How do personality characteristics of risky pregnant women affect their prenatal distress levels?

A Turkey university hospital cross-sectional study

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Abstract

Purpose – The prenatal distress level of the pregnant woman is influenced by many variables. Personality characteristics are one of the most important of these variables. Knowing personality characteristics of pregnant women contributes to the personalization of care. The purpose of this paper is to identify the effect of personality characteristics of pregnant women at risk on the prenatal distress level.

Design/methodology/approach – A total of 438 women who were hospitalized based on a medical diagnosis associated with pregnancy were included in the study. The participants were administered the Personal Information Form, Cervantes Personality Scale and Revised Prenatal Distress Questionnaire. Data were evaluated using the SPSS 22.0 software program.

Findings – Of the pregnant women, 27.4 percent found their ability to cope with stress insufficient, and one-fifth of them found their social support insufficient. The pregnant women at risk with introverted, neurotic and inconsistent personality were found to have high levels of prenatal distress.

Research limitations/implications – This study was conducted on a group of Turkish pregnant women and cannot be generalized to other cultures. The data obtained from the research cannot be used to evaluate the psychological and physical disorders of the pregnant woman.

Practical implications – All health care professionals should evaluate women not only physically but also mentally and emotionally, beginning with the preconceptional period. They should determine the conditions that create distress and identify the personality characteristics that prevent from coping with stress. By using cognitive and behavioral techniques, pregnant women should be trained to gain skills on subjects such as risk perception and stress management, personality characteristics and coping, problem solving, psychological endurance and optimism. Caring initiatives should be personalized in line with personality characteristics of pregnant women. The care offered within this framework will contribute to the strengthening and development of the health of not only the women but also the family and society, and to the reduction of health care costs.

Social implications – Researchers have determined that pregnant women at risk with introverted, neurotic and inconsistent personality characteristics have higher distress levels. They have determined that these

pregnant women find their ability to cope with stress more inadequate. It is vital to cope with stress during pregnancy due to its adverse effects on maternal/fetal/neonatal health.

Originality/value – The prenatal distress level of the pregnant woman is influenced by many demographic (age, marital status and socioeconomic level), social (marital dissatisfaction, and lack of social support), personal (self-esteem, neuroticism and negative life experiences) and pregnancy-related (experiencing risky pregnancy, and previous pregnancy experiences) variables. Personality characteristics are one of the most important of these variables. This research is original because there are limited number of studies examining the effect of personality characteristics on prenatal distress level in the literature. And knowing the relationship between personality characteristics and distress by health professionals enables individualization of care. The care offered within this framework will contribute to the strengthening and development of the health of not only the women, but also the family and society, and to the decrease of health care costs.

Keywords Personality characteristics, Prenatal distress, Risky pregnancy, Turkey

Paper type Research paper

Introduction

Many of the physiological and psychosocial changes that occur during pregnancy result in each pregnancy being a potential risk[1]. Being "at risk" is the possibility of being faced with loss, injury or other harmful consequence that can result from danger. Risk in terms of pregnancy is the possibile occurrence of some complications that are not expected to happen under normal conditions but may preexist or occur during pregnancy. A risky pregnancy is a condition that can arise during early or late stages of pregnancy, significantly increasing the risk of morbidity and mortality of the mother or fetus[2]. Many situations are considered within the scope of risky pregnancies, such as the woman having a systemic disease before pregnancy, diseases that emerge with pregnancy, hypertension caused by pregnancy, placenta anomalies, premature membrane rupture, intrauterine developmental retardation, cervical insufficiency and premature birth[3–6]. These risk situations experienced during pregnancy are the leading cause of morbidity and mortality among women of reproductive age in developing countries[4, 7]. Throughout the world, there is a risk factor to maternal/fetal health in 5–20 percent of all pregnancies. In Turkey, a high rate of 31.1 percent of pregnancies and 60.5 percent of births are included in a risk category[8].

