And as Leifer (1977) stated women's self-esteem in early periods of pregnancy, as an important component of psychological functioning, determined the quality of maternal attachment to the fetus and subsequently the child (Muller, 1992). But from a clinical point of view, high anger scores are generally found unhealthy in most cases. Especially prenatal anger, due to its comorbidity with mood and anxiety disorders and risky health behaviors, should be investigated more detailed in relation with prenatal attachment (Eiden et al., 2011; Field et al., 2003). From a cultural point of view individuals who had higher anger scores in the present study, may also be the ones who are more aware of their feelings and express them better in relation to their personality characteristics (e.g. extroversion since being an extrovert is found to be related with higher PA) (Maas et al., 2014) and all these factors may contribute to the prediction of PA in this sample.

Finally all the study measures total scores are correlated among eachother which means that emotion dysregulation, level of anger, psychopathology, and attachment insecurity increases together and the increased levels of these scales are related with perceived lower satisfaction about the social support in pregnancy period. Perceiving insufficient social support is more common in insecurely attached women and this perception causes mood problems and/or women who have mood problems perceive less social support and have insecure attachment style as well. These results are supported with the data in the literature that highlights social support during pregnancy is very crucial for the physical and mental well-being of the expectant mother (cited in Alhusen et al., 2012), and insecurely attached (i.e., anxious or avoidant) women fluctuate to a much greater extent, they experience more mental health problems, and tend to be less effective at coping with hardship (Mikulincer and Florian, 1999) and emotion dysregulation and anxiety disorders are empirically associated eachother (Nielson et al., 2017). Bowlby (1973, 1979) also stated that the association between anger and attachment should be especially strong in adults with insecure relationship histories (Rholes, Simpson & Orina, 1999). While attachment theory (Bowlby, 1982/1969, 1973) has become one of the most important conceptual frameworks for understanding the process of affect regulation, and emotional problems do arise generally from emotion dysregulation (Sheppes, Suri & Gross, 2015); the positive

correlation between the emotion dysregulation, psychopathology and insecure attachment style is not surprising.

5.2. Implications for Clinical Applications

Assessing mother to fetus attachment is important because it is associated with self care in pregnancy and also predicts quality of parent to infant attachment (Van den Bergh and Simons, 2009). Consequently the present study is aimed to contribute the understanding of pregnancy, expectant mother and fetus relationship from a psychology perspective in Turkey. Because most of the studies about prenatal attachment has been come from nursing and midwifery field until quite recently.

The acceptance of this construct by medical professionals and psychologists would be the first step to help expecting couples establish a healthy connection with their children. While studies in the literature give mixed results in regards to the factors, which affect attachment, there is a considerable amount of data that supports the idea that attachment develops before birth. Thereby, every study towards the factors, which affect the mother's attachment to her unborn child negatively or positively, will contribute to our knowledge on the subject.

It is crucial that health professionals who interact with women during pregnancy should take into account the studies in the literature, to become more aware of the woman's psychological processes as well as her physical symptoms and provide support to develop these processes positively. For instance, talking to the expectant mother about her attachment to and relationship with her unborn baby as part of routine controls may be a first step. Our study and the literature tell us that it is important to distinguish and support the pregnants who are in the third trimester of their pregnancy and still unattached to their babies (Yarcheski et al., 2009). These interventions during pregnancy would affect both the mother and the child positively in the long term (Rubertsson et al., 2015). Supportive practices aiming to strengthen the mother-fetus relationship in the last trimester will go a long way. Home visiting programs such as midwife-psychologist-family partnership and programs for supporting secure mother-baby attachments beginning in pregnancy would be helpful to improve maternal–child outcomes (Alhusen et al., 2013).

In addition, since pregnancy is a process which brings a responsibility that impacts one's life as a whole, the content of courses given by hospitals or private clinics during this period should be developed and improved to include not only physical care methods but also the effects of emotional and cognitive investment to the fetus during this period on the mother and child's future relationship. Therefore Abasi et al., (2012) suggested that mothers should be taught how to improve their relationship with their unborn baby by talking and writing to the baby, keeping a maternal diary as well as the recording of fetal movements.

It could also be supportive for pregnant women that the significant individuals (such as their partners, parents and friends) are educated about how they can be included in this process and what they can do. This may be through the courses or the booklets about this special period. The women can perceive their spouses and social circle to be more supportive this way, which in turn would ease their pregnancy process and impact their relationship with the fetus in a positive way.

Attachment relationship introduced by the attachment theory continues throughout one's life. The attachment styles that we establish with our own caretakers also shape our relationship with our children. Accordingly, support to strengthen the attachment to the fetus during pregnancy is important for women who have insecure attachments to their caretakers. Siddiqui et al. (2000) have found that even the woman's remembrance of the relationship with her own mother is impactful on PA, so identifying the women who remember mainly the negative childhood experiences about the relationship with their mothers and to focus intervention strategies on mediating better intergenerational attachment cycles is of particular importance (Brandon et al., 2009). Studies revealed that those mothers-to-be who do not have a strong attachment to their own parents derive more from their relationships with their partners (Bouchard, 2011) so the partners should be included in the process as much as possible.

The variable of age, as generally supported by the literature, has an inverse correlation with attachment. So, especially taking into account the increasing age of pregnancy for city-dwelling women during recent years, investigating the factors, which affect the attachment of individuals over 35, and conducting informative practices towards this age group may prove fruitful.

The fact that the baby's gender still comes to the front as an important factor makes one think the effect of our cultural and traditional perspective. At this point, sociological studies on the meanings attributed to the child and gender and family practices, which aim to reduce the social pressure on women, is considered important. The husband's attitude is particulary effective in this regard (Sandbrook & Adamson-Macedo, 2004), thus spouses must absolutely be informed of the importance of this subject.

5.3. Limitations of the Study and Future Directions

There are three important limitations of this study. First, the results are based on a convenience sample, which limits generalizability to other populations. The majority of the participants are those who took the survey online or in pregnancy courses and they participated via self-report scales, which the actual experience may have been inflated in these reports (Caplan, McQueen, Qualters, Leff, Garrett & Calonge, 2003). Since individuals who have psychological difficulties or those who are in the lower socio-economic groups could not be reached in the scope of this study, it is thought that the first limitation is the non-generalizable nature of some of the results. Larger sample groups and participation from both rural and urban areas may improve the generalizability of the surveys, so it would benefit future researchers to continue collecting data and investigating the demographic variables (Chen et al., 2011).

Second, the cross-sectional design of this study made cause-effect determination impossible. Although physical and psychological well-being have probably positive impact on PA but the reverse is also possible. So it is unclear whether stronger PA creates a better perception of subjective well-being, or whether better well-being strengthen PA. This reciprocal relationship could also exist between self–esteem and PA as well as between perceived social support and PA. Repeating the study with using a longitudinal design would allow examination of the causal relationships among variables in the same women at different points in pregnancy and across subsequent pregnancies and could possibly demonstrate a link between maternal characteristics and PA in pregnancy.

Third the effect of the maternal characteristics are investigated separately and this may be another limitation. As some researchers suggest studying the predictors of

prenatal attachment in interaction rather than in isolation would be a solution to prevent inconsistent results (Cataudella, 2016).

Despite of the limitations summarized, this study aimed to understand the effects of maternal characteristics on PA in a sample from our culture. For the theoretical considerations, the mentalization capacity of the expectant mother should be included into future studies since to be able to form a mental representation of the fetus is arised as an important skill for maternal prenatal attachment. In conclusion to enhance the impact of the study, future studies should focus on improved measurements of PA in large, diverse sample with a longitudinal design and studying the predictors more in interaction. Qualitative research can also be used in further studies to understand more deeply the construct of "prenatal attachment" and the factors related to it.

References

Abasi, E., Tahmasebi, H., Zafari, M., & Takami, G.N. (2012). Assessment on effective factors of maternal-fetal attachment in pregnant women. *Life Science Journal*, 9, 68-75.

Ainsworth, M.D.S., Bell, S.M., & Stayton, D.J. (1974). Infant-mother attachment and social development: "Socialization" as a product of reciprocal responsiveness to signals. In M.P.M. Richards (Ed.), *The integration of a child into a social world.* New York: Cambridge University Press; 99-135

Ainsworth, M.D.S., Blehar, M.C., Waters, E., & Wall, S. (1978). Patterns of attachment: A psychological study of the Strange Situation. Hillsdale, NJ: Erlbaum Associates, Inc.

Alhusen, J.L. (2008). A literature update on maternal-fetal attachment. *Journal of Obstetic Gynecologic & Neonatal Nursing*, 37(3): 315-28.

Alhusen, J.L., Gross, D., Hayat, M.J., Woods, A.B. & Sharps, P.W. (2012) The influence of maternal–fetal attachment and health practices on neonatal outcomes in low-income, urban women. *Res Nurs Health*, 35:112–120.

Alhusen, J.L., Hayat, M.J. & Gross, D. (2013). A longitudinal study of maternal attachment and infant developmental outcomes. *Archieves of Women's Ment Health*, 16 (6).

Allison, S., Stafford, J. & Anumba, D. (2011). The effect of stres and anxiety associated with maternal prenatal diagnosis on feto-maternal attachment. *BMC Women's Health*, 11; 33.

Armstrong, D. (2002). Emotional distress and prenatal attachment in pregnancy after perinatal loss. *Journal of Nursing Scholarship*, 34, 339-345.

