

# The Analytical Comparison of Depression, Anxiety, Stress and Social Support among Mothers with Premature/Low Birth Weight and Normal Infants

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**ABSTRACT-** This study aimed at analytical comparison of depression, anxiety, stress and social support among mothers with low birth weight/premature babies and mothers who had normal babies in Kermanshah in 2013 using a causal-comparative method. The population was the pregnant women, who had gone to Hazrat Masume hospital during the months of February 2012 to June 2013. Among this population, 100 mothers with low birth weight and preterm infants and 100 mothers with normal infants were selected randomly as two groups of control and experimental. Data were collected via medical records and Luce Band questionnaires of anxiety, stress and depression, and the Multidimensional Scale of Perceived Social Support of Zymet. Data from the questionnaires were analyzed by SPSS software using t-test. The results of descriptive statistics showed that the mean score of depression of mothers with low birth weight infants was more than that of mothers with normal babies, and the mean score of anxiety of mothers with low birth weight infants was more than that of mothers with normal infants. The mean score of anxiety and depression of mothers with premature children was less than that of mothers with normal weight children. The mean score of social support of mothers with healthy infants was more than that of mothers with low weight and premature infants. However, there was not a significant difference in inferential dimension. © 2014 Bull. Georg. Natl. Acad. Sci.

**Key words:** Depression, Anxiety, Stress, Social support, Mothers, Low weight infant, and Premature infant.

Delivery before 37 weeks is referred to as premature birth which is the main reason of two-thirds of children death accounts. The incidence of premature birth has been reported 5% in developing and 25% in developed countries. The weight of infant is one of the simplest and the most common healthy indicators to assess the status of the infants in each country. Low Birth Weight (LBW) according to the World Healthy Organization is defined as weighing less than 2500 Kg at birth. It is considered as one of the world's healthy problems. According to Williams et al (2009) low weight is divided into three groups: Low Birth Weight means weighing less than 2500 Kg (LBW), Very Low Birth Weight is defined as weighing less than 1500 Kg (VLBW), and Extremely Low Birth Weight is defined as weighing less than 1,000 Kg (ELBW). Newborn underweight infants are more exposed to risks such as cerebral palsy, mental retardation, the incidence of neurological impairment, respiratory disease, sudden death syndrome and complications of being hospitalized in intensive care units. (Nelson's Pediatrics: translated by Arjmand et al, 2007). In addition to physical problems, the maintenance and treatment cost of these infants is six times more than other

