



# A Comparative Study of Psychiatric Disorders among Mothers of Children with Chronic Diseases and Mothers of Healthy Children

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## ABSTRACT

The current study was conducted to compare the psychiatric disorders in mothers of children with a chronic disease with mothers of healthy children. The study was observational-analytical case-control study. The study population included mothers of chronically ill children who were hospitalized in internal wards of the Tehran Children Medical Center and mothers of normal children who referred to the Dental Clinic of this center. For sampling, convenience sampling method was used and 127 mothers were selected (65 mothers of healthy children and 62 mothers of ill children). The instrument used was SCL-90-R and demographic questionnaires. The collected data were analyzed using descriptive statistics and multivariate analysis of variance. The results showed that mothers of children with chronic disease had a significant difference in all components of psychiatric disorders ( $P<0.05$ ) with mothers of healthy children. 55.2% percent of mothers of ill children had morbid psychiatric versus 34.5% of mothers in the control group.

## INTRODUCTION

Mental disorder is a syndrome that its main characteristics include disruption of cognition, loss of emotional control or behavior, and disorder of psychotic or biological processes underlying mental functioning (Diagnostic and Statistical Manual of Mental Disorders, 2013). According to studies conducted by the World Health Organization (WHO), 20% of the population in developing countries suffer from depression. Also, according to the WHO reports, mental disorder is 26% among Iranian women (Gelder and Geddes, 2005). Chronic diseases (non-communicable diseases such as diabetes, heart disease, chronic obstructive pulmonary disease, cancer,

depression, and communicable diseases such as AIDS, etc.) have different characteristics, including: long waiting period, the long incubation, continuous clinical processes, multifactorial etiology, without a definite cure, gradual changes over time, the inconsistent and heterogeneous evolution of disease in the populations at risk of chronic disease (Bentzen, 2003). National health interview survey (NHIS) data indicate that 30% of children suffer from chronic health problems in the United States from 2000 to 2003. Once in a family, a person is diagnosed with a chronic illness, it is naturally that other family members feel anger, denial, blame themselves and others, fear, shock, confusion and distress. Because parents of children consider themselves and the environment responsible for a child's illness and suffer through anxiety, guilt, helplessness and powerlessness and therefore is affected their performance and ultimately of the whole family (Ellenwood and Jenkins, 2007). Despite the variety of social services, primary care of patients with chronic diseases were done by family members (Smith, 2007).

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More than 40% of family members of patients with chronic diseases (particularly cancer), show somatoform disorders and post-traumatic stress disorder symptoms. Caregivers of children with chronic disease often have poor quality sleep, high stress and pressure, which lead to an overall reduction in life quality (Klassen *et al.*, 2008). Since physical health of the child affects mother's behavior and performance, Rhodes *et al* (1999) reported that mothers of children with epilepsy are more likely to show aggression and anger towards their sick child. Streisand *et al* (2000) also found that mothers with children who need bone marrow transplants, need a lot of counseling and psychotherapy to reduce their anxiety. Shu *et al* (2000) studied the effect of autistic children on the mental health of mothers and found that mothers of children with Autism experience more stress and were more prone to depression and anxiety compared to mothers of children with other diseases.

Miodrag and Hodapp (2011) found that parents of children with intellectual or developmental disability, had chronic stress disease. Caregivers of children with chronic illness may often report poor quality sleep, stress and high pressure that leads to a reduction of life quality (Klassen *et al.*, 2008). In study of Soltanifar *et al* (2010), the results showed that 80% of mothers of children with anxiety disorders were suffered an anxiety or mood disorder. This indicate that depending on the type of disease in children, there might be various types of mood disorders in parents; the more severe the disease, the higher anxiety and depression in parents might be visible. There are numerous studies that reported an association between psychiatric disorders of mothers with chronic diseases of their children (Minkovitz *et al.*, 2005; Bartlet *et al.*, 2004; Streisand *et al*, 2008).