Asplin, N., Wessel, H., Morions, L. & Öhman, S. (2015). Maternal emotional wellbeing over time and attachment to the fetus when a malformation is detected. *Sex Reprod Health*, 6 (3): 191-195.

Atashi, V., Kohan, S., Salehi, Z. & Salehi, K. (2018). Maternal-fetal emotional relationship during pregnancy, its related factors and outcomes in Iranian pregnant women: a panel study protocol. *Reprod. Health*; 17; 15(1): 176.

Balkaya, F., Şahin, N.H. (2003). Çok boyutlu Öfke Ölçeği [Multidimensional Anger Scale], *Türk Psikiyatri Dergisi* [Turkish Psychiatry Journal],14(3), 192-202.

Bartholomew, K., & Shaver, P.R. (1998). Methods of assessing adult attachment: Do they converge? In J. A. Simpson & W. S. Rholes (Eds.), *Attachment Theory and Close Relationships*. New York: Guilford.

Bicking Kinsey, C. & Hupcey, J.E. (2013). State of the science of maternal-infant bonding: a principle-based concept analysis. *Midwifery*, 29(12): 1314-20.

Bielawska-Batorowicz, E. & Siddiqui, A. (2008). A study of prenatal attachment with Swedish and Polish expectant mothers. *Journal of Reproductive and Infant Psychology*, Vol. 36, No. 4, 373–384.

Bloom, C. (1998). Perceived relationship with the father of the baby and maternal attachment in adolescents. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *27*(4), 420-430.

Blumberg, N.L. (1980). Effects of neonatal risk, maternal attitude, and cognitive style on early postpartum adjustment. *Journal of Abnormal Psychology*, 89, 139-150.

Bouchard, G. (2011). The role of psychosocial variables in prenatal attachment: an examination of moderational effects. *Journal of Reproductive and Infant Psychology*, Vol 29, Issue 3

Bowlby, J. (1969/1982). Attachment and loss: Vol. 1. Attachment (2nd ed.). New York: Basic Books. (Original work published 1969).

Bowlby, J. (1973). Attachment and loss, Vol. 2: Separation. NY: Basic Books.

Bowlby, J. (1979). The making and breaking of affectional bonds. London: Tavistock Publications.

Bowlby, J. (1980). Attachment and loss: Vol. 3: Loss: Sadness and depression. London: Hogarth.

Brandell, J.R., & Ringel, S. (2007). Attachment and dynamic practice: An integrative guide for social workers and other clinicians. New York: Columbia University Press.

Brandon, A.R., Pitts, S., Denton, W.H., Stringer, C.A. & Evans, H.M. (2009). A history of the theory of prenatal attachment. *Journal of Prenatal Perinatal Health*, 23 (4); 201-222.

Bretherton, I. (1992). The origins of attachment theory: John Bowlby and Mary Ainsworth. *Developmental Psychology*, 28, 759-775.

Bretherton, I. & Munholland, K.A. (1999). Internal working models in attachment relationships: A construct revisited. In J. Cassidy & P.R. Shaver (Eds.), *Handbook of attachment theory and research.* New York: Guilford Press.

Brockington, I. (1996). Oxford medical publications. Motherhood and mental health. New York, NY, US: Oxford University Press.

Cannella , B. L. (2005). Maternal-fetal attachment: an integrative review. *Journal of Advanced Nursing*, Vol: 50 (1), 60-68.

Caplan L.S., McQueen D.V., Qualters J.R., Leff M., Garrett C. & Calonge N. (2003) Validity of women's self-reports of cancer screening test utilization in a managed care population. *Country of Publication* 12, 1182–1187.

Cataudella, S., Lampis, J., Busonera, A., Marino, L., & Zavattini, G. C. (2016). From parental-fetal attachment to a parent-infant relationship: A systematic review about prenatal protective and risk factors. *Life Span and Disability*, 19(2), 185-219.

Chen, C.J., Chen, Y.C., Sung, H.C., Kuo, P.C. & Wang, C.H. (2011). Perinatal attachment in naturally pregnant and infertility-treated pregnant women in Taiwan. *J Adv Nurs*, 67:2200-2208.

Chrzan-Detkos, M. (2015). Depression and anxiety during pregnancy as risk factors for preterm labour and low birth weight. *Gin Pol Med Project*, 3(37).

Choe, D.E., Olson, S.L. & Sameroff, A.J. (2013). Effects of early maternal distress and parenting on the development of children's self-regulation and externalizing behavior. *Dev Psychopathology*, 25(2): 437-53.

Condon, J.T. (1993). The assessment of antenatal emotional attachment: Development of a questionnaire instrument. *British Journal of Medical Psychology*, Vol: 66, Issue 2, 167-183.

Condon , J.T., & Corkindale, C. (1997). The correlates of antenatal attachment in pregnant women. *British Journal of Medical Psychology*, 70, 359 - 372.

Cranley, M.S. (1981). Development of a tool for the measurement of maternal attachment during pregnancy. *Nursing Research*, 30, 281 - 284 .

Crowell, J.A. & Treboux, D. (1995) A review of adult attachment measures: Implications for theory and research. *Social Development*, 4, 294-327.

Damato, E.G. (2004). Predictors of prenatal attachment in mothers of twins. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 33, 436 - 445.

De Campora, G., Guerriero, V., Magliano, M.R., Meldolesi, C., Delogu, A.M., & Tambelli, R. (2015). Emotions During Pregnancy: Do They Protect From the Risk of Dysregulated Eating Behaviors? *European Psychiatry*, 30, 1337.

Dereli-Yılmaz, S. (2013). Prenatal Maternal – Fetal Attachment. *Hemşirelikte Eğitim ve Araştırma*, Vol.10, 3: 28-33.

Dereli-Yılmaz, S. & Kızılkaya-Beji, N. (2010). Gebelerin stresle başa çıkma, depresyon ve prenatal bağlanma düzeyleri ve bunları etkileyen faktörler. *Genel Tıp Dergisi*, 20(3): 99-108.

DiPietro, J.A. (2010). Psychological and Psychophysiological Considerations Regarding the Maternal–Fetal Relationship. *Inf. Child. Dev.*, 19: 27–38.

Doan, H.McK., & Howell, S.R. (1998). Parental-fetal attachment: An investigation of personality correlates. Poster session presented at the meeting of the Canadian Psychological Association, Edmonton, Alberta.

Doan, H.McK. & Zimerman, A. (2003). Conceptualizing prenatal attachment toward a multidimensional view. *Journal of Prenatal & Perinatal Psychology & Health*, 18(2), 109-129.

Doan, H. McK. & Zimerman, A. (2008). Prenatal attachment: A developmental model. *Int. J. Prenatal and Perinatal Psychology and Medicine*, Vol. 20, No. 1/2, pp. 20–28.

Dubber, S., Reck, C., Müller, M. & Gawlik, S. (2015). Postpartum bonding: the role of perinatal depression, anxiety and maternal–fetal bonding during pregnancy. *Arch Womens Ment Health*, 18(2):187–195.

Eiden, R.D., Leonard, K.E., Colder, C.R., Homish, G.G., Schuetze, P., Gray, T.R. & Huestis, M.A. (2011). Anger, hostility, and aggression as predictors of persistent smoking during pregnancy. *Journal of Studies on Alcohol and Drugs*, 72(6): 926-32.

Eker, D., Arkar, H., ve Yaldız, H. (2001). Çok Boyutlu Algılanan Sosyal Destek Ölçeği'nin Gözden Geçirilmiş Formunun Faktör Yapısı, Geçerlik ve Güvenirliği. *Türk Psikiyatri Dergisi*, 12(1), 17-25

Erdemoğlu, Ç. & Aksoy-Derya, Y. (2018). The correlation of the gender of the fetus with prenatal attachment and perceived social support level. *Med Science*, www.medicinescience.org.

Feldman, J.B. (2012). Best practice for adolescent prenatal care: Application of an attachment theory perspective to enhance prenatal care and diminish birth risks. *Child Adolescent Social Work Journal, 29*, 151-166.

Field, T., Diego, M., Hernandez-Reif, M., Schanberg, S., Kuhn, C., Yando, R., & Bendell, D. (2003). Pregnancy anxiety and comorbid depression and anger: Effects on the fetus and neonate. *Depression and Anxiety*, 17(3), 140–151.

Fonagy, P., Steele, M., & Steele, H. (1991). Maternal representations of attachment during pregnancy predict the organization of infant–mother attachment at one year of age. *Child Development*, 62, 893–990.

Gaffney, K.F. (1989). Maternal-fetal attachment in relation to self-concept and anxiety. *Journal of Perinatology*, 13, 453-460.

Gau, M. (1996). The relationships between prenatal stress, social support, spiritual well- being, and maternal-fetal attachment for pregnant women. USA: University of Maryland at Baltimore.

Gau, M.L. & Lee, T.Y. (2003). Construct validity of the prenatal attachment inventory: a confirmatory factor analysis approach. *The Journal of Nursing Research*, 11(3):177-187.

Goldberg, S. (2000). Attachment and Development. London: Arnold.

Goldberg, S., Muir, R. & Kerr, J. (Eds.)(2013). Attachment theory: Social development, and clinical perspectives. London: Routledge.

Guiu, G.F., Morente, A.R., Granado, X.O., Ignat A.A., & Clipa, O. (2016). Appraisal and emotion regulation in anger situations: Differences between Spanish and Romanian women. *Journal of Educational Science and Psychology*, Vol. 6 (1), 35-46.