Stress is often used to describe a mental state caused by excessive pressure. It is a state of imbalanced physiological or psychological conditions caused by stressors. To maintain the balance or to reduce such conditions, physiological changes occur, collectively called the stress response. With the stress response, people can change or adapt to stressful conditions. But when the stressful condition is not adapted to for a long period of time or if the stress is too intense, it may bring on distress. An acute or chronic stress condition can also be regarded as distress. Distress cannot be considered completely independent of stress as extreme stress leads to a state of distress. Concern, anxiety and stress are important components of distress[9–13]. Distress is found in contexts in which people have been subject to traumatic experiences and is uncomfortable, upsetting and closely linked to anxiety. Distress can be described as the inability to cope with stressful conditions, or a condition that is painful, either physically or mentally or both, and is observable in behavior.

Prenatal distress is defined as the emotional reactions of pregnant women in terms of physical, mental and social changes, labor, parenthood and infant health that occur during pregnancy. There are many studies examining the prevalence of stress, anxiety and depression during pregnancy. In these studies, data are presented in the context of prenatal distress prevalence. Therefore, these variables should be taken into consideration when evaluating prenatal distress[14–26]. Pregnancy is a stressful and complex process for many women, even if there are no health problems diagnosed. A study of Schetter and Tanner shown that 78 percent of pregnant women are subject to low or intermediate levels of stress and 6 percent are subject to high levels of stress[9]. Many factors such as the lack of money,

lack of social support, smoking and substance abuse, relationship problems with spouse and negative body image may cause stress in pregnancy[14]. The stress experienced in risky pregnancies due to maternal or fetal problems is more pronounced and severe than normal pregnancies[10]. Intense stress and anxiety experienced during pregnancy adversely influences maternal/fetal health and pregnancy outcomes (such as preterm labor, abortion, low birth weight, intrauterine developmental retardation and a low APGAR score)[15–23]. Prenatal distress also increases the risk of depression. Gourounti, Karpathiotaki and Vaslamatzis reported that the prevalence of severe depression in pregnant women at high risk varies from 18 to 58 percent[24]. Prenatal depression is seen in about one-fifth of pregnant women who are hospitalized for long periods of time. Higher stress and anxiety levels in at risk pregnant women increase the probability of developing depression to a level that is higher than that of healthy pregnant women[25, 26]. The tendency of risky behavior increases in depressive pregnant women. It is also acknowledged that maternal depression has a regressive effect on the physiological, neurological and behavioral functions of the fetus/newborn[27].

The prenatal distress level of the pregnant woman is influenced by a number of factors. Changes in family and social life, availability of social support or tangible resources, age, marital status, socioeconomic status, antenatal care services, domestic violence, anxiety level, personality characteristics or pregnancy-related situations (experiencing risky pregnancy, and previous pregnancy experiences) can cause distress. Moreover, personality characteristics are one of the most important causes of prenatal distress[11–13, 28, 29]. Pregnant women's emotional reactions may also differ in accordance with women's personal characteristics[5]. Personality is composed of two basic parts – extroversion/introversion and emotional stability/neuroticism. People with extroverted personalities are open to collaboration, they do not have difficulty in communicating with other people and enjoy being in the community. People with an introverted personality are withdrawn, shy individuals who do not like social environments. People with an emotionally stable personality are comfortable, confident and patient, while those with a neurotic personality are anxious, frustrated, withdrawn and insecure[28–31]. Neuroticism is characterized by high sensitivity to stress including anxiety, fear, moodiness, worry, envy, frustration, jealousy and loneliness. Personality characteristics (neuroticism, introversion, extraversion) are, however, predictive of health outcomes in other fields potentially through biological, psychological and social mechanisms[28, 29, 31]. Personality characteristics have been linked to health outcomes in a number of studies, in particular for neuroticism and extraversion. For example, neuroticism is associated with increased risk of depression[32] and anxiety disorders whilst extraversion is believed to be protective against depression and social phobia[33]. When individuals face a situation that causes stress and increases anxiety, they create a coping strategy – consciously or unconsciously – that is based on personality characteristics. Individuals with extroverted, emotionally balanced, consistent and durable personality characteristics use problem-solving oriented strategies instead of emotion-oriented coping strategies[11].

