



## ARAŞTIRMA / RESEARCH

# Relation of recurrent pregnancy loss and infertility on dream anxiety and insomnia

Tekrarlayan gebelik kaybı ve infertilitenin rüya kaygısı ve uykusuzluk ile ilişkisi

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### Abstract

**Purpose:** There are many factors affecting the physiological and psychological health of women during pregnancy. This study investigated the differences between dream anxiety and insomnia statuses of normal pregnancies and pregnancies with histories of primary infertility or recurrent pregnancy losses.

**Materials and Methods:** This descriptive correlational study data was collected in the Obstetrics Outpatient clinic of a private hospital located in Istanbul. This descriptive correlational study included 49 healthy pregnant women, 49 infertile pregnant women, 49 pregnant women with histories of recurrent pregnancy losses. The study data was collected using the 44-item Maternal Information Form (MIF), the Van Dream Anxiety Scale (VDAS), and the Insomnia Severity Index (ISI).

**Results:** The mean VDAS and ISI scores obtained by pregnant women with histories of primary infertility ( $24.9 \pm 6.5$  and  $11.1 \pm 3.7$ , respectively) and pregnant women with histories of recurrent pregnancy losses ( $26.3 \pm 8.7$  and  $12.6 \pm 4.2$ , respectively) were statistically significantly higher than those obtained by healthy pregnant women ( $18.7 \pm 6.5$  and  $7.8 \pm 2.4$ , respectively). There were no significant differences between the VDAS and ISI scores of pregnant women with histories of primary infertility and those of the pregnant women with histories of recurrent pregnancy losses.

**Conclusion:** Pregnant women with histories of primary infertility or recurrent pregnancy losses experienced significantly more dream anxiety and insomnia than women with healthy pregnancies. Healthcare professionals should assess women's mental statuses and provide appropriate health care to women during pregnancy.

**Keywords:** Insomnia, dream anxiety, infertility, recurrent pregnancy loss,

### Öz

**Amaç:** Kadınların gebelik döneminde fizyolojik ve psikolojik sağlığını etkileyen birçok faktör vardır. Bu çalışmada, normal gebelikler ile birincil infertilite veya tekrarlayan gebelik kayıpları öyküsü olan gebeliklerin rüya anksiyetesi ve uykusuzluk durumları arasındaki farklar araştırıldı.

**Gereç ve Yöntem:** Bu tanımlayıcı korelasyonel çalışma verileri İstanbul'daki özel bir hastanenin Kadın Hastalıkları Polikliniğinde toplanmıştır. Bu tanımlayıcı korelasyonel çalışma 49 sağlıklı gebe kadın, 49 infertil gebe kadın ve tekrarlayan gebelik kaybı öyküsü olan 49 gebe kadını içeriyordu. Çalışma verileri 44 maddelik Maternal Bilgi Formu (MIF), Van Dream Anksiyete Ölçeği (VDAS) ve Uykusuzluk Şiddet İndeksi (ISI) kullanılarak toplandı.

**Bulgular:** Primer infertilite öyküsü olan gebelerin (sırasıyla  $24.9 \pm 6.5$  ve  $11.1 \pm 3.7$ ) ve tekrarlayan gebelik kaybı öyküsü olan gebelerin (sırasıyla  $26.3 \pm 8.7$  ve  $12.6 \pm 4.2$ ) aldıkları ortalama VDAS ve ISI skorları sağlıklı gebelerden elde edilenlere göre (sırasıyla  $18.7 \pm 6.5$  ve  $7.8 \pm 2.4$ ) istatistiksel olarak anlamlı derecede yüksekti. Primer infertilite öyküsü olan gebelerin VDAS ve ISI skorları ile tekrarlayan gebelik kaybı öyküsü olan gebelerin puanları arasında önemli bir fark yoktu.

**Sonuç:** Birincil kısırlık öyküsü veya tekrarlayan gebelik kayıpları olan gebe kadınlar, sağlıklı gebelikleri olan kadınlardan önemli ölçüde daha fazla rüya kaygısı ve uykusuzluk yaşadı. Sağlık uzmanları, kadınların zihinsel durumlarını değerlendirmeli ve hamilelik sırasında kadınlara uygun sağlık bakımını sağlamalıdır.