Hart, K. (2015). The Influence of Maternal Mental Health, Attachment and Hormonal Factors on a Mother's Attachment to her Fetus During Pregnancy. Dissertation, Deakin University.

Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, Vol. 52, 511-524.

Hazan, C., & Shaver, P. (1994). Attachment as an organizational framework for research on close relationships. *Psychological Inquiry: An International Journal of Peer Commentary and Review.*

Hendrich, S.M. & Cranley, M.S. (1989). The effect of fetal movement, ultrasound scans and amniocentesis on maternal-fetal attachment. *Nursing Research*, 38, 81-84.

Hesketh, T., Lu, L. & Xing, Z.W. (2011). The consequences of son preference and sex-selective abortion in China and other Asian countries. *Canadian Medical Association Journal*, 183(12): 1374–1377

Hjelmstedt, A., Widström, A. & Collins, A. (2006). Psychological correlates of prenatal attachment in women who conceived after in vitro fertilization and women who conceived naturally. *Birth*, 33, 303 - 310.

Hallion, L.S., Steinman, S.A., Tolin, D.F. & Diefenbach, G.J. (2018). Psychometric properties of the difficulties in emotion regulation scale (DERS) and its short forms in adults with emotional disorders. Front Psychol., 9:539.

Janbakhishov, C.E. (2013). Association between fetal inutero wellness and anxiety, depression, adulthood attachment features, prenatal attachment during pregnancy. Dissertation, Dokuz Eylül Üniversitesi, İzmir.

Kennell, J.H., Slyter, H. & Klaus, M.H. (1970). The mourning response of parents to the death of a newborn infant. *New England Journal of Medicine*, 283, 344 - 349.

Kesebir, S., Kavzoğlu, S. Ö., Üstündağ, M. F. (2001). Bağlanma ve Psikopatoloji (Attachment and Psychopathology). *Psikiyatride Güncel Yaklaşımlar* (Current Approaches in Psychiatry) 3(2), 321-342.

Kim, P., Mayes, L., Feldman, R., Leckman, J.F. & Swain, J.E. (2013). Early Postpartum Parental Preoccupation and Positive Parenting Thoughts: Relationship with Parent–Infant Interaction. *Infant Mental Health*, 34(2), 104-116.

Klaus, M.H., & Kennell, J.H. (1982). Parent-infant bonding. St Louis: Mosby Company.

Kuo, P.C., Bowers, B., Chen, Y.C., Chen, C.H., Tzeng, Y.L. & Lee, M.S. (2013). Maternal-foetal attachment during early pregnancy in Taiwanese women pregnant by in vitro

fertilization. *J Adv Nurs*; 69(11): 2502-13.

Laxton-Kane, M. & Slade, P. (2002). The role of maternal prenatal attachment in a woman's experience of pregnancy and implications for the process of care. *Journal of Reproductive and Infant Psychology*, Vol 20, 4.

Lederman, R. (1984). Psychological adaptation in pregnancy. New Jersey: Prentice-Hall.

Leifer, M. (1977). Psychological changes accompanying pregnancy and motherhood. *Genetic Psychology Monographs*, 95, 55-96.

Leigh, B. & Milgrom, J. (2008). Risk factors for antenatal depression, postnatal depression and parenting stress. *BMC Psychiatry*, 8:24

Lerum, C.W. & LoBiondo-Wood, G. (1989). The relationship of maternal age, quickening, and physical symptoms of pregnancy to the development of maternal-fetal attachment. *Birth*; 16 (1): 13-7.

Lindgren, K. (2001). Relationships among maternal-fetal attachment, prenatal depression, and health practices in pregnancy. *Res Nurse Health*; 24:203-217.

Lovibond, P.F. (1998). Long-term stability of depression, anxiety, and stress syndromes. *Journal of Abnormal Psychology*, 107 (3): 520-6.

Lumley, J.M. (1982). Attitudes to the fetus among primigravidae. *Australian Pediatrie Journal*, 18, 106-109.

Maas, J.B.M., Vreeswijk, C.M.J.M., Braeken, J., Vingerhoets, A.J.J.M & Van Bakel, H.J.A. (2014). Determinants of maternal fetal attachment in women from a community-based sample. *Journal of Reproductive and Infant Psychology*, Vol 32, 1.

Maron, C.F., Holt, V.L. & Martin, D.P. (1997). What do women want to know after childbirth? Birth; 24(1): 27-34.

Mattson, S. & Smith, J. (2016). Core curriculum for maternal-newborn nursing (5th edition), Elsevier.

McFarland, J., Salisbury, A. L., Battle, C.L., Hawes, K., Halloran, K. & Lester, B.M. (2011). Major despressive disorder during pregnancy and emotional attachment to the fetus. *Archieves of Women's Mental Health*, 14, 425-434.

McMahon, C.A., Boivin, J., Gibson, F. L., Hammarberg, K., Wynter, K., Saunders, D., & Fisher, J. (2011). Age at first birth, mode of conception and psychological wellbeing in pregnancy: Findings from the parental age and transition to parenthood Australia (PATPA) study. *Human Reproduction*, 26(6), 1389-1398.

McMahon, C.A., Ungerer, J.A., Beaurepaire, J., Tennant, C. & Saunders, D. (1997). Anxiety during pregnancy and fetal attachment after in-vitro fertilization conception. *Hum Reprod*, 12(1), 176-182.

Mehran, P., Simbar, M., Shams, J., Ramezani-Tehrani, F., & Nasiri, N. (2013). History of perinatal loss and maternal-fetal attachment behaviours. *Women and Birth*, *26*, 186-189.

Mikulincer, M., & Florian, V. (1999). Maternal–fetal bonding, coping strategies, and mental health during pregnancy-The contribution of attachment style. *Journal of Social and Clinical Psychology*, 18(3), 255-276.

Mikulincer, M., Shaver, P.R. & Pereg, D. (2003). Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and Emotion*; 27:77-102.

Morales, A.W. (2005). Smoking during pregnancy, an attachment theory perspective (Doctoral dissertation, King's College of London).

Muller, M.E. (1990). The development and testing of the Muller Prenatal Attachment Inventory (Doctoral dissertation, University of California, San Francisco, 1989). Dissertation Abstracts International, 50, 3404B .

Muller, M.E. (1992). A critical review of prenatal attachment research. *Scholarly Inquiry for Nursing Practice: An International Journal*, 6, 5–22.

Muller, M.E. (1993). Development of the prenatal attachment inventory. *Western Journal of Nursing Research* 15, 199–215.

Muller, M.E. (1994). A questionnaire to measure mother- to- infant attachment. *J Nurs Meas*., 2 (2):129-141.

Nazik, E., Yikar, K.S. & Var, E. (2017). Effect of childbirth education classes on prenatal attachment. *New Trends and Issues Proceedings on Humanities and Social Sciences*, 4(2), 73-79.

Nielsen, S.K.K., Lønfeldt, N.N., Wolitzky-Taylor, K., Hageman, I., Vangkilde, S., & Daniel, S.I.F. (2017). Adult attachment style and anxiety: The mediating role of emotion regulation. *Journal of Affective Disorders*, 218, 253–259.

Olivier, L. (2016). Maternal fetal attachment during teenage pregnancy. (Masters Thesis), Stellenbosch University. Retrieved from https://scholar.sun.ac.za/handle/10019.1/98486

Ossa, X., Bustos, L. & Fernandez, L. (2012). Prenatal attachment and associated factors during the third trimester of pregnancy in Temuco, Chile. *Midwifery*, 28(5): 689-696.

Ökten, Ş. (2009). Gender and power: the system of gender in Southeastern Anatolia. *J Int Social Res.*, 2(8): 302-12.

Öztürk, R., Kavlak, O. & Sevil, Ü. (2012). The importance of cultural factors upon postpartum depression. *Ege University Journal of Nursing Faculty*, 28(3): 107-16.

Pietromonaco, P.R., Barrett, L.F. & Powers, S. (2006). Adult Attachment Theory and Affective Reactivity and Regulation. In D. K. Snyder, J. A. Simpson, & J. N. Hughes (Eds.), Emotion Regulation in Couples and Families: Pathways to Dysfunction and Health, 57-74. Washington, D.C.: American Psychological Association.

Pollock, P.H. & Percy, A. (1999). Maternal antenatal attachment style and potential fetal abuse. *Child Abuse and Neglect*, 23, 1345-1357.

Redshaw, M. & Martin, C. (2013). Babies, 'bonding' and ideas about parental 'attachment'. *Journal of Reproductive and Infant Psychology*, 31:3, 219-22.

Rholes, W.S., Simpson, J.A. & Orina, M.M. (1999). Attachment and Anger in an Anxiety-Provoking Situation. *Journal of Personality and Social Psychology*, Vol. 76. No. 6, 940-957.

Robertson, E., Grace, S., Wallington, T. & Stewart, D.E. (2004). Antenatal risk factors for postpartum depression: a synthesis of recent literature. *Gen. Hosp. Psychiatry*, 26, 289–295.

Ross-Davie, M., Butcher, G., Davidson, M., Allely, C.S., Fargie, J., Puckering, C., & Trevarthen, C. (2014). Bonding and Attachment in the peri-natal period: Supporting rich and enjoyable relationships for life. *Maternal and Early Years for Early Years Workers*. Retrieved from

http://www.maternal-and-early-years.org.uk/bonding-and-attachment-in-the-perinatal-period-supporting-rich-and-enjoyable-relationships-for-life-2

Rowe, H.K., Wynter, K.H., Steele, A., Fisher, J.R.W., & Quinlivan, J.A. (2013). The growth of maternal-fetal emotional attachment in pregnant adolescents: A prospective cohort study. *Journal of Pediatric and Adolescent Gynecology, 26*, 327-333.