Since the presence of a physically ill child has negative effects on the parents' life and family members and can create long-term consequences and many disrupting covert and overt changes in various aspects of life of family members, it is important to pay attention to the health of mothers and identify its obstacles. In the majority of studies people with chronic disease are studied, and few of them studied the prevalence of different aspects of psychiatric disorders (often only anxiety and depression) in mothers of children with chronic disease, the present study was designed to compare psychiatric disorders in mothers of children with chronic diseases with mothers of normal children.

## MATERIALS AND METHODS

The statistical population of the current study included mothers of children that referred to the Tehran Children Medical Center. The sample was selected from mothers of children with chronic diseases hospitalized in internal wards as the experimental group, and mothers of healthy children who referred for child's dental treatment in this center. Due to 25% significant diagnostic differences between the two groups, 80% statistical power and 0.05 error type 1, the sample size of the current study was determined 55 persons in each group using Cochrane formula;

however, to prevent the unintended effect of reducing the sample size in each group, 70 questionnaires were distributed among mothers.

In order to check the status of the samples' psychiatric symptoms, SCL-90-R questionnaire was used (Derogatis *et al.*, 1985). The questionnaire contains 90 questions which are scored based on five options Likert scale (none, slightly, to some extent, high and very high). The ratings were based on scores zero (none), 1 (slightly), 2 (to some extent), 3 (high) and 4 (very high). Dimensions of questionnaire included somatic complaints (12 items), obsessive-compulsive (10 items), interpersonal sensitivity (9 items), depression (13 items), anxiety (10 items), aggression (6 items), phobia (7 items), paranoia thoughts (6 items), psychosis (10 items) and clinical situation (7 items). Various studies have reported that reliability of this questionnaire was estimated more than 0.77 base on Cronbach's alpha (Deragotis, Rickels, 1976; Deragotis, 2000; Rezapour, 1997; Ismail, 1997; Fathi, 2009). A researcher-made demographic questionnaire also was included: child's description (including age, gender, birth order, date of diagnosis of disease, type of chronic disease and lack of mental disability) and mother's status (age, place of residence, educational level, socioeconomic status, marital status, employment status and lack of mental disability). Frequency, mean, standard deviation and percent were used as descriptive statistics. Kolmogorov-Smirnov and M Box's tests were used for normality distribution of data and homogeneity of variance, respectively. One way analysis of variance was used to compare the two groups.

## Ethical considerations

Details of the experiment were described to the patient and then informed consent was obtained from the patient. The experiment was approved by the Ethics Committee of Tehran University of Medical Sciences.

## RESULTS AND DISCUSSION

The mothers of healthy children (n=65), 95.5% were married and 46% were divorced and the mothers of sick children (n=62) were 100% married. In the experimental group, mothers at the age of 31-35 years old (30.8%) was the highest frequency and mothers at 41-45 years old was the lowest frequency (3.2%). Mothers of healthy children in the age group 31-35 years old was 36.9% and ages 41-45 and 21-25 were 4.5%. Overall, frequency of age range of 31-35 years old were 33.8% in 127 person. In terms of education, 44.6% of healthy children's mothers and 45.2% of sick children's mothers had a high school education and diploma. In sick children's mothers group, the level of education of mothers was as follows: elementary 9.7%, pre-high school 27%, diploma (6.5%), bachelor's degree 11.3%; and at the control group were: elementary 1%, pre-high school 7.7%, associate diploma 16.9% and bachelor's degree and higher 3.1%. Also, according to the number of offspring of mothers with healthy children, the results were: 55.4% with one child, 35.34% two children, and 6% three children; and in mothers of sick

children were: 41.9% one child, 51.6% two children, 4.8% three children, and 1.6% four children. The majority of mothers with sick children had one child, and the majority of mothers of healthy children had two. In terms of gender of children, mothers of healthy children, mostly had daughter (55.4%) and the majority of the other group had son (59.7%).

In terms of employment status of mothers, 80% of the control group and 95.5% of mothers of sick children were housewives. In terms of income, the majority of mothers of healthy children had middle income (73.8%) and the low income was the lowest frequency (1.5%). In the group of mothers of sick children, middle-income was 45.2% and very high income was 3.2% and followed by very low income was 6.5%. In terms of children's age, healthy children with lower than 5 years old (35.4%) and 5-10 years old (64.4%) had the most frequency. In sick children, the most frequent age was under the age of 5 years (54.4%), followed by 10-15 years old (22.5%) and 5-10 years old (19.3%).