**Anahtar kelimeler:** Uykusuzluk, rüya kaygısı, kısırlık, tekrarlayan gebelik kaybı

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## INTRODUCTION

Recurrent pregnancy losses (RPL) are defined as two or more pregnancy losses that occur before the 20<sup>th</sup> gestational week<sup>1,2</sup>. The prevalence of recurrent pregnancy losses is estimated to range between 1% and 2% in women of reproductive age.<sup>1</sup> In Turkey, the prevalence of infertility ranges from 10% to 30%<sup>3,4</sup>. RPLs due to hormonal changes during pregnancy can have negative psychosocial effects on women such as sleep problems, bad dreaming, and feelings of guilt, shame, isolation, and anger<sup>5-8</sup>.

Another factor affecting women's health is infertility, which can be observed in one or both partners. Infertility is defined as a condition characterized by failure to achieve clinical pregnancy after at least 12 months of regular unprotected sexual intercourse or characterized by the deterioration of the reproductive capacity of an individual and his/her partner<sup>9</sup>. While the worldwide prevalence of infertility (primary and secondary) ranges between 1.9% to 10.5%<sup>10,11</sup>, infertile women tend to suffer from sleep disorders and dream anxiety in addition to many negative emotional problems such as low self-esteem, body image disturbance, unhappy marriage, depression, and anxiety<sup>11-15</sup>.

Recurrent pregnancy losses and infertility are conditions that deteriorate a woman's health and quality of life, affecting her adversely. Women's feelings of fear, helplessness, and uncertainty about the later stages of pregnancy may cause them to develop some mental problems. As recurrent pregnancy losses or the duration of infertility increases so does maternal psychosocial deterioration<sup>3,6,7,14</sup>. This situation, depression, anxiety, and other psychopathologies may occur as a result of recurrent pregnancy losses or infertility. Accordingly, such negative experiences that the woman has previously experienced and has been engraved in the woman's subconscious can negatively affect her sleep and dreams no matter how healthy her next pregnancy is.

A dream is a mental activity that occurs during sleep and is remembered by the person having the dream when he/she awakens<sup>16,17</sup>. Dreams are primarily expressed as social phenomena by nature, explaining interpersonal conflicts and fears<sup>18</sup>. Previous studies have shown that the dreams that women have during pregnancy are often associated with unhappiness<sup>19,20</sup>. Although the phenomenological features of unusual

dreams have not yet been defined, it has been reported that dysphoric dreams occur during rapid eye movement sleep<sup>21</sup>. Dream anxiety is caused by awakening and autonomic arousal, which, in turn, can cause the sufferer to experience psychological distress and loss of functionality<sup>22</sup>. People who have bad dreams may be affected by these dreams after they wake up, resulting in clinically significant problems. For example, Cetin et al.<sup>23</sup> discovered a relationship between pregnancy preeclampsia, dream anxiety, and insomnia.

Although considerable research has been conducted to investigate the relationship between psychiatric symptoms and recurrent pregnancy losses or infertility, very few studies have focused on the effects of these two issues that are important for women's health and are related to dream anxiety and insomnia<sup>8,12,13,15</sup>. This study investigated the differences between dream anxiety and insomnia statuses of normal pregnancies and pregnancies with histories of primary infertility or recurrent pregnancy losses.

## MATERIALS AND METHODS

Approval for the study was obtained from the Medipol University Clinical Researches Ethics Committee (Reference number:10840098-604.01.01-E-54018, Dated 2018/12/25). All procedures were performed in accordance with the ethical standards of the institutional, the National Research Committee and studies involving human participants according to the 1964 Helsinki Declaration. Permission to use the scale was obtained from the author of the scale. Prior to the data collection phase, written permission and written informed consent were obtained from the private Nisa hospital and the participants, after the purpose of the study was explained to them.