Rubertsson, C., Pallant, J. F., Sydsjö, G., Haines, H. M. & Hildingsson, I. (2015). Maternal depressive symptoms have a negative impact on prenatal attachment – findings from a Swedish community sample. *Journal of Reproductive and Infant Psychology*, Vol 33; 2.

Rugancı, R.N. & Gençöz, T. (2010). Psychometric Properties of a Turkish Version of the Difficulties in Emotion Regulation Scale. *Journal Of Clinical Psychology*, Vol. 66(4), 442—455.

Rutherford, H.J., Wallace, N.S., Laurent, H.K. & Mayes, L.C. (2015). Emotion Regulation in Parenthood. *Dev Rev*., 1(36): 1-14.

Sahin, N. H., & Durak, A. (1994). Kisa Semptom Envanteri (Brief Symptom Invetory-BSI): Turk Gencleri Icin Uyarlanmasi [A study of the Brief Symptom Inventory in Turkish Youth]. *Türk Psikoloji Dergisi, 9*(31), 44-56.

Sandbrook, S.P. (2009). Love or protection? Defining and measuring Maternal-Fetal Attachment from a woman's perspective. (Doctoral dissertation). Wolverhapton United Kingdom: University of Wolverhampton. Retrieved from http://core.ac.uk/download/pdf/1933025.pdf/.

Sandbrook, S.P. & Adamson-Macedo, E.N. (2004). Maternal-fetal attachment: searching for a new definition. *Neuroendorcinology Letters 25* (Suppl. 1), 169–182.

Sarıtaş-Atalar, D., Gençöz, T. & Özen, A. (2015) Confirmatory factor analyses of the Difficulties in Emotion Regulation Scale (DERS) in a Turkish adolescent sample. *European Journal of Psychological Assessment*, 31(1), 12-19.

Saljoughi, M., Hosaini, M. Sharifzadeh, G. & Soorgi, N. (2015). The relationship between pregnancy anxiety, maternal-fetal attachment, and cognitive emotion regulation strategies. *International Journal of Review in Life Sciences*, 5(4), 1554-1559

Selcuk, E., Gunaydin, G., Sumer, N., & Uysal A. (2005). Yetişkin bağlanma boyutları için yeni bir ölçüm: Yakın İlişkilerde Yaşantılar Envanteri-II'nin Türk örnekleminde psikometrik

açıdan değerlendirilmesi [A new measure for adult attachment styles: The psychometric evaluation of Experiences in Close Relationships – Revised (ECR-R) on a Turkish sample]. *Türk Psikoloji Yazıları* [Turkish Psychological Articles], 8, 1-11.

Shaver, P.R., Collins, N., & Clark, C.L. (1996). Attachment styles and internal working models of self and relationship partners. In G.J.O. Fletcher & J. Fitness (Eds.), *Knowledge structures in close relationships. A social psychological approach* (pp. 25-61).Hillsdale, NJ: Erlbaum.

Shaver, P.R., & Hazan, C. (1993). Adult romantic attachment: Theory and evidence. In D.Perlman & W. Jones (Eds.), Advances in personal relationships (Vol. 4, pp. 29 70). London: Jessica Kingsley.

Sheppes, G., Suri, G. & Gross, J.J. (2015). Emotion regulation and psychopathology. Annu Rev Clin Psychol., 11: 379-405.

Shieh, C., Kravitz, M. & Wang, H.H. (2001). What do we know about maternal-fetal attachment? *Kaohsiung Journal of Medical Sciences*, 19, 448 - 454.

Siddiqui, A. & Hagglöf, B. (2000). Does maternal prenatal attachment predict postnatal mother–infant interaction? *Early Human Development*, 59, 13–25.

Siddiqui, A., Hagglöf, B., & Eisemann, M. (2000). Own memories of upbringing as a determinant of prenatal attachment in expectant women. *Journal of Reproductive & Infant Psychology,* 18, 67-74.

Simpson, J.A., & Rholes, W.S. (Eds.)(1998). Attachment theory and close relationships. New York: Guilford Press.

Solomon, J., & George, C. (2008). The measurement of attachment security and related constructs in infancy and early childhood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 383-416). New York, NY, US: The Guilford Press.

Sonkin, D. (2019). Anger: Attachment and Neurobiological Perspectives. Retrieved from http://www.danielsonkin.com/articles/anger_attachment.html

Sroufe, L.A. & Waters, E. (1977). Attachment as an organizational construct. *Child Development,* 48, 1184-1199.

Şolt, A. (2011). The effect of number of birth on mother-baby attachment (Master's Thesis)

Haliç University Institute of Health Science.

Theran, S.A, Levendosky, A.A., Bogat, G.A. & Huth-Bocks, A.C. (2005). Stability and change in mothers' internal representations of their infants over time. *Attachment Human Development*, 7(3): 253-68.

Tsujino, J., Oyama Higa, M. & Inuihara, T. (2002). Specificity of mother's attachment to her child using the attachment inventory and factors related to attachment: longitudinal research from prenatal to age three. *Journal of Prenatal & Perinatal Psychology & Health*, 17(1), 63-84.

Turiff-Jonasson, S. I. (2004). Use of prenatal testing, emotional attachment to the fetus and fetal health locus of control. (Master Thesis), University of Saskatchewan Saskatoon.

Ustunsoz, A., Guvenc, G., Akyuz, A. & Oflaz, F. (2010). Comparison of maternal-and paternal-foetal attachment in Turkish couples. *Midwifery*, 26(2):1-9.

Van den Bergh, B. & Simons, A. (2009). A review of scales to measure the mother – fetus relationship. *Journal of Reproductive and Infant Psychology*; 27:114 – 126.

Vedova, A.M.D., Dabrassi, F. & Imbasciati, A. (2008). Assessing prenatal attachment in a sample of Italian women. *Journal of Reproductive and Infant Psychology*, 26(2), 86-98.

Walsh, J., Hepper, E., Bagge, S., Wadephul, F. & Jomeen, J. (2013) Maternal-fetal relationships and psychological health: Emerging research directions. *Journal of Reproductive and Infant Psychology*, 31 (5), 490-499.

Waters, S.F., Virmani, E.A., Thompson, R.A., Meyer, S., Raikes, H.A. & Jochem, R. (2010). Emotion Regulation and Attachment: Unpacking Two Constructs and Their Association. *J Psychopathol Behav Assess*, 32:37–47.

Winnicott, D.W. (2012). Primary maternal preoccupation. In P. Mariotti (Ed.), *The new library of psychoanalysis. The maternal lineage: Identification, desire and transgenerational issues* (pp. 59-66). New York, NY, US: Routledge/Taylor & Francis Group.

Yilmaz, S.D. & Beji, N.K. (2013). Effects of perinatal loss on current pregnancy in Turkey. *Midwifery*, 29(11):1272–1277.

Yarcheski, A., Mahon, N.E., Yarcheski , T.J., Hanks, M.M., Cannella, B.L. (2009). A meta-analytic study of predictors of maternal foetal attachment. *Int J Nurs Stud*.; 46(5):708-

15.

Zachariah, R. (2009). Social Support, Life Stress, and Anxiety as Predictors of Pregnancy Complications in Low-Income Women. *Research in Nursing & Health*, 32, 391–404.

Zeanah, C.H., Carr, S., & WoIk, S. (1990). Fetal movements and the imagined baby of pregnancy: Are they related? *Journal of Reproductive and Infant Psychology*, 8, 23-26.

Zimet, G.D., Dahlem, N.W., Zimet, S.G., & Farley, G.K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 52*(1), 30-41.