infants (Alexander et al, 2007). One of the factors associated with low birth weight is mental-social and behavioral factors (WHO, 2005). Mental healthy disorders increase the incidence of low birth weight and premature delivery rate; so that, the rate of premature delivery in depressed pregnant women is even triple the other women. (Rahimi et al, 2013). Mood disorder in women is twice the men and is more common during pregnancy and childbirth periods (Weissman & Olfson, 1995). In early pregnancy, the concerns associated with the acceptance of pregnancy, healthy, fitness loss and changes in roles and social aspects. These concerns cause anxiety and symptoms of anxiety may be appeared directly or indirectly in women (Longman, 1993). Anxiety disorders are the most common class of psychiatric disorders. Women, with a prevalence of 30.5% compared with 19.2% of men, may suffer from an anxiety disorder. Finally, the improvement of socio - economic state reduces the anxiety disorders (Kaplan and Sadok, 2009). We define stress as any situation which threatens the healthy of a person and hence his ability to resist the pressure. This could threaten the physical safety, long-term security, self-esteem, prestige, peace of mind, or other things that are valuable to the person (Milanifar, 2010). Stress is involved in all disease and not just in a psychosomatic illness. Researchers have found a link between stress and disease. As stress can impair the effectiveness of the immune system, so it plays a role in many diseases. In this respect, there are individual differences in how people can handle stress (Seyed Mohammadi, 2011). Pregnancy can be stressful, so that it can trigger a mental illness. Mental healthy problems in women before childbirth were 90 per cent in developed countries, while this was 10 percent in middle-income countries (Rochat, 2006). The consequence of mental healthy problems in these mothers would be infants with decreased motor development, behavioral changes, digestive problems and delays in the development (fields, 2003). Perhaps the most important outcome of mental disorders in pregnant women is the birth of underweight babies (Rahman, 2010). Stress and mental pressures during pregnancy are the psychological factors that play an important role in the birth of underweight children (Amankra, 2010). Research on the impact of mothers' stress during pregnancy on premature and low birth weight infants showed that the factors causing stress (financial, emotional, and damages resulting from losing of marital relations) play an important role in premature birth (Limlomwongse, 2006). The other research showed that women, who suffer from negative emotions and experience high levels of anxiety and depression during pregnancy, will have children with damaged biological development. This will increase the risk of having low birth weight infants (Graska, 2010). According to World Healthy Organization reports, depression has the first rating among different illnesses, and its prevalence among women especially during pregnancy has been 10-20% more than in men. Negative pressures of depression may affect on child's physical-social development and his brain (Rahman et al, 2004). Depression is referred to as extreme sadness and apathy to earlier pleasurable aspects of life which are said to last more than two months (Haljyn and Vytbrvn, 2003). Unfortunately, maternal depression faces children with numerous developmental and physical complications such as prematurity and low birth weight. Social support through a mediating role between life stressors and mental and physical problems reduces tension and improves the quality of life (Sarz et al, 2000). Social protection is known as the most powerful force to deal successfully with stressful conditions during conflict (including pregnancy) and facilitates the patient's tolerance for problems (Lee Yachang et al, 2004). Social protection is a concept that is understood as a help from others in difficult situations (Taylor, 2007). The study of Kakabaraee, Arjmandnia, and Afrooz (2013) compared the biological characteristics of 400 parents who had retarded and 400 parents who had normal children. The results showed that the biological characteristics are different among parents with normal and retarded children. Thus, identifying and investigating the causes of traumatic disabilities can prevent the occurrence of them and play an important role in mental health of community. The results of the study of shaghaghi et al (2010) showed that non-traumatic anxiety in mothers has a positive impact on their infants' anthropometric index. In other words, an increase of non-traumatic anxiety is optimal for embryo and improves infants' anthropometric index conditions. The results of the study of Ghavi et al (1391) showed a significant relationship between mothers' lifestyle during pregnancy and infant weight. The results of the study of Kakabaraee, Arjmandnia and Afrooz (2013) showed that the biological characteristics of parents with

normal and retarded children are different. Thus, identifying and examining the problematic factors can prevent occurring disabilities and play an important role in mental health of community. The study of Alameda County showed that in the same physical conditions, those who enjoyed more social support were threatened by the risk of death less than those who had not such a support (Hrtslyk & Adam, 2006). Furthermore, a general study showed that social support has a positive effect on physical health (Smith and Mackie, 1995). The main purpose of the present research was to examine the differences of depression, anxiety, stress and social support among mothers with low birth weight, premature and normal babies.

### **Procedure**

The present research has a practical objective and uses a causal-comparative method. The population is the pregnant women, who had gone to Hazrat Masume hospital during the months of February 2012 to June 93. Among this population, 100 mothers with underweight and premature infants and 100 mothers with normal infants were selected randomly as two groups of experimental and Control.

### **Instruments**

To measure stress, anxiety and depression, the DASS-21 anxiety, stress and depression questionnaire (Depression Anxiety Stress Scales), and to measure perceived social support, the MSPSS multidimensional scale of perceived social support were used (Multidimensional Scale of Perceived Social Support).

