RELATIONSHIP BETWEEN PRENATAL DEPRESSION, COGNITIVE DISTORTIONS, EMOTION REGULATION, AND PERCEIVED SOCIAL SUPPORT

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RELATIONSHIP BETWEEN PRENATAL DEPRESSION, COGNITIVE DISTORTIONS, EMOTION REGULATION, AND PERCEIVED SOCIAL SUPPORT

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and ethical conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

RELATIONSHIP BETWEEN PRENATAL DEPRESSION, COGNITIVE DISTORTIONS, EMOTION REGULATION, AND PERCEIVED SOCIAL SUPPORT

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The primary purpose of this study is to examine whether depressive symptoms experienced by expectant mothers are related to perceived social support, emotion regulation, and cognitive distortions. In addition, the predictive effect of these variables on pregnancy depression was also investigated. The study showed that there is a relationship between depression and perceived social support, use of cognitive distortions, and expressive suppression but not reappraisal. Experiencing stressful life events, expressive suppression, and cognitive distortions were found to predict depressive mood in pregnant women. This research aims to shed light on the future therapy models that can be created for pregnant women.

Keywords: Pregnancy, Depression, Cognitive Distortions, Emotion Regulation, Social Support

ÖZET

HAMILELIK DEPRESYONU, BILIŞSEL ÇARPITMALAR, DUYGU DÜZENLEME VE ALGILANAN SOSYAL DESTEK ARASINDAKI ILIŞKILER

TUNÇ, Fatma Nur
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Bu araştırmanın temel amacı anne adaylarının yaşadığı depresif semptomların algılanan sosyal destek, duygu düzenleme ve bilişsel çarpıtmalar ile ilişkili olup olmadığının incelenmesidir. Ayrıca bu değişkenlerin bir arada hamilelik depresyonu üzerindeki yordayıcı etkisi de araştırılmıştır Bu örneklem için depresif ruh hali ile duygusal düzenleme tekniklerinden bilişsel yeniden değerlendirme arasında bir ilişki bulunmamıştır ancak bilişsel bastırma, algılanan sosyal destek ve bilişsel çarpıtmaların kullanımının hamilelerde depresyon ile ilişkili olduğu bulunmuştur. Gebelerde, gebelikte stresli olay yaşamış olmanın, bilişsel bastırmanın ve bilişsel çarpıtmaların depresif duygudurumu yordadığı görülmüştür. Bu amaç doğrultusunda oluşturulan araştırmanın gelecekte hamileler için oluşturulabilecek terapi modellerine de ışık tutması beklenmektedir.

Anahtar kelimeler: Hamilelik anksiyetesi, sosyal destek, duygu düzenleme, belirsizliğe tahammülsüzlük, COVID-19

To all my supporters in this journey.

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INTRODUCTION

1.1. Pregnancy and Mental Health

Women experience intense physiological, psychological, and social changes during pregnancy and postpartum. Depending on biological and environmental factors, pregnancy and postpartum can be difficult for some women (Lancester et al., 2010). Pregnancy and postpartum periods may be processes in which psychiatric diseases occur or relapse with the influence of these factors. Therefore, psychiatric disorders that occur mainly during pregnancy can be ignored. However, early diagnosis and treatment of mental illnesses are essential because mothers' mental health affects babies during pregnancy and postpartum (Austin et al., 2008).

The risk of mental disease is related to both nature and nurture. Stress plays a significant role in the epidemiology of psychological disorders. When we think of the most drastic changes in a woman's life, becoming a mother is one of them—women's risk of developing psychiatric disorders increases during their childbearing years, adolescence, and young adulthood. The pregnancy and postpartum periods represent a risky period in which psychiatric disorders arise or flare up again. For this reason, many women may need psychiatric treatment during pregnancy and postpartum (Burt & Kendrick, 2005).

Anxiety and depressive disorder are among the most common psychiatric disorders during pregnancy (Değirmenci et al., 2018). International studies indicate that depression affects approximately 10-25% of pregnant women, and anxiety affects about 10-25% of antenatal women. Furthermore, it shows that psychological disorders affect about 25-45% of women (Rallis et al., 2014).

There is a strong belief that the mental problems experienced by the mother during pregnancy affect the fetus, disrupt the bonding relationship between mother and baby, and harm the mother's desire to care by compromising her existing capacity in the postpartum period (Hendrick, 2006). Moreover, women's mood disorders during child-rearing also cause problems in their relationships with their partners and cause a decrease in marital satisfaction.

1.1.1 Antenatal and Postnatal Depression Postpartum depression is a major depressive disorder that begins after birth (Pearlstein et al., 2009). This type of depression has been added to psychiatric diagnosis systems such as the DSM-V. In addition, many studies in recent years have focused on the adverse effects of postpartum depression on mothers and children (Lancester et al., 2008).

More than 15 percent of mothers worldwide are affected by postpartum depression (Pearlstein et al., 2009). As a result of the meta-analysis evaluations, 13 significant risk factors for postpartum-onset depression were identified in the literature (Beck, 2001). These are; prenatal depression, self-esteem, childcare stress, prenatal (prenatal) anxiety, life stresses, social support, marital status, history of depression diagnosis, newborn temperament, maternal sadness, marital relationship, unwanted/unexpected pregnancy, and socioeconomic status. The risk factors for postpartum depression did not differ in Turkey. According to the results of Özcan et al.'s (2017) meta-analysis study, including 52 studies, the incidence of postpartum depression (PPD) in Turkey was 23.8%. The most common risk factors were determined as the economic level of the family, whether the pregnancy was planned or not, stress factors and diseases during pregnancy, past psychiatric history, and social support. Among these risk factors, the most common risk factor was prenatal depression. Leigh and Milgrom (2008) found that pregnancy depression is the strongest predictor of postpartum depression.

Antenatal or prenatal depression (PND) is a major depressive disorder involving the pregnancy period (Leigh & Milgrom, 2008). Left untreated, depression can negatively affect the health of both mother and baby. (Alder et al., 2007). Depression during pregnancy can easily be ignored. Symptoms such as sleep disturbance, loss of appetite, and energy can be attributed to the somatic experiences of pregnancy rather than mood changes (Burt, & Hendrick, 2005). However, detecting the presence of hopelessness, not enjoying life, feelings of guilt, and suicidal thoughts during careful observations and interviews with the expectant mother helps to diagnose depression (Dağlar et al., 2015). This indicates that pregnant women might be overseen in terms of depressive or anxious symptoms.

The fact that stress factors and diseases during pregnancy are the most common predictors of postpartum depression suggests that early diagnosis and treatment of perinatal depression in the prenatal period is also essential for preventing postpartum depression.

The treatment selection for antenatal depression should consider both the baby and the mother. Previous data shows that mothers do not prefer pharmacological treatments as they fear antidepressants might harm the child and increase the risk of premature delivery (Freeman, 2007). Therefore mothers would mostly choose non-pharmacological interventions compared to antidepressants. These include Cognitive Behavioral Therapy and Interpersonal Therapy.