APPENDIX I

KİŞİSEL BİLGİ FORMU

1. YAŞ:_____
2. MESLEK:_____
3. EĞİTİM: ( )Okur-yazar değil( ) Okur-yazar ( ) İlkokul ( ) Ortaokul ( ) Lise ( ) Yüksekokul ( ) Üniversite ( ) Lisans Üstü
4. MEDENİ DURUM: ( ) Bekar ( ) Biriyle çıkıyorum ( ) Sevgilim ile beraber yaşıyorum ( ) Nişanlı ( ) Evli ( ) Boşanmış/Ayrı ( ) Dul: Ne zamandır? _____
5. (Eğer evliyseniz) Kaç yıllık evlisiniz? _____
6. Evlilik kararınızı nasıl aldınız? ( ) Anlaşarak ( ) Görücü usulü ( ) Diğer_____
7. Evinizde kimlerle birlikte yaşıyorsunuz? _____
8. En uzun süreyle yaşadığınız yer: ( ) Büyükşehir ( ) Şehir ( ) İlçe ( ) Köy/Kasaba
9. Şuanda yaşadığınız şehir: _____
10. Sosyo-ekonomik seviyenizi nasıl tanımlarsınız? ( )Üst sınıf ( )Üst-Orta Sınıf ( ) Orta Sınıf ( ) Düşük-Orta Sınıf ( ) Düşük Sınıf
11. Şuanda bir işte çalışıyor musunuz? ( ) Evet ( ) Hayır
12. Evetse doğum iznine ayrılma zamanınız: _____
13. Doğumdan sonra işe geri dönüş zamanınız: _____
14. Gebeliğinizin kaçıncı haftasındasınız? _____
15. Başka çocuğunuz var mı? ( ) Evet ( ) Hayır
16. Daha önce düşük-küretaj öykünüz var mı? ( ) Yok ( ) Var Varsa sayısı:
17. Bu gebeliğiniz istenen/planlı gebelik mi? ( ) Planlı-istenen ( ) Plansız-istenen ( ) Plansız-istenmeyen
18. Bebeğinizi ultrasonda gördünüz mü? ( ) Evet ( ) Hayır
19. Bebeğin cinsiyeti: ( ) Kız ( ) Erkek ( ) Bilmiyorum
20. Cinsiyetten memnuniyetiniz: ( ) Memnun ( ) Memnun değil
21. Eşinizin cinsiyetten memnuniyeti : ( )Memnun ( ) Memnun değil
22. Gebelikte tespit edilen tıbbi bir durum var mı? ( )Var ( ) Yok
23. Varsa nedir? ( ) Diyabet ( ) Abort (düşük) riski ( ) Hiperemezis gravidorum (şiddetli bulantı kusma) ( ) Preeklamps (gebeliğe bağlı hipertansiyon) ( ) Anemi ( ) Diğer _____
24. Gebe kalmak için herhangi bir tedavi oldunuz mu? ( ) Hayır ( ) Evet Evetse nedir? _____
25. Psikiyatrik ya da psikolojik rahatsızlık öykünüz var mı?: ( ) Yok ( ) Var Varsa nedir? _____
26. (Eğer varsa) Tedavi gördünüz mü? ( ) Evet psikolojik tedavi ( ) Evet psikiyatrik tedavi ( ) Evet hem psikolojik hem de psikiyatrik tedavi ( ) Hayır görmedim

27. Şu anda ruh sağlığınızı nasıl değerlendirirsiniz?
    ( ) Çok iyi ( ) İyi ( ) Orta ( ) Kötü ( ) Çok kötü
28. Eşinizde psikiyatrik ya da psikolojik rahatsızlık öyküsü var mı?:
    ( ) Yok ( ) Var Varsa nedir? _____
29. Kendinizi fiziksel olarak nasıl görüyorsunuz? ( ) Çok iyi ( ) İyi ( ) Orta ( ) Kötü ( ) Çok kötü
30. Kendinizi bebek bakımı konusunda (temel bakım, bilgi düzeyi, özgüven) yeterli hissediyor musunuz?
    ( ) Evet yeterli hissediyorum ( ) Hayır yeterli hissetmiyorum
31. Ev işleri, çocuk bakma ve yemek yapma işi gibi konularda size yardımcı birileri var mı? ( ) Evet ( ) Hayır
32. Genel olarak eşinizle ilişkiniz nasıl? ( ) Çok iyi ( ) İyi ( ) Orta ( ) Kötü ( ) Çok kötü
33. Anneniz hayatta mı? ( ) Evet ( ) Hayır
34. Hayattaysa annenizle ilişkiniz nasıl? ( ) Çok iyi ( ) İyi ( ) Orta ( ) Kötü ( ) Çok kötü
35. Sizin doğumunuz nasıl olmuş?
    ( ) Normal ( ) Sezeryan ( ) Epidürel Normal ( ) Epidürel Sezeryan
36. Kayınvalideniz hayatta mı? ( ) Evet ( ) Hayır
37. Hayattaysa kayınvalidenizle ilişkiniz nasıl? ( ) Çok iyi ( ) İyi ( ) Orta ( ) Kötü ( ) Çok kötü
38. Bebeğinize bakım verirken eşinizden destek alacağınızı düşünüyor musunuz?
    ( ) Evet ( ) Hayır
39. Bebeğiniz için bir isme karar verdiniz mi? ( ) Evet ( ) Hayır
40. Bebeğiniz doğduktan sonra hangi kişisel ve çevresel özelliklerinizin size yardımcı olacağını düşünüyorsunuz?_____
41. Bebeğiniz doğduktan sonra hangi kişisel ve çevresel özelliklerinizin size zorluk yaşatacağını düşünüyorsunuz?_____
42. Doğuma ve doğum sonrasına hazırlanmak için bir eğitim aldınız mı?

    ( )Hayır ( )Evet Evetse alınan eğitimle: _____

APPENDIX II

Prenatal Attachment Inventory (PAI)

Aşağıdaki cümleler gebelik boyunca kadınların yaşadıkları düşünceleri, duyguları ve durumları açıklamaktadır. **Geçen ay süresince** bu düşünce, duygu ve durumlarla ilgili tecrübelerinizle ilgilenmekteyiz. Lütfen size uygun kelimenin yanındaki harfi yuvarlak içine alınız.

	Her zaman	**Sık sık**	**Bazen**	**Hiçbir zaman**
1. Bebeğimin şu an neye benzediğini merak ederim.	a	b	c	d
2. Bebeğimi adıyla çağırdığımı hayal ederim.	a	b	c	d
3. Bebeğimin hareketini hissetmekten hoşlanırım.	a	b	c	d
4.Bebeğimin şimdiden kişiliğinin oluştuğunu düşünürüm.	a	b	c	d
5.Diğer insanların bebeğimin hareketlerini hissetmeleri için ellerini karnımın üzerine koymalarına izin veririm.	a	b	c	d
6.Yaptığım şeylerin bebeğimde bir fark oluşturacağına inanırım.	a	b	c	d
7.Bebeğimle birlikte yapacağım şeyleri planlarım.	a	b	c	d
8.Bebeğimin içimde ne yaptığını diğer insanlarla paylaşırım.	a	b	c	d
9. Bebeğimin neresine dokunduğumu hayal ederim.	a	b	c	d
10. Bebeğimin ne zaman uyuduğunu bilirim.	a	b	c	d
11.Bebeğimi hareket ettirebilirim.	a	b	c	d
12. Bebeğim için bir şeyler satın alır ya da yaparım.	a	b	c	d
13. Bebeğimi sevdiğimi hissederim.	a	b	c	d
14. Bebeğimin orada ne yaptığını hayal etmeye çalışırım.	a	b	c	d
15. Karnımı kollarımla sararak oturmaktan hoşlanırım.	a	b	c	d
16. Bebeğimle ilgili rüya görürüm.	a	b	c	d
17. Bebeğimin niçin hareket ettiğini bilirim.	a	b	c	d

18. Karnımın üzerinden bebeğimi okşarım.	a	b	c	d
19. Bebeğimle sırlarımı paylaşırım.	a	b	c	d
20. Bebeğimin beni duyduğunu bilirim.	a	b	c	d
21.Bebeğimi düşündüğümde çok heyecanlanırım.	a	b	c	d

APPENDIX III

Difficulties in Emotion Regulation Scale (DERS)

Aşağıda insanların duygularını kontrol etmekte kullandıkları bazı yöntemler verilmiştir. Lütfen her durumu dikkatlice okuyunuz ve her birinin sizin için ne kadar doğru olduğunu içtenlikle değerlendiriniz. Değerlendirmenizi uygun cevap önündeki yuvarlak üzerine çarpı (X) koyarak işaretleyiniz.

1. **Ne hissettiğim konusunda netimdir.**
○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

2. **Ne hissettiğimi dikkate alırım.**
○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

3. **Duygularım bana dayanılmaz ve kontrolsüz gelir.**
○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

4. **Ne hissettiğim konusunda net bir fikrim vardır.**
○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

5. **Duygularıma bir anlam vermekte zorlanırım.**
○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

6. **Ne hissettiğime dikkat ederim.**
○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

7. **Ne hissettiğimi tam olarak bilirim.**
○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

8. **Ne hissettiğimi önemserim.**
○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

9. **Ne hissettiğim konusunda karmaşa yaşarım.**
○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

10. **Kendimi kötü hissettiğimde, bu duygularımı kabul ederim.**
○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

11. **Kendimi kötü hissettiğimde, böyle hissettiğim için kendime kızarım.**
○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

12. **Kendimi kötü hissettiğimde, böyle hissettiğim için utanırım.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse

Hiçbir zaman Yarı yarıya Her zaman

13. **Kendimi kötü hissettiğimde, işlerimi yapmakta zorlanırım.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

14. **Kendimi kötü hissettiğimde, kontrolümü kaybederim.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

15. **Kendimi kötü hissettiğimde, uzun süre böyle kalacağıma inanırım.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

16. **Kendimi kötü hissettiğimde, sonuç olarak yoğun depresif duygular içinde olacağıma inanırım.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

17. **Kendimi kötü hissettiğimde, duygularımın yerinde ve önemli olduğuna inanırım.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

18. **Kendimi kötü hissettiğimde, başka şeylere odaklanmakta zorlanırım.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

19. **Kendimi kötü hissettiğimde, kendimi kontrolden çıkmış hissederim.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

20. **Kendimi kötü hissettiğimde, halen işlerimi sürdürebilirim.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

21. **Kendimi kötü hissettiğimde, bu duygumdan dolayı kendimden utanırım.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

22. **Kendimi kötü hissettiğimde, eninde sonunda kendimi daha iyi hissetmenin bir yolunu bulacağımı bilirim.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

23. **Kendimi kötü hissettiğimde, zayıf biri olduğum duygusuna kapılırım.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

24. **Kendimi kötü hissettiğimde, davranışlarımı kontrol altında tutabileceğimi hissederim.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