Women who experience a risky pregnancy use different coping strategies against stressors they encounter during pregnancy. Ineffective coping strategies (such as eating, sleeping, crying, and hiding their feelings and disappointments) only reduce reactions to stressors instead of eliminating the stressors. However, in order to cope with the stress caused by a high-risk pregnancy, the pregnant woman and her family must both refer to the coping mechanisms they have used in the past and learn new coping mechanisms. It is extremely important to know the personality characteristics of the pregnant woman so that she can effectively cope with the distress caused by the risky pregnancy. Knowing the personality characteristics of pregnant women contributes to a better personalized support and care plan. By using personalized care initiatives, nurses and midwives working in perinatal clinics can support the personality development of the pregnant woman,

strengthen their ability to cope with stressors, reduce the perceived stress level and improve the biopsychosocial health of the mother and the infant[2, 10, 34, 35]. The aim of this study was to identify the effect of personality characteristics of pregnant women at risk on the prenatal distress level.

Methods

Study design and sampling

This was a cross-sectional descriptive study and was carried out at a university hospital between March 2017 and January 2018. The sampling included 438 pregnant women who met the following criteria: women who were hospitalized due to a pregnancy-related health problem, women with no recorded psychiatric illnesses, women who voluntarily agreed to participate. The exclusion criteria included healthy pregnant women.

Research instrument

The participants were given a Personal Information Form, the Cervantes Personality Scale (CPS) and Revised Prenatal Distress Questionnaire. The Personal Information Form consisted of 12 questions to determine certain sociodemographic and obstetric properties of the pregnant woman. The CPS was developed by Castelo-Branco *et al.* to evaluate the personality characteristics of women[36]. The scale was adapted into Turkish by Bal and Sahin[37]. Every question on the scale was answered based on the individual's own experience. The scale consisted of a 20-item, six-point Likert-type questionnaire and had three sub-dimensions (ranging from 0 to 5). Extroversion/introversion (min = 0, max = 35), emotional stability/neuroticism (min = 0, max = 35) and consistency/inconsistency (min = 0, max = 30). As the mean scores taken from the sub-dimensions decreased, extroverted, emotionally stable and consistent personality characteristics were more prominent. In our study, the Cronbach's α reliability coefficient of the scale was found to be 0.85. A revised Prenatal Distress Questionnaire (NUPDQ) was developed by Yali and Lobel to evaluate pregnancy-specific anxieties and concerns of pregnant women[12, 13]. The scale was composed of a 17-item, three-point Likert-type and could be used throughout the entire pregnancy (ranging from "not at all" (0) to "very much" (2)). The pregnancy-specific distress score was obtained by summing the item scores of the scale. It was possible to receive a minimum of 0 points and a maximum of 34 points from the scale. The increase in the total score received from the scale was interpreted as an increased level of prenatal distress perceived by pregnant women. The validity and reliability of the Turkish version of the scale were tested by Yuksel *et al*.[38]. The Cronbach's α value of the Turkish version of the scale was 0.85. The scale consisted of four factors. However, it could also be used as a single dimension. The Cronbach's α value of the scale in this study was found to be 0.77.

Application of research

Data were collected by the research team using face-to-face interviews with pregnant women. Before data collection tools were applied, a pilot study was performed on ten pregnant women by the researchers. Thus, a common perspective was established among researchers about the use of data collection tools. Risky pregnant women included in the pilot application were not included in the sample.