### **DASS-21 anxiety, stress and depression questionnaire**

Depression, Anxiety, and Stress Scale has 21-items and is a short-form version of DASS-42. It is a set of three subscales of self which is designed by Levi Band (Levi Band, 1995) on a scale of four points of the Likert scale for measuring state of negative emotional depression, anxiety and stress. Each of the subscales of depression, anxiety and stress includes 7 questions and final score is obtained on the total score of each question. Each question is graded from zero (not at all true about me) to 3 (very much true in my case). Validity and reliability of the DASS-21 questionnaire has been confirmed many times by scholars. Henry and Crawford (2005) conducted their study on a British non-clinical population ( $n = 1794$ ). The internal consistency coefficient (Cronbach's alpha) for the total scale was 0/93% and for the three subscales of depression, anxiety and stress was 0/88%, 0/82%, and 90% respectively. Also Nunnally and Bernstein (1994) stated that according to the desired level of reliability of the DASS scale, it can be used in clinical and research activities. In the study of Afzali et al (2007), Cronbach's alpha for depression, anxiety and stress was 0/94%, 0/85%, and 0/87% respectively. In the present study, Cronbach's alpha for the total scale was 0/885% and for the three subscales of depression, anxiety and stress was 0/728%, 0/776%, and 0/800% respectively.

### **Multidimensional Scale of Perceived Social Support (MSPSS)**

This questionnaire was prepared by Zimet et al (1988) to measure perceived social support from family, friends and important people in life. The questionnaire has 12 items on a scale of 7 to answer the preferred option from a score of one (totally disagree) to seven (totally agree) (Bruwer et al, 2008). Bruwer and colleagues (2008) reported inter-rater reliability of the instrument in a sample of 788 individuals from young high school using Cronbach's alpha, 90 to 86 percent for sub-scale, and 86 percent for whole instrument (Bruwer et al, 2008). Salimi et al (2009) reported Cronbach's alpha coefficients for three dimensions of social support received from family, friends and important people in life 89%, 86% and 82% respectively. In the present study the reliability of this scale was calculated 0/798 using Cronbach's Alpha.

### **Inferential statistics**

Research questions are examined in this section. T test was used to examine the research questions.

**Table 1**  
**Descriptive statistics for low birth weight infants**

		Number	Mean	Standard Deviation	Deviation from the mean
Depression	Under weight	64	8.9375	2.60570	.32571
	Normal	100	8.7800	2.55280	.25528
Anxiety	Underweight	64	9.1094	2.69695	.33712
	Normal	100	9.3400	3.14055	.31405
Stress	Underweight	64	12.0000	4.21637	.52705
	Normal	100	10.8400	3.91764	.39176
Social support	Underweight	64	42.9063	7.33922	.91740
	Normal	100	45.2100	8.46895	.84690

According to Table 1, depression scores of mothers with underweight and normal infants is 8/9375 and 8/7800 respectively. The mean score of depression of mothers with underweight infants is higher than that of mothers with normal infants. Furthermore, the mean score of anxiety of mothers with underweight and normal infants is 9/1094 and 9/3400 respectively. Thus, the mean score of anxiety of mothers with normal infants is more. According to this table, the mean score of stress of mothers with underweight and normal infants is 12/00 and 10/84 respectively. So, the mean score of stress of mothers with underweight infants is higher than that of mothers with normal infants. It also can be seen that the mean score of social support of mothers with underweight and normal infants is 42/9063 and 45/2100 respectively, and the mean score of social support of mothers with normal infants is higher than that of mothers with underweight infants

**Table 2**  
**Comparison of the two-sample test of low birth weight and normal**

		t -test Table						
		t	Degree of Freedom	Significant Level	Mean of Differences	Standard Deviation of Differences	95% Confidence Intervals for the Differences	
							Limit Low	High Limit
Depression	Variance	.382	162	.703	.15750	.41196	-.65601	.97101
Anxiety	Variance	-.484	162	.629	-.23063	.47638	-1.17133	.71008
Stress	Variance	1.795	162	.074	1.16000	.64615	-.11595	2.43595
Social Support	Variance	-1.788	162	.076	-2.30375	1.28838	-4.84794	.24044