Cognitive Behavioral Therapy (CBT) has been researched and disseminated as an effective treatment for depression (Butler et al., 2006; Dennis, 2004). However, results from studies examining the effectiveness of CBT for prenatal depression have been contradictory. To understand the studies and implications of CBT to antenatal depression, the interventions for postnatal depression should also be considered as most of the knowledge is derived from postnatal depression. Even, there is not a scale specially designed to understand perinatal depression and the literature and research use the Edinburgh Postnatal Depression Scale (EPDS) for the detection and diagnosis of perinatal depression.

Although two studies found CBT to be more effective than standard therapy for postpartum (Chabrol et al., 2002; Meager and Milgrom, 1996), other studies found weak effects (Prendergast and Austin, 2001) or found no significant difference between standard therapy and CBT (Milgrom et al., 1996). others, 2005, Morrell et al., 2009). Chabrol and his friends (2002) researched mothers at risk of depression. They randomly assigned the mothers at risk to a preventative or control group. They found that women in the prevention group had a significantly lower probability of depression than the control group.Meager and Milgrom (1996) conducted one of the first studies with cognitive-behavioral components, social support, and educational aspects. Ten women with postpartum depression were offered a 10 week of group treatment. The results of the pilot study was found to be encouraging.

Another study that was conducted with CBT was done by Prendergast and Austin (2001), their research had two primary aims: modifying CBT for Postnatal Depression and Early Childhood Nurses to be trained to provide this CBT intervention. The results of this research suggest that a standard care from Early Childhood Nurses is as effective as CBT.

Cho and his colleagues (2008) conducted a pilot study for antenatal cognitive-behavioral therapy to prevent postnatal depression. The study showed significant differences in postpartum measures between those who got CBT intervention and the control group. Therefore, this study seemed to be promising as it showed CBT can be a preventative measure for postnatal depression.

In 2020, a group of Japanese psychologists modified an Internet-based CBT as a preventative measure during pregnancy and postnatal period (Nishi et al., 2020). Recently, they conducted a large-scale randomized controlled trial with this modified therapy to understand the preventive effect of internet-based CBT on depression during pregnancy and postpartum depression (Nishi et al., 2022). The trial included 5017 pregnant women randomly assigned to the intervention or control group. The results show that internet-based CBT might be a helpful tool only for pregnant women with subthreshold depression.

A systematic review by Shortis, Warrington and Whittaker (2020) shows that only five studies focus on CBT efficiency in prenatal depression treatment. The results suggest that CBT interventions were found to be significantly effective on prenatal depression. However, the review also shows that the control groups also improved in terms of depressive symptoms.

These results suggest that it is necessary to examine in detail, the items and modifications to be used to create Cognitive Behavioral Therapy programs for pregnancy depression. Subsequent studies will thus focus on the development and effectiveness of CBT programs in pregnant women.

Many research has demonstrated the relevance of emotional control in preserving mental health (Ghorbani-Marghmaleki, Mohebbi-Dehnavi, & Beigi, 2019). Emotional regulation includes the behavioral and cognitive strategies that might alter the intensity or longevity of an experience. When faced with stressful experiences,

people utilize various emotion management tactics to modify or change their emotional experiences.

Researchers became more curious about understanding the emotion regulation and maternal mental health relationship. In a recent study, emotion regulation and mindful awareness were linked to anxiety and depressive symptoms of pregnant women (McDonald, Sherman & Kasparian, 2021). The study mainly focused on mediating effect of emotion regulation on mindful awareness and depression. Even though they could not find a direct or indirect relationship between mindful awareness with depressive symptoms, they found that emotion regulation and depression in pregnancy were correlated. Therefore, Mcdonald and her friends (2021) suggested further investigating these relationships.

Another relatively recent study included a broader aspect by investigating the relationship of emotion regulation of pregnant women with anxiety, post-traumatic stress symptoms, depressive symptoms in a longitudinal study during COVID-19 pandemic (Gonzalez-Garcia, Exertier & Denis, 2021). Even though they had found some correlations between social support and level of depression symptoms, their results suggested emotion regulation scores were not directly related to the depression scores of pregnant women.

In the thesis study by Altın Gök (2018), 249 pregnant women participated, the relationships of cognitive emotion regulation were examined, and strategies of self-blame, catastrophizing, and blaming others were associated with trait anxiety and depression. Treleaven (2020), in a study on psychological disorders, mother-infant attachment, and cognitive emotion regulation during pregnancy, shows that cognitive distortions and emotion regulation are essential predictors of mood during pregnancy. This study focuses more on anxiety and stress in pregnancy. A detailed research supporting these findings has not yet been conducted in Turkey. It is essential to know the effects of cognitive distortions and emotion regulation on pregnancy depression.

Therefore, although emotion regulation might be seen as a very effective tool to regulate emotion and modify cognitive errors in pregnant women, several studies do not support a relationship between emotion regulation and depression for pregnant

women. Therefore, there is a need for further investigating its relationship with depression.

Interpersonal counseling in prenatal depression is one of the most common and effective ways of treatment. In 1997, Spinelli conducted a pilot study with encouraging results for the treatment of depression for pregnant women. The emphasis was on its noninvasive and efficacious alternative to pharmacological options and ECT. The treatment lasted for sixteen sessions, including initial sessions, which focused on the selection of problematic areas, such as attachment issues, interpersonal deficits, loss of a loved one, etc., and treatment sessions that concentrated on these areas and at last four termination sessions (Spinelli, 1997). The study was promising as the depression scores of women who participated decreased; however, the sample size and lack of a control group limited its validity. On the other hand, other researches mainly focused on the efficiency of interpersonal counseling for pregnant women.

Recent qualitative research done by Ingram and her colleagues (2021) compared low-intensity cognitive behavioral therapy, and interpersonal counseling focused on exploring the experiences of 19 pregnant women with depression. They found that pregnant women found IPC a more applicable and acceptable treatment method because, according to them, IPC included "an additional emotional component" by identifying their support circles and communication skills development. This study's results emphasize the need to include social support and relationship aspects in talking therapies for the perinatal period. The results also support the argument that understanding emotions and emotion regulation strategies might be helpful.

1.2. Cognitive Model

Beck's model of depression derives from systematic clinical observations and experimental studies that began in the early 1960s. The interplay of clinical and experimental approaches has allowed the rapid development of the model and of psychotherapy derived from it (Beck, 2008). Beck proposes three specific concepts to explain the psychological nature of depression: 1) cognitive triad, 2) schemas, and 3) cognitive errors (Corsini & Wedding, 1989).

Cognitive theory developed based on the principles of cognitive psychology argues that the way the events are perceived and interpreted is more important than the

events themselves. According to this theory, if the expectations and beliefs in the cognitive structure that determine the way people view the world and their interpretations are distorted or not functional, the person begins to experience problems (Türkçapar, 2011).