Statistical analysis

Data were evaluated using the SPSS 22.0 software program. Frequencies were used for the descriptive variables. The normalization of the data was examined by using the Kolmogorov–Smirnov Test. For the data that met the parametric conditions, those with two groups were analyzed using independent samples *t*-tests, and those with more than two

groups were analyzed using F-tests (ANOVAs). The relationships were determined using Pearson's correlation coefficient, and the error level was taken as 0.05.

Ethical considerations
This study was approved by the author's institution. In order to protect the rights of the women within the scope of the research, the ethical principles were met before collecting the research data: the "Informed Consent" principle involved explaining to the women the purpose of the study. The "Privacy and Protection of Privacy" principle was followed by informing participants that the information to be collected would be kept confidential, and the "Respect for Autonomy" principle by including those who wanted to participate voluntarily.

Results
Sociodemographic characteristics
The mean age of the pregnant women was 27.4 ± 5.2, and 90.4 percent of them were between the ages of 18 and 34. A total of 56.2 percent of the pregnant women had an education level of middle school or lower and 17.8 percent of the participants described their economic situation as poor. Of the pregnant women, 27.4 percent found their ability to cope with stress inadequate, and one-fifth of them found their social support systems insufficient. It was the first pregnancy of 10 percent of the pregnant women, 42 percent were in the second trimester and about two-thirds expressed fear and anxiety about pregnancy and the labor process. Of the pregnant women, 29.7 percent were hospitalized for eight days or more (Table I).

Obstetrics characteristics
In the obstetric histories of multigravida, there were stillbirths/losses of a fetus (4.6 percent), preterm births (4.1 percent) and spontaneous abortus (3 percent). A total of 9.6 percent of the pregnant women were $\geqslant 35$ years old, and 13.7 percent were cigarette-smoking addicts. Considering the primary medical diagnoses of pregnant women, they were hospitalized for various reasons. Of them, 29.9 percent had bleeding in the first trimester (abortus/ectopic pregnancy/hydatidiform mole), 19.7 percent had risk of preterm birth and 10.1 percent had hypertensive problems (Table II).

Scale total scores
The mean total score received from the Prenatal Distress Scale by the pregnant women was found to be 22.98 ± 5.56 (min = 0, max = 34). The mean scores of the extroversion/introversion, emotional stability/neuroticism and consistency/inconsistency sub-dimensions of the CPS were found to be 16.08 ± 3.80, 20.59 ± 4.62 and 18.42 ± 5.82, respectively (Table III).

Scale total scores according to certain characteristics of the pregnant women
The mean total scores of the Prenatal Distress Scale were high in the pregnant women who were $\geqslant 35$ years old, primigravida, hospitalized for $\geqslant 8$ days, had a low economic status, experienced fear and anxiety about pregnancy/labor, and found their ability to cope with stress and their social support systems insufficient ($p < 0.05$). There was no statistically significant difference between the mean total scores of the Prenatal Distress Scale in terms of the educational status of the pregnant women, their place of residence and their gestational trimesters ($p < 0.05$). It was found that the pregnant women's ages were significantly positively correlated with their PDS mean scores and negatively correlated with the number of pregnancies that they had ($p < 0.05$) (Table IV).

All three sub-dimension mean scores of the CPS were high in the pregnant women who were $\geqslant 35$ years old, who found their ability to cope with stress and their social support

Characteristics	n (%)
Sociodemographic characteristics	
Age (years)	
18–34	396 (90.4)
⩾ 35	42 (9.6)
Educational level	
Middle school and lower	246 (56.2)
High school and over	192 (43.8)
Living place	
Urban	320 (73.1)
Rural	118 (26.9)
Status of economical	
Good	306 (82.2)
Bad	78 (17.8)
Status of coping with stress	
I think it is sufficient	318 (72.6)
I think it is insufficient	120 (27.4)
Status of social support	
I think it is sufficient	348 (79.5)
I think it is insufficient	90 (20.5)
Obstetrics characteristics	
Gravida	
Primigravida	44 (10.0)
Multigravida	394 (90.0)
Trimester	
First trimester	164 (37.4)
Second trimester	184 (42.0)
Third trimester	90 (20.5)
Fear and anxiety related to pregnancy and childbirth	
Yes	264 (60.3)
No	174 (39.7)
Hospitalization time (days)	
1–7	308 (70.3)
⩾ 8	130 (29.7)
Note: $n = 438$	