25. **Kendimi kötü hissettiğimde, böyle hissettiğim için suçluluk duyarım.**
○ Neredeyse ○Bazen ○ Yaklaşık ○ Çoğu zaman ○ Neredeyse
Hiçbir zaman Yarı yarıya Her zaman

26. **Kendimi kötü hissettiğimde, konsantre olmakta zorlanırım.**

○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

27**. Kendimi kötü hissettiğimde, davranışlarımı kontrol etmekte zorlanırım.**

○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

28. **Kendimi kötü hissettiğimde, daha iyi hissetmem için yapacağım hiç bir şey olmadığına inanırım.**

○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

29. **Kendimi kötü hissettiğimde, böyle hissettiğim için kendimden rahatsız olurum.**

○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

30. **Kendimi kötü hissettiğimde, kendim için çok fazla endişelenmeye başlarım.**

○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

31. **Kendimi kötü hissettiğimde, kendimi bu duyguya bırakmaktan başka yapabileceğim bir şey olmadığına inanırım.**

○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

32. **Kendimi kötü hissettiğimde, davranışlarım üzerindeki kontrolümü kaybederim.**

○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

33. **Kendimi kötü hissettiğimde, başka bir şey düşünmekte zorlanırım.**

○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

34. **Kendimi kötü hissettiğimde, duygumun gerçekte ne olduğunu anlamak için zaman ayırırım.**

○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

35. **Kendimi kötü hissettiğimde, kendimi daha iyi hissetmem uzun zaman alır.**

○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

36**. Kendimi kötü hissettiğimde, duygularım dayanılmaz olur.**

○ Neredeyse Hiçbir zaman ○Bazen ○ Yaklaşık Yarı yarıya ○ Çoğu zaman ○ Neredeyse Her zaman

APPENDIX IV

Experiences in Close Relationships-Revised Inventory **(ECR-R)**

Aşağıdaki maddeler romantik ilişkilerinizde hissettiğiniz duygularla ilgilidir. Bu araştırmada sizin ilişkinizde yalnızca şu anda değil, genel olarak neler olduğuyla ya da neler yaşadığınızla ilgilenmekteyiz. Maddelerde sözü geçen "birlikte olduğum kişi" ifadesi ile romantik ilişkide bulunduğunuz kişi kastedilmektedir. Eğer halihazırda bir romantik ilişki içerisinde değilseniz, aşağıdaki maddeleri bir ilişki içinde olduğunuzu varsayarak cevaplandırınız. Her bir maddenin ilişkilerinizdeki duygu 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 katılmıyorum — Kararsızım/ fikrim yok — Tamamen katılıyorum

1. Birlikte olduğum kişinin beni terk edeceğinden pek endişe duymam.	1	2	3	4	5	6	7
2. Birlikte olduğum kişiyle yakınlaşmak bana zor gelmez.	1	2	3	4	5	6	7
3. Romantik ilişkide olduğum kişi kendimden şüphe etmeme neden olur.	1	2	3	4	5	6	7
4. Genellikle, birlikte olduğum kişiyle sorunlarımı ve kaygılarımı tartışırım.	1	2	3	4	5	6	7
5. Terk edilmekten pek korkmam.	1	2	3	4	5	6	7
6. Zor zamanlarımda, romantik ilişkide olduğum kişiden yardım istemek bana iyi gelir.	1	2	3	4	5	6	7
7. Birlikte olduğum kişinin, bana benim istediğim kadar yakınlaşmak istemediğini düşünürüm.	1	2	3	4	5	6	7
8. Birlikte olduğum kişiye hemen hemen her şeyi anlatırım.	1	2	3	4	5	6	7
9. Romantik ilişkide olduğum kişiler bazen bana olan duygularını sebepsiz yere değiştirirler.	1	2	3	4	5	6	7
10. Başımdan geçenleri birlikte olduğum kişiyle konuşurum.	1	2	3	4	5	6	7
11. Çok yakın olma arzum bazen insanları korkutup uzaklaştırır.	1	2	3	4	5	6	7
12. Birlikte olduğum kişiler benimle çok yakınlaştığında gergin hissederim.	1	2	3	4	5	6	7
13. Romantik ilişkide olduğum bir kişi beni yakından tanıdıkça, “gerçek ben”den hoşlanmayacağından korkarım.	1	2	3	4	5	6	7
14. Romantik ilişkide olduğum kişilere güvenip inanma konusunda rahatımdır.	1	2	3	4	5	6	7
15. Birlikte olduğum kişiden ihtiyaç duyduğum şefkat ve desteği görememek beni öfkelendirir.	1	2	3	4	5	6	7

16. Romantik ilişkide olduğum kişiye güvenip inanmak benim için kolaydır.	1	2	3	4	5	6	7
17. Başka insanlara denk olamamaktan endişe duyarım	1	2	3	4	5	6	7
18. Birlikte olduğum kişiye şefkat göstermek benim için kolaydır.	1	2	3	4	5	6	7
19. Birlikte olduğum kişi beni sadece kızgın olduğumda önemser.	1	2	3	4	5	6	7
20. Birlikte olduğum kişi beni ve ihtiyaçlarımı gerçekten anlar.	1	2	3	4	5	6	7

APPENDIX V

Brief Symptom Inventory (BSI)

AÇIKLAMA: Aşağıda zaman zaman herkeste olabilecek yakınma ve sorunların bir listesi vardır. Lütfen her birini dikkatlice okuyunuz. Sonra bu durumun **bugün de dahil olmak üzere son bir ay içinde** sizi ne ölçüde huzursuz ve tedirgin ettiğini göz önüne alarak aşağıda belirtilen tanımlamalardan uygun olanının numarasının karşısındaki boşluğa yazınız. Düşüncenizi değiştirirseniz ilk yazdığınız numarayı tamamen siliniz. Lütfen anlamadığınız bir cümle ile karşılaştığınızda uygulayan kişiye danışınız.

	Hiç	**Çok az**	**Orta derece**	**Oldukça fazla**	**İleri derece**
1. İçinizdeki sinirlilik ve titreme hali	0	1	2	3	4
2. Baygınlık, baş dönmesi	0	1	2	3	4
3. Bir başka kişinin sizin düşüncelerinizi kontrol edeceği fikri	0	1	2	3	4
4. Başınıza gelen sıkıntılardan dolayı başkalarının suçlu olduğu duygusu	0	1	2	3	4
5. Olayları hatırlamada güçlük	0	1	2	3	4
6. Çok kolayca kızıp öfkelenme	0	1	2	3	4
7. Göğüs (kalp) bölgesinde ağrılar	0	1	2	3	4
8. Meydanlık(açık) yerlerden korkma duygusu.	0	1	2	3	4
9. Yaşamınıza son verme düşüncesi.	0	1	2	3	4
10. İnsanların çoğuna güvenilemeyeceği hissi.	0	1	2	3	4
11. İştahta bozukluklar.	0	1	2	3	4
12. Hiçbir nedeni olmayan ani korkular.	0	1	2	3	4
13. Kontrol edemediğiniz duygu patlamaları.	0	1	2	3	4
14. Başka insanlarla beraberken bile yalnızlık hissetme.	0	1	2	3	4
15. İşleri bitirme konusunda kendini engellenmiş hissetme.	0	1	2	3	4
16. Yalnızlık hissetme.	0	1	2	3	4
17. Hüzünlü, kederli hissetme.	0	1	2	3	4
18. Hiçbir şeye ilgi duymamak.	0	1	2	3	4

19. Kendini ağlamaklı hissetme.	0	1	2	3	4
20. Kolayca incinebilme, kırılma.	0	1	2	3	4
21. İnsanların sizi sevmediğini, size kötü davrandığına inanma.	0	1	2	3	4
22. Kendini diğer insanlardan daha aşağı görmek.	0	1	2	3	4
23. Mide bozukluğu, bulantı.	0	1	2	3	4
24. Diğer insanların sizi gözlediği ya da hakkınızda konuştuğu duygusu.	0	1	2	3	4
25. Uykuya dalmada güçlük.	0	1	2	3	4
26. Yaptığınız şeyleri tekrar tekrar doğru mu diye kontrol etmek.	0	1	2	3	4
27. Karar vermede güçlükler.	0	1	2	3	4
28. Otobüs, tren, metro gibi umumi vasıtalarla seyahatlerden korkma.	0	1	2	3	4
29. Nefes darlığı, nefessiz kalma.	0	1	2	3	4
30. Sıcak, soğuk basmaları.	0	1	2	3	4
31. Sizi korkuttuğu için bazı eşya yer ya da etkinliklerden uzak kalmaya çalışmak.	0	1	2	3	4
32. Kafanızın bomboş kalması.	0	1	2	3	4
33. Bedeninizin bazı bölgelerinde uyuşmalar, karıncalanmalar.	0	1	2	3	4
34. Hatalarınız için cezalandırılmanız gerektiği düşüncesi.	0	1	2	3	4
35. Gelecekle ilgili umutsuzluk duyguları.	0	1	2	3	4
36. Dikkati bir şey üzerine toplamada güçlük.	0	1	2	3	4
37. Bedenin bazı bölgelerinde, zayıflık, güçsüzlük hissi.	0	1	2	3	4
38. Kendini gergin ve tedirgin hissetme.	0	1	2	3	4
39. Ölme ve ölüm üzerine düşünceler.	0	1	2	3	4
40. Birini dövme, ona zarar verme yaralama isteği.	0	1	2	3	4
41. Bir şeyleri kırma, dökme isteği.	0	1	2	3	4
42. Diğer insanların yanında iken yanlış bir şey yapmamaya çalışmak.	0	1	2	3	4
43. Kalabalıklardan rahatsızlık duymak.	0	1	2	3	4
44. Başka insanlara hiç yakınlık duymamak.	0	1	2	3	4
45. Dehşet ve panik nöbetleri.	0	1	2	3	4