According to Table 2, investigating the mean score differences of depression in underweight and normal infants shows  $t=0/382$  and significant level=  $0/704$ . Comparing the significant level with an error rate of  $0/05$  shows that significant level is more than test error. This shows that there is not a significant difference between depression scores of mothers with underweight and normal infants. This table also shows that for anxiety scores in two groups,  $t=0/484$  and significant level is  $0/629$  which is more than test error rate= $0/05$ . So, there is not a significant difference between anxiety scores of two groups. The results of the test statistics to compare the mean scores of stress of two groups showed  $t=1/795$  and significant level= $0/074$ . Comparing the significant level and test error rate= $0/05$  showed that significant level is more than test error rate and there is not a significant difference between stress scores of two groups. Comparing the mean scores of social support of mothers with underweight and normal infants, showed the results of  $t=1/788$  and significant level= $0/76$ . The significant level was more than test error rate= $0/05$ . So, there was not a significant difference between mean scores of social support of two groups.

**Table 3**  
**Descriptive statistics of premature infants**

		Number	Mean	Standard Deviation	Mean Deviation
Depression	Premature	79	8.7595	2.67570	.30104
	Normal	100	8.7800	2.55280	25528
Anxiety	Premature	79	9.1392	2.80446	.31553
	Normal	100	9.3400	3.14055	31405
Stress	Premature	79	11.4304	4.15619	.46761
	Normal	100	10.8400	3.91764	.39176
Social Support	Premature	79	43.2405	7.82372	.88024

According to Table 3, the mean scores of depression of mothers with premature and normal infants are 8.7595 and 8.7800 respectively. The mean score of depression of mothers with normal babies is higher than that of mothers with premature infants. The mean score of anxiety is 9/1392 for mothers with premature infants and 9/3400 for mothers with normal children, and the mean score of anxiety of mothers with normal children is higher than that of mothers with premature infants. As it is shown in this table, the mean score of stress is 11.4304 for mothers with premature infants and 10/8400 for mothers with normal children, and the mean score of stress of mothers with normal children is lower than that of mothers with premature infants. Furthermore, the mean score of social support is 43/2405 for mothers with premature infants and 45/2100 for mothers with normal children, and the mean score of social support of mothers with premature children is lower than that of mothers with normal infants.

**Table 4**  
**Comparison of two-sample tests of normal and premature infants**

		t	Degree of Freedom	Significant Level	Mean of Differences	Standard Deviation of Differences	95% Confidence Intervals for the Differences	
							Low Limit	High Limit
Depression	Variance	-.052	177	.958	-.02051	.39252	-.79513	.75412
Anxiety	Variance	-.445	177	.657	-.20076	.45114	-1.09107	.68955
Stress	Variance	.975	177	.331	.59038	.60579	-.60513	1.78589
Social Support	Variance	-1.597	177	.112	-1.96949	1.23294	-4.40266	.46367

According to Table 4, the results of comparing the mean scores of depression of mothers with premature and normal infants are as follows:  $t=0/052$  and significant level= $0/958$ . As it can be seen, the significant level is more than test error rate= $0/05$ . It can be concluded that there is not a significant difference between depression scores of two groups. This table also shows that  $t=0/445$  and significant level= $0/657$  were obtained for anxiety scores of two groups, thus the significant level is more than the test error rate= $0/05$ . This result shows that the difference between anxiety scores of two groups is not significantly different. According to this table, the results of  $t=0/975$  and significant level= $0/331$  were obtained for comparing stress scores of two groups. The significant level was greater than the test error rate= $0/05$ . It can be concluded that difference between the stress scores of two groups was not significantly different. This table also shows the following results:  $t=1/597$  and significant level= $0/112$  for comparing social support scores of two groups. This significant level was greater than the test error rate= $0/05$ . Thus, difference between the social support scores of two groups was not significantly different.