Table I.
Distribution according to some characteristics of the pregnant women

insufficient, and who were hospitalized for ⩾8 days ($p < 0.05$). The mean scores of the extroversion/introversion and consistency/inconsistency sub-dimensions were statistically significantly higher in the pregnant women who were middle school graduates or higher ($p < 0.05$). The mean scores of the extroversion/introversion and emotional stability/neuroticism sub-dimensions were statistically significantly higher in the multigravida participants ($p < 0.05$). The mean scores of the emotional stability/neuroticism and consistency/inconsistency sub-dimensions were high in pregnant women experiencing fear and anxiety related to pregnancy/labor ($p < 0.05$). None of the three sub-dimension mean scores of the CPS were statistically different in terms of the place of residence, perception of economic status and gestational trimester ($p < 0.05$) (Table V).

Correlation according to scales total scores
A statistically significant positive correlation was determined between the pregnant women's PDS total scores and their CPS sub-dimension scores ($p < 0.05$). The pregnant women at risk with introverted, neurotic and inconsistent personalities were found to have high levels of distress (Table VI).

Risk factors	n (%)
Obstetrics history[a]	
Cigarette addicts[b]	60 (13.7)
35 years and older[b]	42 (9.6)
Dead birth or newborn loss in previous pregnancies[c]	18 (4.6)
History of preterm birth (22–37 hf. arası)[c]	16 (4.1)
Last baby's birth weight $\leqslant$ 2,500 g[c]	16 (4.1)
Spontaneous miscarriage (3 or more)[c]	12 (3.0)
Anemia[b]	12 (2.7)
l8 years and younger[b]	10 (2.3)
Previously performed operation related reproductive organs[b]	8 (1.8)
Last baby's birth weight $\geqslant$ 4,500 g[c]	6 (1.5)
Baby with anomaly[c]	4 (1.0)
Primary medical diagnoses	n (%)
Present pregnancy	
First trimester bleeding (abortus/ectopic pregnancy/hydatidiform mole)	131 (29.9)
Risk of preterm birth	86 (19.7)
Hypertensive problems (high blood pressure/preeclampsia/eclampsia)	44 (10.1)
Amniotic fluid problems (polyhydramnios/oligohydramnios)	38 (8.7)
Second trimester bleedings (placenta previa/ablatio placenta)	34 (7.8)
Early membrane rupture	26 (5.9)
Infections (urinary tract infections/infectious diseases)	24 (5.5)
Diagnosed or suspected multiple pregnancies	21 (4.8)
Hyperemesis gravidarum	16 (3.6)
Gestational diabetes	10 (2.2)
Rh incompatibility	8 (1.8)
Toplam	438 (100.0)

Notes: [a]The percentages were taken over "*n*"; [b]$n = 438$; [c]$n = 394$

Table II.
Distribution of
pregnant women
according to risk
factors and primary
medical diagnoses

Scales and sub-dimensions	Scale Min–Max	Study Min–Max	M (SD)
PDS	0–34	4–34	22.98 ± 5.56
CPS			
Extroversion/introversion	0–35	8–28	16.08 ± 3.80
Emotional stability/neuroticism	0–35	8–33	20.59 ± 4.62
Consistency/inconsistency	0–30	4–30	18.42 ± 5.82