The present study was carried out in the clinic of the private Nisa hospital between January 2019 and November 2019. In 2018, 200 women with recurrent pregnancy losses and primary infertility history came to the gynecology outpatient clinic. The sampling method whose population is known was used to calculate a sample size of 132 ( $n = 44$  for each group) using the Raosoft program with a 5% margin of type error and a 95% confidence level ( $\alpha = 0.05$ ,  $1 - \beta = 0.95$ ). Considering the possibility of participant withdrawals and/or losses during the study, it was decided to include 147 participants in the sample ( $n = 49$  for each group).

Inclusion criteria included being women between the ages of 18-40 in the reproductive period; having a history of infertility (infertility is defined as a condition characterized by failure to achieve clinical pregnancy after at least 12 months of regular unprotected sexual intercourse); poor obstetric history/having a history of recurrent pregnancy losses (recurrent pregnancy losses: RPL are defined as two or more consecutive pregnancy losses); being in the first, second, or third trimester of pregnancy; and having a singleton pregnancy.

Exclusion criteria included having a chronic disease (e.g., diabetes, thyroid dysfunction, cardiovascular problems, etc.), having a mental health illness (psychiatric illness diagnosed by a psychiatrist).

### Measures

The Maternal Information Form (MIF) was used to select pregnant women who met the study criteria. Scales such as the Van Dream Anxiety Inventory (VDAS) and Insomnia Severity Index (ISI) were completed by pregnant women who met the inclusion criteria to evaluate dreams and insomnia.

#### Maternal Information Form (MIF)

This form consists of 22 items that question participants regarding their socio-demographic characteristics, as well as their previous and current obstetric histories, and infertility histories.

#### Van Dream Anxiety Scale (VDAS)

This scale was developed to assess the frequency of dream anxiety and nightmares, evaluating frightening dreams during the previous month<sup>24-26</sup>, and consists of 17 items. The 17 items question participants regarding the following characteristics: clinical features, sleep, occupational, familial and social distress, psychological problems, and memory/concentration problems (Item 17). Responses to the items of this scale are graded on a 5-point scale ranging from 0-4 (never = 0, rarely = 1, sometimes = 2, usually = 3, and often = 4). The validity and reliability of this scale for use in Turkey were determined by Agargun et al<sup>26</sup>. The Cronbach's alpha value of the scale was 0.87 in the original study<sup>26</sup>. Permission to use this scale in the present study was obtained from the author of the scale.

#### Insomnia Severity Index (ISI)

The ISI was developed by Bastien et al.<sup>27</sup> to assess the severity of insomnia. It contains 28 items and each

item is rated on a 5-point scale ranging from 0-4. The minimum and maximum possible scores to be obtained from the index are 0 and 28, where, a higher score corresponds to more severe insomnia. Boysan et al.<sup>28</sup> determined the validity and reliability of the Turkish version of this index. The Cronbach's alpha value of the scale was 0.79 in the original study<sup>28</sup>. Permission to use this scale in the present study was obtained from the author of the scale.

Participants took approximately 20-25 minutes to respond to all the data collection forms (the MIF, VSAD, and ISI). A face-to-face interview technique was used during the data collection process.

### Statistical analysis

The SPSS 22.0 software was used for data analysis. Whether the distributions of the variables in this study were normal was examined using the Kolmogorov Smirnov test. Descriptive statistics and Chi-square were used for the comparison of categorical data, Kruskal Wallis test was used for the comparison of data that did not show normal distribution, and one-way ANOVA was used to compare the data with a normal distribution.

Analysis results were presented for quantitative data as mean, standard deviation, median, minimum, and maximum. Categorical data were expressed as frequency (percentage). P-values less than .05 were considered statistically significant.