Cognitive triad can be explained by the negative views about the self, the world and the future. The first part of the triad is the patient's negative view of himself. The person sees himself or herself as a flawed, incompetent, diseased or deprived person. It is tended to attribute all unpleasant experiences to own psychological, moral, or physical defect. The patient believes that he or she is an unwanted and worthless person because of these faults. The criticization about oneself is caused by this. There is a belief that they lack the qualities necessary to achieve happiness and personal worth. The second part of the cognitive triad consists of the depressive person's tendency to interpret their experiences negatively. The person sees the world as a place with excessive demands on himself and/or obstacles that he cannot overcome in reaching his life goals. The third part of the cognitive triad consists of a negative view of the future. The depressed person thinks that the current difficulties or troubles will continue forever. When he assumes that difficulties, inhibitions and deprivations will continue uninterruptedly or that he will undertake a special task in the near future, he thinks that he will not be able to accomplish this task.

Schemas are beliefs and rules that we generally acquire and develop in early life, that affect the way we think, feel, behave, and relate. When a person encounters a certain situation, the schema related to that situation is activated. The schema is fundamental in translating into given cognitions. A schema filters and decomposes the stimuli faced by the person and describes the basis for coding (Türkçapar, 2011). The person classifies and evaluates their experiences according to the schemas matrix. According to Türkçapar (2011), dysfunctional beliefs in cognitive stucture shape and lead an individual's thinking to cognitive errors.

Cognitive errors include systematic errors in the thinking of the depressed person which cause the person to maintain his belief in the validity of his negative concepts, despite the presence of contradictory findings. Beck and his colleagues (1979) outlined seven specific cognitive errors (overgeneralization, selective abstraction etc.) This list has been expanded by Burns (1980) and identified 10 main cognitive errors mostly

seen in depression. Cognitive distortion explains the unrealistic evaluations of the person's perception of self and the outside world, automatic thoughts and the emotional, intellectual and behavioral problems the person experiences with them (Fair, 1986).

According to Beck (2001) clients often make some mistakes in their thoughts consistently. These mistakes are often based on a systematic bias towards negative cognitive processes. While automatic thoughts are not always false, most of them are unlikely to be true. The reason for this is often the consistently and systematic errors of logic in perception called cognitive distortions (Freeman & Dattilo, 1992). However, studies have shown that cognitive distortions can also be observed in normal individuals, but the distinctive feature of depressed individuals is that they perceive any loss or stressful situation more negatively and exaggeratedly than normal individuals (Leahey, 2007).

The ways of cognitive distortions are explained below according to Beck's explanations (2001):

1.2.1. Dichotomous Thinking. In this way of thinking, which is also known as 'black or white', 'bipolar', 'bipolar thinking', thinking 'something happens exactly as we want it or not' is the basic feature. Instead of evaluating any situation in the process, it is evaluated only in two classes. It is evaluated as either succeeding or failing. This is why this cognitive distortion is also known as black or white, it does not see any grey colors or the earnings on the way. There is a tendency to polarize when the individual's attitudes towards events and people are only at extreme points (Harran, 1985, Blackburn, 1996).

1.2.2. Selective Abstraction. This way of thinking, also called a mental filter, is when an individual makes negative evaluations based on a single detail, despite the fact that there is different evidence about the event (Beck, 2005). An individual's appraisal of the whole by attaching itself to a few elements, details, or parts of the event, or even further, to make a single statement, even when the whole is not in front of his or her eyes.

In other words, it is to make a comment about the whole based on a feature or an item. Furthermore, this might result in overseeing many successful and meaningful experiences and only focusing and perceiving on failures or negativities.

1.2.3. Arbitrary Inference. It is the individual's coming to a conclusion according to himself by evaluating internal and external material in any event or experience, without any specific clue or evidence. This type of distortion, also called disabling of positive elements, is especially seen in depressed patients (Beck, 2005).

1.2.4. Mind Reading. Mind reading refers to the belief that other people know or should know what we think. On the other hand, it is also believing that we know what the other person is thinking without the need to investigate other possible causes. For example, when we see a friend and he does not cheerful that day, if we are doing mind reading, our thoughts could be "he does not like me as a friend, he is just talking to me for politeness" or any kind of strong inference about their thoughts of us without considering other options such as personal problems.

1.2.5. Catastrophizing. It is predicting the future negatively without considering more realistic consequences. In this form of cognitive distortion, individuals take an event and exaggerate it and thus become alarmed. They make negative assumptions about the future without considering more realistic consequences. For example, a student, who does not complete only one assignment might be anxious about failing the class all together.

1.2.6. Overgeneralization. Making a judgment about one's own inadequacy or the other based on a single cause or event and generalizing this judgment to other situations. A feature is evaluated by the individual as if it were a whole (Klar; Gabai; Baron, 1997).

1.2.7. Labeling and Mislabeling. Considering the evidence at hand, the person ignores this evidence and creates wholesale, judgmental and negative adjectives for himself and others, even though he is less likely to suffer. For example, describing oneself as "I am nothing." "I am a worthless person". Or it can also be done for other people. For an employer to label their new employee as "incompetent" instead of thinking "he does not learned yet" might be an example.

1.2.8. Magnification or Minimization. While reaching a negative decision for the individual, the materials collected with selective perception are not enough to form the decision, the existing negative material needs to be inflated. This way of thinking includes exaggerating the meaning and importance of negative events. Magnification-type distortions usually emerge when individuals evaluate their own fears and imperfections (Beck, 2005). This cognitive distortion is very similar to discounting the positive. It minimizes any positive contribution or aspects and

maximizes negative aspects of the event or situation. For example, an athlete in 2nd place might be sad as "he did not do enough and he is inncompetent as he did not win the race" instead of thinking "I worked a lot to earn this place."

1.2.9. Personalization. It is the person's perception of an event that is not related to himself as about himself. Cognitive distortions in the form of attributing the cause of others' negative behaviors to oneself, without considering that they may have different causes. This way of thinking is one of the most frequently used cognitive distortions. It involves looking for the cause of negative events in oneself when there is no correlation. Although there is no causal relationship, it is drawing conclusions about oneself from the messages coming from the environment and perceiving these as an evaluation directed to the personality. Individuals tend to exaggerate the events about themselves and to adopt the personal meanings they find in certain events to an extreme point (Beck, 2005).

1.2.10. Should Statement. Having clear orders for how oneself and others should behave is an exaggerated way of thinking that things will go wrong if those orders are not followed. Having strict rules about how oneself and others should behave; when these rules are not followed, the results would be exaggerated expectations about how bad everything will go.

1.3. Social Support

Social support is a multifaceted process that includes the provision of advice, financial support, emotional support, gratitude and support for the personal problems from the sources around one's social circles such as their family, friends and significants others (Gök, 2018). Social support can be obtained by receiving or giving support from relationships. On the other hand, perceived social support is a thought of expectation of the availability of this support whether or not the sources of support is there (Gök, 2018). Therefore, social support systems are actually a very important source for people to protect their mental health.