#### Discussion and conclusions

The present study aimed at comparing depression, anxiety, stress and social support scores among mothers with low birth weight, premature, and normal babies. The results of the present research indicated that: In inferential statistics, there was not a significant difference of depression, anxiety, stress and family social support between mothers with underweight /premature and mothers with normal infants. This finding is in line with study of Rahimi et al (2013). They showed that there is not a significant difference between physical growth of infants with depressed and non-depressed mothers. In other words, both groups of infants had the same physical growth. The study of Anderson et al (2004) showed that there is not a significant relationship between anxiety and depression during pregnancy and childbirth outcome. In the present research, it was shown that the mean score of depression in mothers with low birth weight infants was higher than the mean score of depression in mothers with normal children. But depression score of mothers with premature children was lower than depression score of mothers with normal children. Neshat et al (2013) reported that the risk of premature delivery is  $797/3$  times more in women with anxiety, stress and depression than normal pregnant women, and stated that the incidence of premature delivery in pregnant women,

who suffer from stress, anxiety and depression, is more. In a study in August 2010, which was conducted to investigate the relationship between anxiety and depression during pregnancy and low birth weight in Bangladesh by Hashima E Nasreen, it was shown that maternal anxiety and depression during pregnancy predicts the birth of underweight infants. In the present study, the mean score of anxiety of mothers with low birth weight / premature children was less than mean score of anxiety of mothers with normal children. This finding is in line with the study of Shaghghi et al (2011). Their research showed that non-traumatic anxiety of mothers has a positive impact on infants' neonatal anthropometric indices. In other words, non-traumatic anxiety is a desirable item for the infants' growth. Perkin et al (2006) also found that there is not a significant relationship between anxiety and obstetric complications including premature delivery. To justify this result, according to the Seligman's learned helplessness theory, when women find themselves to be anxious, to control possible difficulties which may affect on their children's healthy, they try to care for their babies. This will lead them to have healthier infants at birth. It should be noted that none of the studies performed during pregnancy have paid enough attention to the subject of traumatic and non-traumatic anxiety. Most of researchers have known anxiety as a harmful agent, but the results showed that if stress is too normal and does not cause damage in an unborn baby, it will be resulted in favorable effects on the fetus. In the present study, the mean score of stress of mothers with underweight/premature infants was more than that of mothers with normal infants. In a study which was conducted by Stephan and his colleagues at the 2000-2003 in Southern California, the results indicated that there was a significant relationship between stress and the risk of premature delivery. In explaining this result, we can say that stress and psychological pressures during pregnancy are the psychological factors which play an important role in incidence of low birth weight infants (Amankra, 2010, p. 25). Research on the impact of stress on premature and low birth weight infants showed that the factors causing stress (financial, emotional, damages resulting from losing of marital relations) play an important role in birth of premature and low birth weight infants (LimlomwoHngse, & liabsuetrakul, 2006). Another research showed that mothers, who suffer from negative emotions and high levels of anxiety and depression during pregnancy, will have a child with damaged biological growth. In the present study, the mean score of social support of mothers with normal children was more than that of mothers with low birth weight / premature infants. This finding is in line with the study of Ghavi et al (2012), the results of their study showed that mothers' lifestyle during pregnancy and birth weight was positively related, that is, mothers who worked hardly and did not have enough leisure and their social relations were weakened during pregnancy were exposed to the risk of having low birth weight infants than mothers who were in a good condition. In general, these findings are in line with the study of Shayeghian, Rasoolzade, and Sadighi (2009). They reported that mental state of mothers during and after pregnancy affects on their infants' mental health. What can be concluded from this research is that maternal biological factors including interval between pregnancies less than 1.5 or more than 5 years, anemia, and family marriages can lead the birth of premature and underweight infants. They also concluded that social support of families is very impressive for pregnant women. Social and economic conditions, mother's nutritional status, healthy, environment, interval between pregnancies, psychological factors, marriage and family ... are the factors associated with the birth of underweight and premature babies. Cultural, social and economic poverty causes low birth weight and premature delivery. Because issues such as anemia, inadequate prenatal care, infections, poor nutrition, increased physical pressures, heavy events such as blood pressure and ... cause the incidence of premature delivery. In the present study, although the relationship between psychological factors such as depression, anxiety, and stress and prematurity and low birth weight was not significantly determined, but since the mean scores of stress and depression were higher in mothers with premature and underweight infants, it can be stated that depression and stress are more common in mothers with premature and underweight infants. These mothers enjoy social support less than other women. In case of anxiety, as far as it is not vulnerable, it does not have any effect on premature birth; but it's likely that pregnant women care for themselves more. This is one of the natural birth factors. According to the present research and other studies, it can be concluded that premature birth and low birth weight depends on several factors. Understanding