46. Sık sık tartışmaya girmek.	0	1	2	3	4
47. Yalnız kalındığında sinirlilik hissetme.	0	1	2	3	4
48. Başarılarınıza rağmen diğer insanlardan yeterince takdir görmemek.	0	1	2	3	4
49. Kendini yerinde duramayacak kadar tedirginlik hissetmek.	0	1	2	3	4
50. Kendini değersiz görme duygusu.	0	1	2	3	4
51. Eğer izin verirseniz insanların sizi sömüreceği duygusu.	0	1	2	3	4
52. Suçluluk duyguları.	0	1	2	3	4
53. Aklınızda bir bozukluk olduğu fikri.	0	1	2	3	4

APPENDIX VI

Multidimensional Scale of Perceived Social Support (MSPSS)

Aşağıda 12 cümle ve her bir cümle altında da cevaplarınızı işaretlemeniz için 1'den 7'ye kadar rakamlar verilmiştir. Her cümlede söylenenin sizin için ne kadar çok doğru olduğunu veya olmadığını belirtmek için o cümle altındaki rakamlardan yalnız bir tanesini daire içine alarak işaretleyiniz. Bu şekilde 12 cümlenin her birine bir işaret koyarak cevaplarınızı veriniz. Lütfen hiçbir cümleyi cevapsız bırakmayınız. Sizce doğruya en yakın olan rakamı işaretleyiniz.

1. Ailem ve arkadaşlarım dışında olan ve ihtiyacım olduğunda yanımda olan bir insan (örneğin, flört, nişanlı, sözlü, akraba, komşu, doktor) var.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

2. Ailem ve arkadaşlarım dışında olan ve sevinç ve kederlerimi paylaşabileceğim bir insan (örneğin, flört, nişanlı, sözlü, akraba, komşu, doktor) var.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

3. Ailem (örneğin, annem, babam, eşim, çocuklarım, kardeşlerim) bana gerçekten yardımcı olmaya çalışır.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

4. İhtiyacım olan duygusal yardımı ve desteği ailemden (örneğin, annemden, babamdan, eşimden, çocuklarımdan, kardeşlerimden) alırım.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

5. Ailem ve arkadaşlarım dışında olan ve beni gerçekten rahatlatan bir insan (örneğin, flört, nişanlı, sözlü, akraba, komşu, doktor) var.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

6. Arkadaşlarım bana gerçekten yardımcı olmaya çalışırlar.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

7. İşler kötü gittiğinde arkadaşlarıma güvenebilirim.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

8. Sorunlarımı ailemle (örneğin, annemle, babamla, eşimle, çocuklarımla, kardeşlerimle) konuşabilirim.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

9. Sevinç ve kederlerimi paylaşabileceğim arkadaşlarım var.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

10.Ailem ve arkadaşlarım dışında olan ve duygularıma önem veren bir insan (örneğin, flört, nişanlı, sözlü, akraba, komşu, doktor) var.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

11.Kararlarımı vermede ailem (örneğin, annem, babam, eşim, çocuklarım, kardeşlerim) bana yardımcı olmaya isteklidir.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

12.Sorunlarımı arkadaşlarımla konuşabilirim.

Kesinlikle hayır 1-------2-------3-------- 4-------5-------6--------7 Kesinlikle evet

APPENDIX VII

Multidimensional Anger Scale (MDAS)

Bu ölçek, insanların öfke konusunda duygu ve düşüncelerini belirlemeyi amaçlamaktadır. Bu kitapçıkta farklı bölümler halinde bazı ifadeler bulunmaktadır. Lütfen HER BİR İFADEYİ ayrı ayrı dikkatle okuyup, yandaki cevap bölümünde size uygun olan daireyi işaretleyin. Her sayfanın başında yer alan kısa açıklamayı mutlaka okuyun. Cevaplarınızı bu açıklamalara göre vermeniz gerekmektedir. Her madde için sadece size en uygun olan bir cevabı işaretleyin. Hiç bir maddenin doğru ya da yanlış cevabı yoktur. Size en uygun gelen cevap doğru olan cevaptır. Çalışmanın sağlıklı olabilmesi için içtenlikle ve dürüst olarak cevap vermeniz çok önem taşımaktadır. Hiç bir şekilde isim ya da kimliğe ait bilgiler vermeniz gerekmemektedir. Katkılarınız için şimdiden çok teşekkür ederiz.

Öfkelendiğinizde aşağıdaki belirtiler sizde ne sıklıkla ortaya çıkar?

	Hiç	**Nadiren**	**Arada sırada**	**Sıklıkla**	**Her zaman**
1. Kendi kendine söylenmek.	○	○	○	○	○
2. Kontrol kaybı.	○	○	○	○	○
3. Kanın beyne fırladığını hissetmek.	○	○	○	○	○
4. Yumruklarını sıkma.	○	○	○	○	○
5. Dişlerini sıkmak.	○	○	○	○	○
6. Beynin zonklanması.	○	○	○	○	○
7. Elin-ayağın titremesi.	○	○	○	○	○
8. Hareketlerin hızlanması.	○	○	○	○	○
9. Nefesin daralması	○	○	○	○	○
10. Baş ağrısı	○	○	○	○	○
11. Burnundan soluma.	○	○	○	○	○
12. Zihnin allak bullak olması.	○	○	○	○	○
13. Mantıklı düşünememe.	○	○	○	○	○
14. Dudaklarını ısırmaya başlamak.	○	○	○	○	○

Aşağıdaki durumlarda ne kadar kızarsınız?

	%0	**%25**	**%50**	**%75**	**%100**
1. Başkalarının önünde eleştirildiğinizde.	○	○	○	○	○
2. Eleştirildiğinizde	○	○	○	○	○
3. Geçmişte sizi öfkelendiren birşeyi hatırladığınızda.	○	○	○	○	○
4. Bir işi yaparken engellendiğinizde.	○	○	○	○	○
5. Tehdit edildiğinizde.	○	○	○	○	○
6. Haksızlığa uğradığınızda.	○	○	○	○	○
7. Birisi sizi hep aynı konuda kızdırdığında.	○	○	○	○	○

8. Önem verdiğiniz şeyler küçümsendiğinde.	○	○	○	○	○
9. Söylediğiniz bir şey yapılmadığında.	○	○	○	○	○
10. Azarlandığınızda.	○	○	○	○	○
11. Size hakaret edildiğinde.	○	○	○	○	○
12. Aldatıldığınızda.	○	○	○	○	○
13. Yapmadığınız bir şeyden dolayı suçlandığınızda.	○	○	○	○	○
14. Sizin adınıza kararlar verildiğinde.	○	○	○	○	○
15. Ailenize hakaret edildiğinde.	○	○	○	○	○
16. Size saldırıldığında.	○	○	○	○	○
17. Sizin için değerli bir şeyi karşınızdaki anlamadığında.	○	○	○	○	○
18. Sudan sebepler yüzünden istedikleriniz yapılmadığında.	○	○	○	○	○
19. Sizinle dalga geçildiğinde.	○	○	○	○	○
20. Randevulara sadık kalınmadığında.	○	○	○	○	○
21. İnsanlar yetkilerini kötüye kullandıklarında.	○	○	○	○	○
22. Size saygısız davranıldığında.	○	○	○	○	○
23. Önemsenmediğinizde.	○	○	○	○	○
24. Yalan söylendiğinde.	○	○	○	○	○
25. Arkanızdan konuşulduğunda.	○	○	○	○	○
26. Sizi sömürmeye çalıştıklarında.	○	○	○	○	○
27. Sizi görmezden geldiklerinde.	○	○	○	○	○
28. Karşınızdaki kendi sorumluluğunu almadığında.	○	○	○	○	○
29. Düşündüklerinizi ifade edemediğinizde.	○	○	○	○	○
30. İnsanlar başınızın etini yediklerinde.	○	○	○	○	○
31. Size değer verilmediğini hissettiğinizde..	○	○	○	○	○
32. Düşüncelerinize değer verilmediğinde.	○	○	○	○	○
33. İnsanlar hadlerini bilmediğinde.	○	○	○	○	○
34. Kişisel haklarınıza saldırıldığında.	○	○	○	○	○
35. Söylediklerinizin tam tersi yapıldığında.	○	○	○	○	○
36. Yaptığınız bir iş takdir edilmediğinde.	○	○	○	○	○
37. Değiştiremeyeceğiniz şeyler olduğunda.	○	○	○	○	○
38. Birisi sizinle konuşurken konuşmasını bölüp başkasıyla konuştuğunda.	○	○	○	○	○
39. İşler ters gittiğinde.	○	○	○	○	○
40. Söyledikleriniz ters algılandığında.	○	○	○	○	○
41. İnsanlar üzerlerine aldıkları bir işi yapmadıklarında.	○	○	○	○	○

Aşağıdaki düşünceler, aklınızdan ne sıklıkla geçer?