Pregnancy is a very unique and uncertain period for women, and the support they would receive from their surroundings is crucial in this sense. It is the first path a woman takes to become a mother and is underpinned by good communication and

support from their social circle (Sezen & Ünsalver, 2018). This support includes cognitive aspects to increase their self-esteem and help them resolve any confusion, financial support to overcome physical and economic needs, sharing responsibilities, and emotional support to meet needs such as empathy, compassion or trust. Norbeck (1981) stated that pregnancy is an adult crisis and that pregnant women need additional support to overcome this crisis. Also, pregnancy is a time when help is expected from strangers as well as family and friends. Good communication with friends, relatives and spouse can positively affect the transition to the mothering role. In Hall's (1991) study examining the psychosocial markers of maternal depressive symptoms, it was observed that as the social resource decreased, the level of chronic stress increased. Mothers without family and friend support use avoidance behavior more in coping with chronic stress. Since this approach is not aimed at reducing stress, it may increase depression. Social relations constitute the social network. A person in a wide social network maintains different roles such as spouse, child, parent, friend or neighbor. If he is loved, valued, and helped when necessary in these different lives, he feels so happy and safe. Conversely, when social relationships are inadequate or impaired, anxiety and feelings of worthlessness are common, which increase the risk of developing a mental illness (Hall, 1991)

The social support by loved ones, friends, family helps woman to cope with the stress and depressive feelings (Gök, 2008). It has been seen that inadequate social support might have a detrimental effect on pregnant woman's mental health. Research on pregnant women has shown that social support can reduce the impact of anxiety and stress during pregnancy. In a study conducted by Cronenwett, it was found that the social support systems of pregnant women were mostly formed by their relatives and they generally received emotional support from their mothers and fathers (1983).

While Beck (2008) states that women with low perceived social support during pregnancy are at higher risk of showing symptoms of anxiety and depression during and after pregnancy, Collins et al. (1993) state that women who claim to have sufficient social support during pregnancy have less pregnancy stress, thus determined that the risk of a psychological disorder is less due to these conditions. In addition, a study on this subject in Turkey gave similar results supporting these findings (Okanli et al., 2003). The risk factors of PPD have been extensively researched. Risk factors such as high maternal age, low maternal education, birth rate, being unmarried,

psychological disorders or trauma experienced before pregnancy, low social support, and low self-esteem have been found (Martini et al., 2015). It is known that women with a history of miscarriage or stillbirth, dilemmas about pregnancy, personal or family history of depression, number of living children, pregnancy at a young age, and women with low socioeconomic level experience more depression during pregnancy (Melville et. al., 2010)

1.4. Emotion Regulation

Emotions can be expressed as processes involving subjective experiences relevant to the individual, individual likelihoods of events that are significant to the individual, and assessments of situations that involve identifiable time periods. Regardless of this purpose in context, what is important here is the meaning one attaches to the situation, and that meaning causes one to experience an emotion. Since this meaning is situational, the feelings a person has about this situation may also depend on time (Uçak, 2019). Even though humans cannot fully control these feelings, people genuinely try to change or modify their emotions (Koç, et al., 2019). This effort is called emotion regulation. The developmental psychology-based concept of emotion regulation, first used by Thompson, implies that intense emotional expressions are tracked, evaluated, and regulated by internal and external processes as needed (Ata & Yalçınkaya, 2020). Gross (1998) explains emotion regulation by the process of deciding how, when and which emotions are expressed and all the strategies used to increase, decrease or maintain these emotions (Gross, 1998).

Gross (1998) proposes a model for initiating a new emotional response or modifying an ongoing emotional response by two basic emotion regulation strategies. The first strategy consists of cognitive arrangements that occur before emotional response (antecedent-focused strategies) and the second emotion regulation strategy for adjustments that occur while expressing emotion. To simplify, use of reappraisal (a kind of antecedent-focused strategy) causes an increase in positive emotion and a decrease in negative emotion. On the other hand, suppression (a kind of response-focused strategy) causes a reduction of positive emotion which increase negative emotional experiences. In general, depressive people are more likely to be suppressors

and less likely to be reappraisers (Gross & John, 2003). For example, people with depression are more likely to ruminate, use more expressive suppression, and less reappraisal (Joormann & Gotlib, 2010). Reappraisal is a type of cognitive emotion regulation that involves reinterpreting a stimulating situation and modulating its effect on emotion. On the other hand, suppression is used through continued emotional activity, even in emotional arousal (Megias-Robles, et al., 2019).

Emotional regulation strategies can help with promoting positive emotions and reducing negative emotions. However, for people who are poor at using these effective strategies variably, people fail to regulate their emotions (Uçak, 2019) resulting in psychiatric disorders such as depressive disorders (Koç et. al., 2019, 2019; Saljoughi, et al., 2015). Numerous studies have demonstrated the relevance of emotional regulation for maintaining mental health (Ghorbani-Marghmaleki, Mohebbi-Dehnavi & Beigi, 2019). Emotional regulation involves behavioral and cognitive strategies that can alter the intensity and longevity of experiences. When faced with stressful experiences, people employ a variety of emotion management tactics to modify or alter their emotional experiences.

Emotional regulation during pregnancy is highly crucial as pregnancy is a period in that women face many stresses and are more vulnerable and emotional than at other times (Treleaven, 2020). In this sense, successful use of emotional regulation might help women who are pregnant to better cope with stress and adapt to the new stimuli (Saljoughi et al., 2015).

1.5. The Importance of the Study

Social support, emotion regulation, cognitive distortions' association with depression during pregnancy have been studied in earlier literature. To the best of the researcher's knowledge, no research has investigated the association of these concepts together. Most of the research focused on post-pregnancy depression (Faisal-Curyi Savoia & Menezes, 2012). However, recent studies show that prenatal depression occurs more that anticipated earlier. The literature of perinatal depression and mental health have been less examined. The antenatal problems need to be addressed and examined in order to efficiently screen, prevention and early diagnosis. Also, by

investigating the relationship of prenatal depressive scores and the most important components of the most preferred psychotherapies for pregnant women; cognitive distortions, social support and emotion regulation, this study aims to understand antenatal depression and enlighten psychotherapeutic perspectives.

1.6. The Aim and Hypothesis of the Study

The primary purpose of this study is to examine whether depressive symptoms experienced by expectant mothers are related to perceived social support, emotion regulation, and cognitive distortions. In addition, the predictive effect of these variables on pregnancy depression will also be investigated. It is expected that the research created for this purpose will shed light on the therapy models that can be made for pregnant women in the future. The hypotheses formed in line with the purpose of the research are as follows;

1. It is expected that there will be a correlation between antenatal depression and social support, emotion regulation, and the use of cognitive distortions.
2. Emotion regulation difficulties, low perceived social support, and cognitive distortions will predict high depressed mood in pregnant women.

CHAPTER 2

2. METHOD

2.1. Participants

Total of 128 pregnant women participated in the study. Participant's age ranged from 21 to 46 with a mean of 30,82 (SD =0,47). Demographic information about participants are presented in the Table 1.