Notes: CPS, Cervantes Personality Scale; PDS, Prenatal Distress Scale; *M*, mean

Tablee III.
CPS and PDS total
and sub-dimension
mean scores

Discussion

Pregnancy is an event in life that creates stress for women, regardless of whether it is "less" or "more." If a pregnancy is risky, the level of stress increases. The response to stress in risky pregnancies is closely related to many variables (such as the significance and type of stressful event, age, and past experiences). One of the most important of these variables is the personality characteristics of women. Previous research has investigated the relationship between personality characteristics and health outcomes. For example, mothers that score high for neuroticism may be more sensitive to the inherently stressful challenges of early motherhood and postpartum depression from lack of sleep or hormonal changes[39]. In addition, neuroticism and introversion have been reported to increase depression/anxiety disorders and substance use whilst extroversion has been reported to

Characteristics	n	PDS M (SD)	t/F	p
Sociodemographic characteristics				
Age (years)				
18–34	396	21.94 (5.11)	2.278[a]	0.002
⩾ 35	42	23.10 (6.63)		
Educational level				
Middle school and lower	246	22.93 (5.73)	0.211[a]	0.833
High school and over	192	23.05 (5.35)		
Living place				
Urban	320	22.90 (5.55)	0.490[a]	0.624
Rural	118	23.20 (5.60)		
Status of economical				
Good	360	23.86 (5.29)	7.409[a]	0.007
Bad	78	22.10 (6.68)		
Status of coping with stress				
I think it is sufficient	318	20.48 (3.25)	0.442[a]	0.002
I think it is insufficient	120	23.70 (4.80)		
Status of social support				
I think it is sufficient	348	21.93 (5.50)	1.404[a]	0.026
I think it is insufficient	90	23.20 (5.82)		
Obstetrics characteristics				
Gravida				
Primigravida	44	24.02 (6.42)	1.430[a]	0.043
Multigravida	394	22.98 (5.46)		
Trimester				
First trimester	164	22.46 (5.81)		
Second trimester	184	23.49 (5.39)	1.489[b]	0.227
Third trimester	90	22.90 (5.40)		
Fear and anxiety related to pregnancy and childbirth				
Yes	264	23.14 (5.64)	1.491[a]	0.048
No	174	21.88 (5.52)		
Hospitalization time (days)				
1–7	308	21.63 (3.69)	2.047[a]	0.041
⩾ 8	130	23.82 (5.16)		
r^c				
Age		0.438		0.034
Gestational age		0.373		0.430
Gravida		−0.966		0.002

Notes: $n = 438$. PDS, Prenatal Distress Scale; M, mean. [a]Independent samples t-test; [b]one-way ANOVA; r, Pearson's correlation coefficient

Table IV.
Distribution of the PDS mean scores according to some characteristics of the pregnant women

cause a protective effect against depression and social phobia[40, 41]. This paper explored the association between maternal personality characteristics and prenatal distress on high-risk pregnant women.

We determined in this study that the pregnant women of ≥35 years of age had higher distress levels compared to those between the ages of 18 and 34 (Table IV). As is known, the age factor in pregnancy is very important for the mother and fetus. In advanced-age pregnancies (≥35), it is more common to encounter risky situations that have the potential to adversely affect maternal and fetal health. For this reason, the stress level may be higher among advanced-age pregnant women who are aware of the possible complications associated with pregnancy[42–44]. The pregnant women aged ≥35 years experienced more distress due to both the risk of possible complications of advanced-age pregnancy and the presence of the diagnosis of risky pregnancy.