## RESULTS

The total number of participants in the present study was 149, including 49 with recurrent pregnancy losses, 49 with histories of primary infertility, and 51 with normal pregnancies (not having a history of infertility or recurrent pregnancy losses). Comparison of these groups in terms of socio-demographic and descriptive characteristics demonstrated that there were no differences between these groups in terms of age, height, weight, education and employment status, income distribution, social security, gestational age, family type, smoking status, whether the current pregnancy was planned, or knowledge of the sex of the fetus. Therefore, these groups were homogeneous in terms of the aforementioned characteristics ( $p > 0.05$ ; Table 1). However, there were significant differences between these groups in terms of numbers of pregnancies and living children ( $p < 0.001$ ; Table 1)

**Table 1. Sociodemographic and obstetric features**

Median (min-max) Mean±SD	Healthy Pregnancy group (n=51)	Recurrent Pregnancy Losses group (n=49)	Primary Infertility group (n =49)	P <sup>a</sup>
Age(year)	28.5 ± 5.1	30.1 ± 4.5	29.9 ± 3.6	0.174
Height(cm)	162.9 ± 6.1	162.2 ± 5.5	163.9 ± 5.4	0.312
Weight(kilos)	83.5 ± 118.8	70.6 ± 11.7	70.4 ± 9.6	0.559
Number of Pregnancy	1 (1-4)	4 (2-7)	1 (1-4)	** <0.001
	n %	n %	n %	P <sup>b</sup>
Educational status	35 71.4	32 64	36 70,6	0.320
High school University	14 28.6	17 36	15 29.4	
Working status				
Yes	16 31.4	17 34.7	20 40	0.659
No	35 68.6	32 65.3	30 60	
Income status				
Middle	44 86.3	41 83.7	39 78	0.253
High	7 13.7	8 16.3	11 22	
Social security				
Yes	51 100	49 100	49 100	-
Family type				
Nucleus	51 100	49 100	49 100	-
Smoking				
No	51 100	49 100	49 100	-
Gestational age				
0-13 week	3 5.9	7 14.3	5 10	0.353
14-28 week	44 86.3	41 83.7	36 78	
29 and upper week	4 7.8	1 2	9 12	
Number of living children				
None	24 47.1			
1	12 21.6	49 100	49 100	< 0.001
2	15 31.3			
Whether the current pregnancy was intended				
Yes	51 100			
Having regular checkups during pregnancy	51 100	49 100	49 100	-
Whether the sex of the fetus is known				0.305
Yes	36 70.6	35 71.4	41 84	
No	15 29.4	14 28.6	8 16	

\*\* : Kruskal-Wallis test statistic a: one way ANOVA b: Chi-square test

Comparison of the study groups according to their VDAS scores revealed a significant difference between them ( $p < 0.001$ ; Table 2). The mean VDAS scores obtained by the participants in the recurrent pregnancy losses group ( $26.3 \pm 8.7$ ) and the primary infertility group ( $24.9 \pm 6.5$ ) were statistically higher than those obtained by the participants in the normal pregnancies group ( $18.7 \pm 6.5$ ;  $p < 0.001$ ; Table 2).

The mean ISI scores obtained by the participants in the recurrent pregnancy losses group ( $12.6 \pm 4.2$ ) and the primary infertility group ( $11.1 \pm 3.7$ ) were statistically higher than those obtained by the participants in the normal pregnancies group ( $7.8 \pm 2.4$ ;  $p < .001$ ; Table 2). There were no correlations between maternal age with VSAD or ISS scores ( $r = -.265$ ,  $p = .063$ ;  $r = -.232$ ,  $p = .106$ ,  $p > 0.05$ ).

**Table 2. Comparison of groups in terms of their mean VDAS and ISS scores**

Mean±SD	Healthy Pregnancy Group (n = 51)	Recurrent Pregnancy Losses Group (n = 49)	Primary Infertility Group (n = 49)	P*
Total VDAS	18.7 ± 6.5a	26.3 ± 8.7b	24.9 ± 6.5b	< .001
Total ISS	7.8 ± 2.4a	12.6 ± 4.2b	11.1 ± 3.7b	< .001

\*: one way ANOVA a-b: no significant difference between the groups

## DISCUSSION

The study groups were similar in terms of socio-demographic and descriptive characteristics. In the study, it was detected that pregnant women with histories of primary infertility or recurrent pregnancy losses experienced more dream anxiety and insomnia than women with healthy pregnancies.