Table 1.

Demographics for Participants

	N	%

Age	128	
20 – 29	59	46.1
30 and above	69	53.9
Educational Level	128	
Elementary-Primary-High School Degree	34	21.1
Undergraduate Degree	68	53.1
Graduate Degree	33	25.8
Marital Status	128	
Married	125	97,7
Single	2	1,6
Divorced	1	0,8
Children Status	128	
Have Children	52	40.6
No Children	76	59.4
Occupational Status	128	
Yes	85	66.4
No	43	33.6
Trimester of Pregnancy	128	
1st Trimester (1.-13. Weeks)	44	32.8

2nd Trimester (14.-26. Weeks)	49	37.5
3rd Trimester (27.-41. Weeks)	37	29.7
Income	128	
3.000 TL -5.000 TL	18	27.4
5.000 TL and above	110	72.6
Planned Pregnancy	128	
Yes	85	66.4
No	43	33.6
Miscarriage History	128	
Yes	26	20.3
No	102	79.7
Chronic Disease	128	
Yes	20	16.6
No	108	84.4
Medical Illness during Pregnancy	128	
Yes	14	10.9
No	114	89.1
Psychiatric History	128	
Yes	8	6.2
No	120	93.8

Stressful Life Events	128	
Yes	63	49.2
No	65	50.8
Support During Pregnancy	128	
Yes	106	82.8
No	22	17.2
COVID-19 History	128	
Yes	66	51.6
No	62	48.4

2.2. Measures

After informed consent, participants were first asked to fill out a demographic questionnaire. The questionnaire included questions about their age, education, work status, income, marital status, living conditions, children, previous pregnancy experience, current pregnancy experience and COVID-related questions.

2.2.1. Edinburgh Postnatal Depression Questionnaire (EPDS). This scale is the most common depression scale for postnatal and antenatal depression. EPDS was constructed by Cox et al. in 1987, and it has been used for more than 30 years in various countries. EPDS is used for clinical examination and diagnosis of postpartum depression worldwide. The scale consists of 10 questions in total. EPDS is interested in how the participant was feeling in the last week. The total score is calculated by giving each item between 0-3. The total score could be between 0-30. Those who score above 13 are accepted as a risk group for postpartum depression. There are two validation studies conducted in Turkey (Engindeniz, 1996). Cut off score for the Turkish population was also 13. The Cronbach's α in the current sample was .94.

2.2.2. Multidimensional Scale of Perceived Social Support (MSPSS). This multidimensional self-report scale measures perceived social support from various sources such as friends, family, and significant others. The original scale was developed by Zimmet and his colleagues (1988). The scale includes 12 items and three subscales: family, friends, and the particular other. The individuals are expected to mark on a 7-point Likert scale. The total score's internal reliability was.93, and the subdimensions' internal reliability were .89, .91, and .91 for friends, family, and significant others, respectively. MSPSS was adapted to Turkish culture by Eker and Arkar (1995). The Turkish version was reliable (ranging from .80 to .95). The Cronbach's α in the current sample was .93.

2.2.3. Cognitive Distortions Scale (CDS). The Cognitive Distortions Scale is developed by Covin and Dozois (2011). This scale has distinctive features that part from other similar scales. This scale approaches cognitive distortions in two different contexts, such as social and achievement settings. Giving exemplary scenarios in the questions is another advantage that enables individuals to easily understand cognitive distortions and find similar examples in their lives. The scale's name is hidden from participants, and to prevent any prejudices against the scale, more neutral words are used in general.

The scale consists of 10 central cognitive distortions: catastrophizing, mind reading, all-or-nothing thinking, emotional reasoning, labeling, mental filtering, overgeneralization, personalization, should statement and minimizing or disqualifying the positive. Little stories that explain the cognitive distortions are given and asked to mark these distortions' frequency in 7-point Likert type from never to always. The scale consists of 2 domains (interpersonal and achievement) and ten items in each, a total of 20 items.

In the original study, CDS appeared to have good internal consistency (.85). The adaptation to Turkish culture was made by Ardanic (2017). Turkish scale adaptation was also found reliable with test-retest reliability (r=.95). The Cronbach's α in the current sample was .93.

2.2.4 Emotion Regulation Questionnaire (ERQ). The Emotion Regulation Questionnaire is the most frequently used scale for assessing emotion regulation

strategies, and it was developed by Gross and John (2003). The questionnaire is designed to understand the use of cognitive reappraisal (ERQ-CR) and expressive suppression (ERQ-ES), which are two main emotion regulation strategies. In other words, this scale includes items about experience and expression of emotion. For instance, an item on the scale is "I keep my emotions to myself." This scale consists of 10 items with the 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

The scale was first adapted to Turkish by Yurtsever (2008). Aka and Gencoz later reevaluated the Turkish version in 2014. They found that the Cronbach's alpha coefficient was .85 for reappraisal, and it was .78 for suppression. The Cronbach's alpha coefficient was .83 for reappraisal, and it was .76 for suppression for this sample.

2.3. Procedure

The data was collected after the approval of Ethical Committee of Bahcesehir University. This study collected data through online survey. Doctors have announced the research in clinics and hospitals and the research has been also announced in social media and online forums about pregnancy and mother-child related pages. Therefore the participants were found by convenient sampling method.

The participants took an online survey that takes 15 minutes to complete. First, participants gave consent through an informed consent form in which were explained the study and rights of the participants. The study was conducted under full anonymity and confidentiality.

Participants who agreed to participate voluntarily were presented with Demograpic Questions, Multidimensional Scale of Perceived Social Support (MSPSS), Cognitive Distortions Scale and Emotion Regulation Questionnaire

2.4. Data Analysis

IBM SPSS Statistics-23 was used for data analysis. First, data were screened accordingly with the inclusion criteria. Data were also evaluated for univariate outliers in the data screening process.

CHAPTER 3

RESULTS

In this study, Pearson's Correlations were used to analyze the data. The independent variable consists of the score of the Reappraisal (ERQ-CR) and Suppression (ERQ-CS) from Emotion Regulation Questionnaire (ERQ), the total score of the, the total score of the Multidimensional Scale of Perceived Social Support (MSPSS),. The dependent variable consists of the total score of the EPDS . Besides the correlation analysis, mean scores were compared by using t-test.

3.1. Preliminary Analyses

First, the data of variables were examined for frequencies, means, standard deviations, missing values, univariate and multivariate outliers and ranges.

Distribution of the independent and dependent variables were found normally distributed and skewness and kurtosis values range from -1.44 and+.066. Descriptive information for all the variables can be seen in the table below.

Table 2

Descriptive Information for the Instruments.