different reasons such as maternal diseases, genetic problems and problems of obstetric factors is impressive in preventing the birth of premature infants. The researcher believes that public education to mothers, prenatal care, immunization of pregnant women, enhancement of body's defenses, improvement of economics, social and cultural levels are effective to minimize the rate of premature infants. Thus, reducing the birth rate of underweight or premature infants requires careful and comprehensive study. This requires comprehensive planning to prevent the congenital anomalies, birth injuries and infection. These prevention programs should be done in four stages: before pregnancy, during pregnancy, labor and the postpartum.

### Limitations

One of the limitations of the present research is that it was conducted in Kermanshah, so the results can not be generalized to other populations. The present research is comparative study, so the results can not be explained and interpreted as a pilot project. Ignoring some variables such as level of education, socioeconomic status, and mothers' age may be the other limitations of the present study.

### Suggestion

It is suggested that to increase the generalizability of these results and to investigate the ignored variables of this study, this research can be replicated in other cities in Iran. It is also suggested that in future researches the variables such as socioeconomic status, mother age, education level and etc should be considered. In this way, the results of the present research can be compared with the findings of other studies.

### ანალიტიკური შედარება დეპრესია, შფოთვა, სტრესი, და სოციალური მხარდაჭერა, მათ შორის დედათა ნაადრევი დაბალი დაბადების წონა და ნორმალური ჩვილი

ეს კვლევა მიზნად ისახავს ანალიტიკური შედარებით დეპრესია, შფოთვა, სტრესი და სოციალური დახმარების დედათა დაბალი დაბადების წონის / დღენაკლულ და დედები, რომლებიც ნორმალურად ჩვილი შესახებ -2013 გამოყენებით მიზეზობრივი-შედარებითი მეთოდით. რომ მოსახლეობამ ორსული ქალები, რომლებიც წავიდა კატეგორიები საავადმყოფოში თვეების განმავლობაში თებერვალი 2012 ლი2013 წლის ივნისში მათ ეს მოსახლეობა, დედათა დაბალი დაბადების წონა და ვადამდელი ჩვილი და დედები ნორმალურ ახალშობილებში შეირჩა შემთხვევით რადგან ამ ორ ჯგუფს შორის კონტროლის და ექსპერიმენტული. მონაცემების შეგროვება მოხდა სამედიცინო ჩანაწერებს და კითხვარები შფოთვა, სტრესი და დეპრესია და ამოუცნობი მასშტაბი სავარაუდო სოციალური მხარდაჭერის. მონაცემები კითხვარების ანალიზი მიერ პროგრამული უზრუნველყოფის გამოყენებით ს-ტესტი. შედეგების აღწერითი სტატისტიკის აჩვენა, რომ საშუალება ანგარიში დეპრესიის დედათა დაბალი დაბადების წონა ახალშობილებში უფრო მეტი იყო, ვიდრე დედათა ნორმალური ბავშვი და საშუალება ანგარიშით შფოთვა დედათა დაბალი დაბადების წონა ახალშობილებში უფრო მეტი იყო, ვიდრე დედათა ნორმალური ახალშობილებში. საშუალება ანგარიშით შფოთვა და დეპრესია დედათა ნაადრევი შვილი ნაკლები იყო, რომ დედათა ნორმალური წონა ბავშვები. საშუალება ანგარიშით სოციალური მხარდაჭერის დედათა ჯანმრთელ ახალშობილებში უფრო მეტი იყო, ვიდრე დედათა დაბალი წონა და დღენაკლულ ბავშვებში. თუმცა, არ იყო მნიშვნელოვანი განსხვავება დასკვნითი განზომილება.

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