Characteristics	n	Extroversion/ introversion M (SD)	CPS Emotional stability/ neuroticism M (SD)	Consistency/ inconsistency M (SD)
Sociodemographic characteristics				
Age (years)				
18–34	396	16.02 (3.79)	20.20 (4.43)	18.13 (5.66)
⩾ 35	42	17.26 (3.83)	21.89 (5.10)	19.18 (6.20)
Significance test[a]		0.049	0.042	0.027
Educational level				
Middle school and lower	246	16.26 (4.21)	20.61 (4.65)	19.65 (6.21)
High school and over	192	15.95 (3.45)	20.57 (4.60)	17.24 (5.50)
Significance test[a]		0.015	0.440	0.009
Living place				
Urban	320	16.13 (3.71)	20.43 (4.57)	18.44 (5.79)
Rural	118	15.95 (4.06)	21.04 (4.76)	18.37 (5.29)
Significance test[a]		0.294	0.382	0.756
Status of economical				
Good	360	15.83 (3.91)	20.37 (5.01)	18.78 (5.79)
Bad	78	16.14 (3.78)	20.64 (4.54)	18.34 (5.83)
Significance test[a]		0.286	0.085	0.699
Status of coping with stress				
I think it is sufficient	318	14.02 (2.26)	18.00 (2.23)	17.16 (3.49)
I think it is insufficient	120	17.60 (3.40)	21.00 (3.01)	19.10 (5.20)
Significance test[a]		0.004	0.004	0.047
Status of social support				
I think it is sufficient	348	15.23 (3.94)	20.70 (4.65)	17.13 (5.80)
I think it is insufficient	90	17.52 (3.15)	22.17 (4.50)	19.00 (5.80)
Significance test[a]		0.041	0.020	0.043
Obstetrics characteristics				
Gravida				
Primigravida	44	16.56 (3.76)	20.54 (4.98)	17.88 (5.87)
Multigravida	394	17.03 (3.81)	22.60 (4.59)	18.48 (5.82)
Significance test[a]		0.026	0.006	0.645
Trimester				
First trimester	164	16.48 (4.17)	20.21 (4.64)	18.12 (6.18)
Second trimester	184	15.89 (3.64)	21.17 (4.48)	18.46 (5.73)
Third trimester	90	15.75 (3.38)	20.10 (4.59)	18.88 (5.34)
Significance test[b]		0.228	0.082	0.600
Fear and anxiety related to pregnancy and childbirth				
Yes	264	16.10 (3.63)	22.58 (4.59)	19.56 (5.34)
No	174	16.07 (3.91)	20.60 (4.65)	17.57 (6.12)
Significance test[a]		0.463	0.006	0.021
Hospitalization time (days)				
1–7	308	16.24 (3.99)	20.39 (4.66)	17.48 (5.71)
⩾ 8	130	17.73 (3.29)	22.06 (4.50)	19.29 (6.10)
Significance test[a]		0.011	0.008	0.014

Notes: $n = 438$. CPS, Cervantes Personality Scale; M, mean. [a]Independent samples t-test; [b]one-way ANOVA

Table V.
Distribution of the
CPS sub-dimension
mean scores according
to some
characteristics of the
pregnant women

This study have suggested that primigravida has higher levels of stress compared to multigravidas (Table IV). Yuksel *et al.* demonstrated that nulligravida are more distressed than those in their second pregnancy[38]. Jeyanthi and Kavitha reported that there is a significant relationship between primigravida and multigravida with regard to anxiety[45]. However, there is no significant relationship between primigravida and multigravida with regard to stress levels. However, a number of researchers have stated that having a high number of children can lead to distress and depression during pregnancy[46, 47].

Being primigravida and, at the same time, experiencing a risky pregnancy can cause women to experience a high level of stress. However, the increase in the number of children can increase the anxiety of pregnant women with regard to childcare.

Pregnant women at risk often receive medical treatment or supervision in the hospital. Prenatal hospitalization for high-risk pregnant women is associated with numerous stress factors, such as separation from the family and home, boredom, lack of activity, prolonged bed rest, tests and treatments, feelings of uncertainty, and lack of control[24]. Prolonging hospitalization is a stressor for pregnant women. In this study, we determined that pregnant women who were hospitalized for ⩾8 days had higher levels of stress than the pregnant women hospitalized for a week (Table IV). Yuksel *et al.* demonstrated that pregnant women with a history of health-related problems during pregnancy had higher prenatal distress and women with a history of admissions to hospital during their current pregnancies were more distressed[38]. Conversely, the study by Byatt *et al.*[27] found a statistically significant decrease in depression and anxiety scores throughout the course of the hospitalization. The results of the same study showed that 77 percent of women reported that they would or may benefit from a supportive psychotherapy group during their hospitalization[27]. In line with the data, it can be concluded that psychosocial activities and psychotherapy groups would reduce the stress levels of pregnant women who have to stay in hospital for a long time.