	N	Mean	SD	Range
Antenatal Depression (EPDS)	128	12.38	7.40	26
Use of Cognitive Distortions (CDS)	128	3.40	1.15	4.35
Cognitive Reappraisal (ERQ-CR)	128	4.95	7.23	33
Expressive Suppression (ERQ-ES)	128	3.85	5.91	24
Social Support (MSPSS)	128	64.23	15.24	60

3.2. The Effect of Demographic Variables

The effect of demographic values were explored by t-tests and ANOVA. Only three demographic variable has a significant impact on EPDS score.

3.2.1. T-Test Results for Stressful Event Occuring. EPDS scores were compared based on living a stressful event in pregnancy. The total score of the Edinburgh Postnatal Depression Scale was higher for people who went through astressfull event (M=14.20 , SD=6,67) compared to people who did not experience somethinstressfulul (M=10.60 , SD=7.69) (t =2.831, p = .005).

3.2.2. T-Test Results for Marriage Age. EPDS scores were compared based on the age of marriage. The total score of the Edinburgh Postnatal Depression Scale was higher for people who married younger than 30 years old (M=12.76 , SD=7.65) compared to people who married older than 30 years old (M=8.70 , SD=5.65) (t =-2.24, p = .027).

3.2.2. ANOVA Results for Education Level. EPDS scores were compared based on the the education level. The total score of the Edinburgh Postnatal Depression Scale was significantly different for people with primary school education (M=8.50, SD=10.97), people with middle school education (M=24.66, SD=2.31), people with high school education (M=12.25, SD=8.42) people with university degree (M=12.91, SD=7.11) people with graduate degree (M=10.69, SD=6.20) (F(4,123) =3.041, p = .020).

3.3. Correlational Analysis

Prior to the hypothesis testing for current data, pairwise correlations have been run to inspect relationship between all measured variables. To this end, 10 Pearson's correlation tests have been conducted.

There was a significant negative correlation between Use of Cognitive Distortions and Social Support, $r(128) = -0.37$, $p < 0.001$.

In terms of the relationship between independent variables and Antenatal Depression, there were three significant correlations. There was a significant negative correlation between Social Support and Antenatal Depression, $r(128) = -0.35$, $p < 0.001$. Secondly, Antenatal Depression and Use of Cognitive Distortions found to be significantly and positively correlated, $r(128) = 0.60$, $p < 0.001$. At last, Expressive Suppression and Antenatal Depression had a positive correlation, $r(128) = 0.33$, $p < 0.01$. Table 3 shows the results of all pairwise correlations.

Table 3

Pearson's Correlations between Measures

Variables		1	2	3	4	5
1. Cognitive Reappraisal (ERQ-CR)	Pearson's r	—				
2. Expressive Suppression (ERQ-ES)	Pearson's r	-0.02	—			
3. Use of Cognitive Distortions (CDS)	Pearson's r	-0.02	.25**	—		
4. Antenatal Depression (EPDS)	Pearson's r	-0.16	.33**	0.6***	—	
5. Social Support (MSPSS)	Pearson's r	0.36**	-.38**	-0.32***	-0.35***	—

* p < .05, ** p < .01, *** p < .001

3.4. Hypothesis Testing

To test the hypotheses of the present study, each independent variable has been used as only predictor in simple linear regression models which included Antenatal Depression as outcome variable. Next, a final full model has been tested via Linear Regression by including independent variables which significantly predict Antenatal Depression. By this, it was aimed to distinguish individual contributions of each predictor variable from one another in explaining variance of the depressive symptoms.

3.4.1. Excessive Suppression (ERQ-ES) – Antenatal Depression (EPDS). A simple linear regression was run to predict Antenatal Depression by Excessive Suppression. Result of the regression analysis yielded that Excessive Suppression was a significant predictor of Antenatal Depression, $F(1,126) = 15.32$, $p < .001$, $R^2 = .108$, $R^2_{adjusted} = .101$

3.4.2. Use of Cognitive Distortions (CDS) – Antenatal Depression (EPDS). A simple linear regression was run to predict Antenatal Depression by Use of Cognitive Distortions. Result of the regression analysis showed that Use of Cognitive Distortions was a significant predictor of Antenatal Depression, $F(1,126) = 71.848$, $p < 0.001$, $R^2 = 0.363$, $R^2_{adjusted} = 0.358$. Use of Cognitive Distortions explained 36 % of the variance in Antenatal Depression. The regression coefficient showed that a 1-point increase in Use of Cognitive Distortions scores corresponds to 3.88 points increase in Antenatal Depression scores, (B =.603, 95 % Confidence Interval = [2.97 4.78]).

3.4.3. Social Support (MSPSS) – Antenatal Depression (EPDS). A simple linear regression was run to predict Antenatal Depression by Social Support. Result of the regression analysis showed that Social Support was a significant predictor of Antenatal Depression, $F(1,126) = 17.21$, $p < 0.001$, $R^2 = 0.12$, $R^2_{adjusted} = 0.11$. Social Support explained 12 % of the variance in Antenatal Depression. The regression coefficient showed that a 1-point increase in Social Support scores corresponds to 0.17 points decrease in Antenatal Depression scores, (B = -0.17, 95 % Confidence Interval = [-0.25 -0.9]).

3.5. Final Regression Model

Based on simple linear regression models in the previous section, three predictor variables included in the final model. Namely, Use of Cognitive Distortions (CDS), Expressive Suppression (ERQ-ES) and Social Support (MSPSS) were evaluated in terms of their effectiveness on predicting Antenatal Depression (EPDS). To this end, a multiple linear regression was conducted to predict antenatal depression based on cognitive distortions, expressive suppression and social support. In this regresssion, demographic variables such as marriage age, stressful life events and education level were also included in the model.

A multiple linear regression was calculated to predict Pregnancy-Related depression based on cognitive distortions, expressive suppression, social support, education level, marriage age and stressful life event during pregnancy. A significant regression equation was found (F (6, 108) = 14,470, p < .001), with an R^2 of .446. This model of regression explained %45 of Prenatal Depression.

Table 4.

Regression Analysis Summary for Prenatal Depression (EPDS)

Variables	B	SE	β	t	p	Partial Correlation
Suppression (ERQ-ES)	.736	.388	.149	1.90	**.041**	.180
Use of Cognitive Distortions (CDS)	3.560	.504	.554	7.066	**.000**	.562
Social Support (MSPSS)	-.008	.043	-.016	-.185	.24	-.18
Education Level	-.367	.590	-.048	-.621	.536	-.60

Marriage Age	-.422	1.490	-.021	-.283	.777	-.27
Stressful Life Events	2.756	1.135	.185	2.429	**.017**	.228

Model 1= R = .668, R^2 = .446 F = 14.470, p<0.001

CHAPTER 4

DISCUSSION

This study aims to understand the factors contributing to Antenatal Depression including Emotion Regulation Strategies such as Cognitive Reappraisal and Emotional Suppression, Social Support and Cognitive Distortions by examining correlational relationship between these factors.