	Hiç	Nadiren	Arada sırada	Sıklıkla	Her zaman
1. İnsanlar beni olduğum gibi görürlerse, geçinilmesi zor biri olduğumu anlarlar.	○	○	○	○	○
2. Ne kadar çok pişmanlık duyacağım şey yapıyorum.	○	○	○	○	○
3. Bana neler oluyor?	○	○	○	○	○
4. Kendimden utanıyorum.	○	○	○	○	○
5. Ailem için yeterince bir şey yapamadım.	○	○	○	○	○
6. Hemen hemen hergün birşeylere öfkeleniyorum.	○	○	○	○	○
7. İnsanlar nedense hep arkamdan konuşuyorlar.	○	○	○	○	○
8. Zaman zaman başkalarına zarar verme dürtümü kontrol edemeyebilirim.	○	○	○	○	○
9. İstediğim gibi bir hayat sürdüremedim.	○	○	○	○	○
10. Düşündüğümden daha da öfkeliyim.	○	○	○	○	○
11. Aslında insanların zannettiğinden daha çok öfkeliyim.	○	○	○	○	○
12. Sevmediğim insanlara karşı kabalaşıyorum.	○	○	○	○	○
13. Öyle öfkeliyim ki, kontrolümü kaybedeceğimi hissediyorum.	○	○	○	○	○
14. İnsanlar bana genellikle patronluk taslıyor.	○	○	○	○	○
15. İnsanlar sınırlarımı çok zorluyor.	○	○	○	○	○
16. Hayatta çok fazla haksızlığa uğradığıma inanıyorum.	○	○	○	○	○
17. İçimde öyle çok kin var ki, kimseye anlatamam.	○	○	○	○	○
18. Haketmediğim şekilde yaşıyorum.	○	○	○	○	○
19. Son zamanlarda kendimi çok aksi birisi gibi hissediyorum.	○	○	○	○	○
20. Başkalarına asla güvenmemeliyim.	○	○	○	○	○
21. Patlamaya hazır bir barut gibiyim.	○	○	○	○	○
22. Ne kadar çok sevmediğim insan var.	○	○	○	○	○
23. Günahlarımdan dolayı affedilebilecek miyim?	○	○	○	○	○
24. Bazen insanlar benimle alay ediyorlar gibi geliyor.	○	○	○	○	○
25. Sanki bütün dünyanın yükünü ben taşıyorum.	○	○	○	○	○
26. Bu yapılan iyi şeylerin altında acaba ne var?	○	○	○	○	○

27. Hoşlanmadığım kurallara neden uyayım diye düşünürüm.	○	○	○	○	○
28. Son günlerde ne kadar çok şeye öfkelendiğimi farkettim.	○	○	○	○	○
29. Başarısızlıklarım beni utandırıyor.	○	○	○	○	○
30. Herkes benim hiç öfkelenmediğimi sanır.	○	○	○	○	○

Sizi öfkelendiren bir durumda kaldığınızda aşağıdaki davranışları ne sıklıkla gösterirsiniz?

	Hiç	**Nadiren**	**Arada sırada**	**Sıklıkla**	**Her zaman**
1. Soğukkanlılığımı korurum.	○	○	○	○	○
2. Sinirimi boşaltmaya çalışırım.	○	○	○	○	○
3. Bana nasıl böyle bir haksızlık yapıldığını düşünürüm.	○	○	○	○	○
4. Kontrolümü kaybedeceğim düşüncesine kapılırım.	○	○	○	○	○
5. Bunlar başıma neden geliyor diye düşünürüm.	○	○	○	○	○
6. Ne yapacağımı düşünürüm.	○	○	○	○	○
7. Sağa-sola vururum.	○	○	○	○	○
8. Çözüme yönelik düşünmeye başlarım.	○	○	○	○	○
9. İnsanlar bana bağırırsa ben de onlara bağırırım.	○	○	○	○	○
10. Benimle aynı fikirde olmayan insanlarla tartışmaya girmekten kendimi alamam.	○	○	○	○	○
11. Şiddet gösteririm.	○	○	○	○	○
12. Gözüme bir şey gözükmez.	○	○	○	○	○
13. En iyi savunma saldırıdır diye düşünürüm.	○	○	○	○	○
14. Unutmaya çalışırım.	○	○	○	○	○
15. Herkes kadar ben de kavga ederim.	○	○	○	○	○
16. Haklarımı korumak için fiziksel şiddete başvurmam gerekirse, yaparım.	○	○	○	○	○
17. Daha da sakinleşmeye çalışırım.	○	○	○	○	○
18. Kendime sürekli sakin ol diye telkinlerde bulunurum.	○	○	○	○	○
19. Sakinleşmek için olayın nedenlerini sorgularım.	○	○	○	○	○
20. Kendi kendine geçmesini beklerim.	○	○	○	○	○
21. Kendimi sakinleştirmeye çalışırım.	○	○	○	○	○
22. Hoşlanmadığım fikirlerimi örtbas etmeye çalışırım.	○	○	○	○	○
23. Umutsuzluğa düşerim.	○	○	○	○	○
24. Kendimden başka bir şey düşünemem.	○	○	○	○	○

25. Öfkemi göstermem.	○	○	○	○	○
26. Soğukkanlılığımı kaybettiğim zaman, birine tokat atabilirim.	○	○	○	○	○

Sizi öfkelendiren bir insan karşısında aşağıdaki davranışları ne sıklıkla gösterirsiniz?

	Hiç	Nadiren	Arada sırada	Sıklıkla	Her zaman
1. Kendini suçlu hissetmesi için uğraşırım.	○	○	○	○	○
2. Beni bu şekilde sinirlendirmeye hakkı yok diye düşünürüm.	○	○	○	○	○
3. Onu mahvetmek isterim.	○	○	○	○	○
4. Onu hiç önemsemediğimi gösteren bir davranış yaparım.	○	○	○	○	○
5. Anında parlarım.	○	○	○	○	○
6. Sonuna kadar götüremeyeceğim tehditleri sıkça savururum.	○	○	○	○	○
7. Hakaret ederim.	○	○	○	○	○
8. Karşımdakini cezalandırmak isterim.	○	○	○	○	○
9. Dedikodusunu yaparım.	○	○	○	○	○
10. Hakkında düşündüklerimi ona söylerim.	○	○	○	○	○
11. Burnunun ortasına bir yumruk hakediyor diye düşünürüm.	○	○	○	○	○
12. Bunu kasıtlı yapıyor diye düşünürüm.	○	○	○	○	○
13. Beni sevmediğini düşünürüm.	○	○	○	○	○
14. Beni önemsemediğini düşünürüm.	○	○	○	○	○
15. Karşımdakinden intikam almak isterim.	○	○	○	○	○
16. Ona her türlü kötülüğü yapmak isterim.	○	○	○	○	○
17. O anda öcümü almak isterim.	○	○	○	○	○
18. Onu aşağılamak isterim.	○	○	○	○	○
19. Bana böyle acı çektirmemeliydi diye düşünürüm.	○	○	○	○	○
20. İstediklerinin tam tersini yaparım.	○	○	○	○	○
21. Gerekmedikçe konuşmam, ilgi göstermem.	○	○	○	○	○
22. Saatlerce öfkeli kalırım.	○	○	○	○	○
23. Beni hayal kırıklığına uğrattı diye düşünürüm.	○	○	○	○	○
24. Bana patronluk taslıyor diye düşünürüm.	○	○	○	○	○
25. Kendimi savunarak konuşurum.	○	○	○	○	○
26. Onu yaptığına pişman ettirmek isterim.	○	○	○	○	○
27. Kendini ne sanıyor diye düşünürüm.	○	○	○	○	○
28. Yüksek sesle bağırırım.	○	○	○	○	○

29. Aklımdan neyi yanlış yaptım diye geçer.	○	○	○	○	○
30. Nasıl tepkiler vereceğimi düşünürüm.	○	○	○	○	○
31. Sakin olmaya çalışırım.	○	○	○	○	○
32. Kendimi kontrol etmem gerektiğini düşünürüm.	○	○	○	○	○
33. Onu yenmeye çalışırım.	○	○	○	○	○
34. Ona, neye yolaçtığını iyice göstermeye çalışırım.	○	○	○	○	○
35. İçimden onun ne kadar aşağılık biri olduğu geçer.	○	○	○	○	○
36. Benden istediklerini yapmam.	○	○	○	○	○
37. Ona mutlaka birşeyler söylemem gerektiğini düşünürüm.	○	○	○	○	○
38. Kim olduğumu ona gösteririm.	○	○	○	○	○
39. Benimle alay ettiğini düşünürüm.	○	○	○	○	○
40. Ona gününü göstermek isterim.	○	○	○	○	○
41. Canı kavga istiyor diye düşünürüm.	○	○	○	○	○
42. İçime kapanırım.	○	○	○	○	○
43. Gülerim.	○	○	○	○	○
44. Hiç aldırmam	○	○	○	○	○
45. Görmezden gelirim.	○	○	○	○	○
46. Suçu kendimde ararım.	○	○	○	○	○
47. Ben ondan bunun acısını çıkarırım diye düşünürüm	○	○	○	○	○

CURRICULUM VITAE

PERSONAL INFORMATION

Surname, Name: Çerçel, Hilal
Nationality: Turkish
Date of Birth: 20 May 1983
E-mail: hilal.cercel@gmail.com

EDUCATION

2011-2019 Doğuş University, PhD program of Clinical Psychology
2006-2008 Okan University, Graduate program of Clinical Psychology (MA)
2001-2005 Ege University, Faculty of Arts, Department of Psychology
2009-2001 İzmir Bornova Anatolian High School