In terms of the place of living, the majority of mothers of healthy children (80%) were living in Tehran. The majority of patients' mothers (35.5%) were living around Tehran. Other cities and villages were 32.3% and 6.5%, respectively. The frequency of children, according to the type of disease were shown in Table 1. Overall of 62 questionnaires were answered by the mothers of sick children who mostly belonged to the Hematic diseases. In order to do statistical parametric analysis, Kolmogorov-Smirnov normality test was performed and showed that all data had normal distribution ( $P>0.05$ ) (Table 2).

**Table 1:** Distribution of children by type of disease.

Disease	%
Hematic	25.8
Respiratory	4.83
Digestive	9.67
Heart	4.83
kidney and lymph	12.9
Neurological	17.74
Rheumatology	11
Urology	11.29

**Table 2:** investigating the normality of the data by Kolmogorov-Smirnov test.

Components	Z	P	Distribution
Psychiatric disorders	1.08	0.192	Parametric

Psychiatric disorders in mothers with sick children and mothers with healthy children were shown in table 3. The majority of mothers of healthy children had no psychiatric disorders and the majority of mothers with sick children showed psychiatric disorders. To evaluate the significant difference between the prevalence of psychiatric disorders in mothers of children with chronic diseases with mothers of healthy children, the multivariate analysis of variance was used. The results of the multivariate variance analysis (table 4) showed that there was a significant difference between the mean of psychiatric disorders and its components in both groups. According to the average, psychiatric disorders were higher in mothers with sick children.

Based on the results, it was found that paranoia thoughts (1.09) and aggression (0.70) had the highest and lowest frequencies in mothers of healthy children, respectively. Depression (1.85) and phobia (0.94) had the highest and lowest average in mothers with sick children, respectively.

**Table 3:** Distribution of frequency of prevalence of psychiatric disorders in mothers.

Group	Components	Healthy %	Phobic disorders %	Psychosis%
Mothers with healthy babies	Physical complaint	64.8	33.7	1.5
	Obsessive-compulsive	59.9	40.1	0
	Interpersonal sensitivity	72.5	27.7	0
	Depression	64.7	30.5	4.5
	Anxiety	58.8	39.8	1.5
	Aggression	77	33	0
	Phobia	87.7	12.3	0
	Paranoia	43.7	15.5	4.8
	Psychosis	77	21.3	1.5
Mothers with sick babies	Psychiatric disorders	63	34.5	0
	Physical complaint	30.5	59.9	9.6
	Obsessive-compulsive	30.5	62.8	6.4
	Interpersonal sensitivity	45.1	49.8	4.8
	Depression	22.4	67.3	9.6
	Anxiety	62.8	25.6	11.2
	aggression	63	32.1	4.8
	Phobia	59.8	38.6	1.6
	Paranoia	54	41.5	4.5
	Psychosis	59.6	35.4	4.8
	Psychiatric disorders	40	55.2	4.8

**Table 4:** test results in mothers of children with chronic disease compared to mothers of healthy children.

Variables	Mean of mothers with		Sum of squares	F	Sig.
	Healthy babies	Sick babies			
Physical complaint	0.88	1.61	17.38	26.54	0.001
Obsessive-compulsive	0.91	1.62	16.36	25.37	0.001
Interpersonal sensitivity	0.78	1.31	8.99	14.61	0.001
Depression	0.94	1.85	26.79	30.99	0.001
Anxiety	0.88	1.72	22.79	30.31	0.001
aggression	0.7	1.04	3.73	5.86	0.017
Phobia	0.43	0.942	8.23	21.75	0.001
Paranoia	1.09	1.44	3.85	4.76	0.031
Psychosis	0.7	1.04	3.75	5.38	0.022
Psychiatric disorders	0.81	1.41	11.01	21.21	0.001