Women with histories of primary infertility or recurrent pregnancy losses may experience negative emotions such as low self-esteem, body image disturbances, unhappy marriages, depression, and anxiety<sup>29,30</sup>. Studies related to this issue have shown that stressful conditions can affect a person's sleep patterns and dream experiences throughout his/her life<sup>5</sup>. In a study by O'Brien et al., they found a higher rate of sleep disorders in patients with abortion. In a case-control study of 218 pregnant women, Alihosseini et al.<sup>8</sup> detected a relationship between insomnia and pregnancy loss during. In a study of 117 infertile women, Lin et al.<sup>13</sup> found that 30% of these women experienced sleep disturbances due to psychological reasons. In a study of 50,154 women based on the Longitudinal Health Insurance Database covering the years between 2000 and 2010, Wang et al.<sup>15</sup> observed that infertile women suffered sleep disorders. This study detected that pregnant women with histories of primary infertility or recurrent pregnancy losses experienced more insomnia than women with healthy pregnancies.

Clinical studies have reported that women experience dream anxiety more frequently during pregnancy. The reasons behind the bad dreams that women having during pregnancy are still unclear. It is also noteworthy that the content of the dreams that women have during pregnancy is more frightening than that of the dreams they have before pregnancy<sup>31,32</sup>. In this study was found pregnant women with histories of primary infertility or recurrent pregnancy losses experienced more dream anxiety than women with healthy pregnancies.

To our knowledge, this study was the first to investigate the relationship between recurrent

pregnancy losses and primary infertility with insomnia and dream anxiety. Based on these results, it is recommended that health professionals who care for pregnant women with histories of recurrent pregnancy losses or primary infertility should consider the women's mental status and provide appropriate health care services to them during pregnancy.

The present study had some limitations. Firstly, the majority of the participants who presented to the hospital did not have an obstetric history (recurrent miscarriage, infertility, coagulation disorder, etc.). In Turkey, women with a bad obstetric history present to more specific maternity hospitals (like medical faculty hospitals, private clinics or infertility clinics). Therefore, the sample size was small. The second limitation was that no scale was used to measure the participants' anxiety levels because they were very likely to grow uninterested while answering the questions on such a scale or not answering them correctly. The third limitation of the study was that the participation was on a voluntary basis. In Turkey, interest in descriptive studies is very little. Participants answer the questions in the scale partly or not at all because they are too long. Therefore, the relationship between the participants' anxiety / depression states and their dream anxiety scale scores was not evaluated. The fourth limitation of this study was that it was a single-center study; thus, its results are only applicable to the participants surveyed and cannot be generalized to all pregnant women.

Pregnant women with histories of primary infertility or recurrent pregnancy losses experienced more dream anxiety and insomnia than women with healthy pregnancies. Based on these results, it is recommended that health professionals who care for pregnant women with recurrent pregnancy losses or primary infertility should take these women's mental statuses into account and provide appropriate health care services to them during pregnancy. It is also recommended that future studies be conducted to confirm the results of the present study with larger participant samples. This study can lead to an interest in studies on the design of dream anxiety and

insomnia in women with histories of recurrent pregnancy losses or infertility.

**Yazar Katkıları:** Çalışma konsepti/Tasarımı: DKG; Veri toplama: DKG; Veri analizi ve yorumlama: DKG, AŞK; Yazı taslağı: DKG, AŞK; İçeriğin eleştirel incelenmesi: DKG, AŞK; Son onay ve sorumluluk: DKG, AŞK; Teknik ve malzeme desteği: DKG; Süpervizyon: DKG, AŞK; Fon sağlama (mevcut ise): yok.

**Etik Onay:** Çalışma için onay Medipol Üniversitesi Klinik Araştırmalar Etik Komitesinden alınmıştır (Referans numarası: 10840098-604.01.01-E-54018). Tüm prosedürler, kurumsal, ulusal araştırma komitesinin etik standartlarına ve 1964 Helsinki Deklarasyonuna göre insan katılımcıların dahil olduğu çalışmalara uygun olarak gerçekleştirildi. Bu ölççeği kullanma izni, ölççeğin yazarından alınmıştır. Veri toplama aşamasından önce, çalışmanın amacı anlatıldıktan sonra sırasıyla özel Nisa hastanesinden yazılı izin ve katılımcılardan yazılı onam alınmıştır.

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