This study has suggested that pregnant women who have fear and anxiety related to pregnancy/labor have higher levels of distress (Table IV). Yuksel *et al.* demonstrated that pregnant women having fears or concerns about labor and delivery experienced higher prenatal distress[38]. The fear of labor, in particular, is an emotional stress factor affecting the maternal well-being of pregnant women during the pregnancy period. Such stress causes pregnant women to be more resentful and aggressive. Stress increases the blood flow to the uterus by also increasing the level of catecholamine, leading to the development of fetal hypoxia or preterm labor/labor with complications[48, 49]. Researchers have stated that the fear of labor is increased with young mothers, lack of social support, pre-existing psychosocial problems, negative obstetric experiences and lack of prenatal care[50, 51]. Based on the data, it can be concluded that it will be beneficial in reducing distress to support all pregnant women (especially those who have fear and anxiety about pregnancy/labor) accordingly during the period they are experiencing, meet their information/care needs and strengthen them in line with their personality characteristics. Nurses and midwives working in perinatal clinics can undertake important roles in helping to reduce stressful situations.

Social support is an important factor that contributes to reducing the risk perception of pregnant women and their ability to fight stress in line with their personality characteristics. The results of the study have suggested that pregnant women who think that the social support they receive is insufficient have higher levels of stress. Moreover, such pregnant women have more introverted, neurotic and inconsistent personality characteristics. Adequate social support contributes to the development of perinatal health, prevention of potential health problems, protection against the effects of stress and the use of effective coping strategies. The mental health of a mother to be is significantly

| | PDS | |
	r^a	p
CPS		
Extroversion/introversion	0.214	0.000
Emotional stability/neuroticism	0.742	0.000
Consistency/inconsistency	0.134	0.005
Notes: CPS, Cervantes Personality Scale; PDS, Prenatal Distress Scale. [a]Pearson's correlation coefficient		

Table VI.
The correlations PDS and CPS total and sub-dimension scores

related to the quality of her relationship especially with her husband[52]. For this reason, in order to reduce distress, it is beneficial to determine social support requirements and strengthen support systems.

Conclusion

Researchers have determined that pregnant women at risk due to introverted, neurotic and inconsistent personality characteristics have higher distress levels. They have determined that these pregnant women find their ability to cope with stress impaired. Creating an effective holistic approach to health care is central to an improved quality of life. Health care is interpersonal in nature and health care professionals view the human being as a whole with physical, emotional, social and intellectual needs. In this context, it can be said that psychological health is as important as physical health and is vital to coping with stress during pregnancy due to its adverse effects on maternal/fetal/neonatal health. All health care professionals should evaluate women not only physically but also mentally and emotionally commencing with the pre-conception period. They should determine the conditions that create distress and identify the personality characteristics that prevent women from coping with stress. Cognitive-behavioral techniques are an effective method of coping with distress. In the first stage of therapy, thoughts, behaviors and situations that cause distress are evaluated. The purpose of the assessment is to identify internal and external conditions that create distress. Cognitive-behavioral techniques teach pregnant women strategies to help manage stress, to gain skills in subjects such as risk perception and stress management, personality characteristics and coping, problem solving, psychological endurance and optimism. Caring initiatives should be personalized in line with the personality characteristics of pregnant women. The care offered within this framework will contribute to the strengthening and development of the health of not only the pregnant women but also the family and wider society, and can lead to a reduction of health care costs.

Limitations

This study was conducted on a group of Turkish pregnant women and cannot be generalized for other cultures. The data obtained from the research cannot be used to evaluate the psychological and physical disorders of the pregnant woman involved.

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