In general, the average scores of all disorders except phobia (0.94) were morbid and above one in the mothers of sick children. According to the definition of morbidity in this research (i.e. the mean scores above 1), 55.2% of mothers of sick children were in the morbidity status in terms of mental health disorders, and according to the definition of neurosis (i.e. mean scores above 3 in patients), 8.4% of mothers suffer from neurosis; and 40% of them were in mental health. This finding is match with Ghazavi's study (1999). The results of Mohammadi (2001) are somewhat similar, that may be due to ethnic differences of the various

regions and the possibility of more limited facilities of these regions in the maintenance of children with disabilities.

In mothers of healthy children, the mean score of all disorders except Paranoid thoughts (1.09) was under one. In terms of psychiatric disorders in mothers of healthy children, 63% were healthy, 34.5% showed morbidity and none suffered from neurosis.

The results indicate that components of psychiatric disorders, included somatization ( $p=0.001$ ,  $F=26.5$ ), obsessive-compulsive ( $F=25.37$ ,  $p=0.001$ ), interpersonal sensitivity ( $F=14.61$ ,  $p=0.001$ ), depression ( $F=30.99$ ,  $p=0.001$ ) anxiety ( $F=30.31$ ,  $p=0.001$ ), aggression ( $P=0.017$ ,  $F=5.86$ ), phobia ( $F=21.75$ ,  $P=0.001$ ), paranoid thoughts ( $P=0.31$ ,  $F=4.76$ ) and psychosis ( $F=5.38$ ,  $P=0.022$ ) and mothers of children with chronic diseases compared to mothers of healthy children show significant differences. According to the highest average scores in mothers of sick children, the prevalence of these disorders was higher in them. Thus, the research hypothesis is confirmed.

The results of the current study on significant differences in the mean scores of mothers of healthy children in comparing to mothers of children with chronic disease in terms of depression and anxiety are match with the following studies: Khajehpour (1998) showed that neurotic reactions (depression, anxiety and hostility) in mothers of disabled children is more than normal; Kousha et al (2015) on mothers of children with autism spectrum disorder; Shahmorady (2015) in parents of children with thalassemia Major; Shafa'at (2011) on mothers of children with hyperactivity and ADHD; Saiah (2010) on parents of children with cancer; Ashkani et al (2004) in parents of children with chronic diseases; Bailey et al (2007) in parents with mental retardation, Christine et al. (2014) on mothers of infants with pulmonary dysplasia; Gallagher et al. (2010) on caregivers of children with developmental disabilities; Bakiet al (2004) in parents of adolescents with epilepsy, Mash and Jonston (1983) on parents of children with hyperactivity compared to mothers of normal children, Soltanifar et al (2010) on parents of children with anxiety disorder. However, these values are somewhat different due to the severity of illness and the problems of mothers of children with chronic illness. In the study of Kheirabadi et al (2007) the prevalence of depression in mothers of children with asthma and diabetes have been reported 27 and 30%, respectively; which is different with the present study.

In the study by Habrani (2003) the prevalence of depression in parents of children with attention deficit hyperactivity is similar to the present study. The result of Narimani et al (2006) also is consistent with the present study that depression, anxiety, psychosis, aggression and phobia of mothers of blind and deaf children were significantly higher than mothers of normal children.

Lamb (1991) and Hodas et al. (1979) also indicated that aggression of mothers of disabled children was higher than mothers of normal children. Shan Leung& Li-Tsang (2003) showed that there is a positive relationship between parents' quality of life and level of disability of children. Parents of more

severe disabilities children have more stress than mothers of normal children.

## CONCLUSION

Children with chronic diseases and the medical methods used for their treatment, impose unpredictable psychological pressures on the lives of their families. The current study showed that physical complaint, Obsessive-compulsive, Interpersonal sensitivity, Depression, Anxiety, aggression, Phobia, Paranoia, Psychosis and Psychiatric disorders were higher in mothers of sick children. Therefore, the country's treatment and supportive systems should pay particular attention to these families so that other family members of these children are less likely to suffer mental illness.

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