4.1 Evaluation of the Findings

This section aims to evaluate the findings from the analysis that aims to understand the relationship between Prenatal Depression, Emotion Regulation Strategies, Social Support and Cognitive Distortions. In this section, findings on relationships between demographic and dependent variables will be evaluated. Results regarding cross-correlations between study variables will be discussed. Finally, regression analysis, prediction of prenatal depression from cognitive distortions, expressive suppression, social support, education level, marriage age and stressful life event during pregnancy will be evaluated.

4.1.1. Evaluation of the Relationship Between the Demographic Variables and the Dependent Variable

Participants' scale and subscale scores were compared in relation to their experience of stressful events during pregnancy and there was a statistically significant difference between prenatal depression and experience of stressful events during pregnancy. Depression associated with pregnancy was found to be higher in women who experienced stressful situations during pregnancy.

It is stated that for a woman, being a mother causes many changes in terms of social, physical and spiritual aspects. Women are perceived as mothers from the very

first pregnancy. This situation causes a transformation in the identity of women. Pregnancy is a developmental crisis for women (Stern & Bruschweiler-Stern, 1998). Because birth is one of the most important experiences for women; It is also an important turning point. Stress is a defense mechanism necessary for the individual to adapt to situations encountered for the first time. When the individual is faced with dangerous environments or stimuli that cause danger and disrupt their body balance, this situation is tried to be coped with, and if it is not managed, feelings such as anxiety and hopelessness arise. These feelings result from emotional changes caused by stress (Pehlivan, 2002; Baltaş & Baltaş, 2004).

This study shows that women who went through a stressful event in their pregnancies will have more depressive symptoms than women who did not experience a stressful event. In addition, it was found that nearly 50% of pregnant women experienced at least one stressful event. Also, pregnancy alone is an unfamiliar time for pregnant women. The role of the mother and adaptation to the physical, biological, and psychological changes that accompany pregnancy, attachment to the baby for nine months of gestation; situations related to childbirth; baby happiness experienced by mother and having a baby in general can be complicated and disturbing, especially for women who have never given birth . Pregnancy itself can therefore be viewed as a stressful life event (Geller, 2004). These data suggest that stressful life experiences may influence pregnancy-related anxiety symptoms in Turkish society as they do in other communities.

Other demographic variables that had a significant effect on perinatal depression was education level and marital age. The adverse effects of depression and cortisol are associated with comorbid anxiety, younger age, lower educational attainment, demographic factors such as lower maternal SES, absence of a partner, a partner who is dissatisfied with pregnancy, or absence of a partner may also have exacerbated it. Young marital age and lower education level might be assessed as low maternal SES which would might mean lower socioeconomical status and lower life quality. Knowing the risk factors for depression in the perinatal period helps us identify and treat women at risk. In many different studies, adverse life events, lack of social support, domestic violence, low socioeconomic level, interpersonal factors - especially conflict with spouse, previous depression and pregnancy during

adolescence are risk factors associated with the perinatal period (Şahin, 2008; Erdem et. al., 2010).

4.1.2. Evaluation of the Findings Regarding Correlations. In this section, correlational relationships between Antenatal Depression, Perceived Social Support, Use of Cognitive Distortions and Cognitive Reappraisal and Emotional Suppression of Emotional Regulation Strategies will be discussed.

Correlation between Antenatal Depression and Emotion Regulation Strategies. It was expected that there will be a relationship between depressed mood, emotional regulation difficulties. It was also expected that there will be a negative relationship between the use of Cognitive Reappraisal and the level of depression and a positive relationship between the use of Cognitive Suppression and antenatal depression.

As mentioned earlier, many research has demonstrated the relevance of emotional control in preservation of mental health (Ghorbani-Marghmaleki, Mohebbi-Dehnavi, & Beigi, 2019). For example, previous researches show that people with depression are more likely to ruminate, use more expressive suppression, and less reappraisal (Joormann & Gotlib, 2010), however, we could not find a significant relationship between depression and cognitive reappraisal.

As mentioned earlier there are a few studies that focus on the relationship of emotion regulation to perinatal depression. Some of the results of these researches provide supportive evidence, however not all of the studies support this notion. As mentioned earlier Gonzalez-Garcia and her colleagues (2021) included a broader aspect by investigating the relationship of emotion regulation of pregnant women with anxiety, post-traumatic stress symptoms, depressive symptoms in a longitudinal study during COVID-19 pandemic. Even though they had found some correlations between social support and level of depression symptoms, their results suggested emotion regulation scores were not directly related to the depression scores of pregnant women.

A possible explanation to this discrepancy might come from the emotion regulation model itself. Expressive suppression is considered a more shallow compared to reappraisal (Gross, 2002). Gross (2002) explains this difference by stating reappraisal usually go through a deeper cognitive process. Even in a recent research conducted by Tyra and her friends (2021) found that in an unpredictable or crisis like

situation, we tend to use suppression as it reduces the intencity of emotions and leads to a base for reappraisal process. As this study was conducted in Turkey in 2022, we believe that both COVID-19 outbreak and economical crisis might have caused pregnant women to be alarmed.

A detailed research supporting these findings has not yet been conducted in Turkey. It is essential to know more about the effects of cognitive distortions and emotion regulation on pregnancy depression.

According to the analysis mentioned above, we aim to delve into the possible correlation between antenatal depression and framework of cognitive distortion theory. It is shown that there is a potential positive relationship between a range of moods falling under the scope of depressed mood and cognitive distortions. As discussed before in the literature review, the cognitive model which developed in the second half of the 20th century. Providing the first premises of the cognitive distortions theory, his model formed it's frame by referring to systematic clinical observations and experimental researches that root in the early 1960s. The interactions and accumulation of clinical and experimental approaches ensure the rapid development and construction of Beck's model and of psychotherapy derived from it. In his works, Beck suggests three specific concepts which aim to clarify the psychological nature of depression. These three concepts are mentions as the following: 1) cognitive triad, 2) schemas, and 3) cognitive errors (Corsini & Wedding, 1989). Therefore, it is expected that there will be a positive relationship between depressed mood, and cognitive distortions.

Even though there have been a lot of studies linking cognitive distortions to mental health problems, including depression (Beck, 1963; Wilson, Bushnell, Rickwood, Caputi & Thomas, 2011; Yüksel & Bahadir-Yilmaz, 2019), there are very few studies that has investigated the relationship of cognitive distortions and pregnancy (Nasir et. al., 2016) and prenatal depression. This result also provides evidence to the relationship for prenatal depression and cognitive distortions in a Turkish sample.

It was hypothesized that there would be a negative relationship between depressed mood and perceived social support in pregnant women. It was expected that pregnant women who perceived that they had more social support would have a lower depressed

mood and pregnant women who thought they did not receive enough social support would have higher depressed mood. This study's results also provide evidence supporting this hypothesis, and the results are in line with the literature.

Social support can be explained by one person's sense of social integration and network to their surroundings including friends, special someone or their family (Schwarzer, Knoll, & Rieckmann, 2004). Schwarzer, Knoll and Rieckmann (2004) further explains the social support by the functions and social relationships' quality.

Nearly most of the studies that were interested in the relationship of pregnant women's mental health and social support found that these two concepts are related (Beck, 2008). Moreover, Beck (2008) states that women with low perceived social support are more prone to anxiety and depression throughout their pregnancy. This claims the importance of perceived social support and mental health issues during pregnancy. The literature shows that social support provides a protection for pregnant women against prenatal depression (Collins et al., 1993). Therefore, it might be derived from this idea is that the risk of a psychological disorder is lower in women with sufficient social support. However, changes in pregnant women's physiological and emotional needs might result in distress. This new load of stress may require expecting mothers to develop new coping mechanisms. To create new coping mechanisms for the recent distress that comes with pregnancy, women might need protective factors that can elevate their sense of comfort. The perceived social support seems to provide this sense of comfort to pregnant women to develop comfort to develop these coping mechanisms against distress caused by the change of emotional, physiological, and psychological changes. The low perceived social support might cause pregnant women to be more prone and vulnerable to develop depression, negative expressions and a negative sense of self, others, and future.

In this study, it had provided evidence to the idea that women with lower perceived social support are more prone to depressive thoughts during pregnancy. The expectant mothers who had perceived more social support from their family and significant others had lower levels of depression. The primary support might explain this from others during pregnancy, which helps them to cope with negative emotions.

Further, this finding might explain the advantages of interpersonal counseling over cognitive behavioral therapy. Based on its foundation and implementation, interpersonal counseling focuses more on relationships and social interpretations than CBT. As mentioned earlier, some researchers found that interpersonal counseling is more efficient compared to CBT (Ingram et. al., 2021). Therefore, including more social or relational aspects of the pregnancy-focused CBT module might fit more into the treatment of antenatal depression.

4.1.3. Discussion of Regression Analysis, prediction of Pregnancy Depression (EPDS) by Expressive Suppression (ERQ-ES), Cognitive Distortions (CDS), Social Support (MSPSS), Stress Level, Marriage Age and Education Level

All the related variables to depression scores have been analyzed using a linear regression model. Prenatal depression scores' predictors were tried to assess based on expressive suppression, cognitive distortions, and perceived social support and all of the demographic variables were also included in the regression. This analysis was conducted in order to understand how the variables can be associated with pregnancy-related depression. The regression model showed us expressive suppression of emotion regulation, use of cognitive distortions, and experiencing a stressful life event are significant predictors of pregnancy-related depression.

Earlier studies have shown that stress and depressive symptoms are much higher for pregnant women when they face unexpected event such as natural disasters (Ho-Fung, Andersson et. al, 2022; Akgor et al., 2021). The main source of stress is that a woman tries to adapt to motherhood during pregnancy and the postpartum period. However, the expectation of the environment from the woman to be a good mother may be another factor that increases the stress. In a study conducted Turkey, it was found that 11.9% of pregnant women experienced prenatal distress, and age, income status, spouse occupation and pregnancy planning status affected the distress level (Atalay & Ozyurek, 2019). From previous research, we can understand that pregnancy is a stressful period for women by itself. Some researchers have stated that pregnancy-specific stress is more strongly associated with birth outcomes than general stress (DiPietro, 2002). This stress can be caused by physical symptoms, parenting concerns, tensions in relationships, body changes, and concerns about the birth and baby's health. The distress can also be caused by extraordinary situations as

mentioned earlier. For example, in a study conducted about pregnancy anxiety prevalances, 57% of pregnant women showed anxious symptoms, with an increase of 59% compared to a similar study conducted before the pandemic (Lebel et al., 2020). Therefore, experiencing a stressful situation might be very understandable and reasonable as a predictor of prenatal depression. However, understanding how including stressful life events in the regression model affected other variables' significance of prediction is important to understand.

Including experiencing a stressful event in the regression model lead to an increase in the overall variance explanation by predictors. The model can explain the variations further for depression in the pregnant women. However, it is understood that perceived social support is not a primary predictor of prenatal depression when we include stressful life events effects. Social support can be explained by one person's sense of social integration and network to their surroundings including friends, special someone or their family (Schwarzer, Knoll, & Rieckmann, 2004). The low perceived social support might cause pregnant women to be more prone and vulnerable to develop depression, negative expressions and a negative sense of self, others, and future. Therefore, we automatically assumed that perceived social support would correlates with depression and would predict depression. However, in the regression model when we included stressful life events, we found that perceived social support does not predict prenatal depression contrary to our expectations. Stress, physical, emotional and mental trauma, viral infections, chronic diseases, using oral contraceptives, some sedative drugs are environmental factors that predispose to pregnancy depression. Environmental factors are not the only factor in the development of pregnancy depression, but increase the risk of depression together with a genetic tendency (Celik & Atasever, 2020). Social support relieves pregnant women emotionally and cognitively, helps them to benefit more from social opportunities, copes with stressors and anxiety more, and facilitates the transition to the role of motherhood (Celik & Atasever, 2020). Even though the prediction of prenatal depression based on social support is supported by earlier research, this research suggest that stress or experiencing stress during pregnancy predict prenatal depression. Since perceived social support is used to cope with stressors. The association of social support might be more of a mediating effect for pregnancy

depression and stress. However, this mediation effect should be investigated in future research by incorporating a distress or stress scale.

4.2. Future Research Suggestions and Limitations of this Study

This study was done in a time that COVID-19 still had an impact on the lives of people. As it was tried to include the distress caused by COVID-19, it could be more effective to include a comprehensive scale for the effect of COVID-19 to understand the effect of pandemic to pregnancy and mental health during pregnancy.

Another limitation that could be told is that during the time this study was done, there was a hyper-inflation in economics and devaluation of the value in Turkish currency. The effect of this economical crisis is not included in the study. The inevitable negative impact of the economic factors is not broadly included.

Future research should focus more on the importance of interpersonal relationships and cognitive components of prenatal depression.

4.2.1. Clinical Implications. The previous literature provide complex and inconsistent evidence to therapies that are used for pregnant women (Shortis, Warrington & Whittaker, 2020) A review by Shortis, Warrington and Whittaker (2020) shows that there are only a few of studies that focus on the efficiency of CBT for pregnant women and the results suggest that CBT interventions were found to be significantly effective compared to no treatment, however, the control groups who had support also improved in terms of depressive symptoms. This study might provide a preliminary base for a cognitive based treatment that focus on pregnancy mental health by including, social relationships and emotion regulation.

4.3. Conclusion

In conclusion, Antenatal Depression is not a broadly discussed matter compared to its importance of negative effect to the mothers' and children's lives in long term. Therefore, symptoms of depression and negative emotions during antenatal term should be taken more seriously and precautious treatment during this term should be developed more carefully to provide preventative implications. The results of this study shows that Expressive Suppression, Cognitive Distortions and Perception of Social Support might have an effect on the depression among pregnant

women. It was also found that experiencing a stressful event, use of expressive suppression and use of cognitive distortions might predict prenatal depression. No relationship was found between depression and cognitive reappraisal .

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