

## ORIGINAL ARTICLE

## LEVEL OF HEALTH ANXIETY IN MOTHERS WITH SICK CHILDREN APPLYING TO THE HOSPITAL IN AN OUTPATIENT SETTING

Ghaniya Daar<sup>1</sup>, Ali İrfan Gül<sup>2</sup>, Hüseyin Ede<sup>3</sup>, Mustafa Özdamar<sup>4</sup>

<sup>1</sup>Assistant Professor, Pediatrics Department; <sup>2</sup>Assistant Professor, Psychiatry Department; <sup>3</sup>Assistant Professor, Cardiology Department; <sup>4</sup>Assistant Professor, Pediatrics Surgery Department, Bozok University Faculty of Medicine, Yozgat, Turkey  
**Correspondence:** Dr. Ali İrfan Gül, E-mail: gali3366@gmail.com

## ABSTRACT

**Objective:** The study was aimed at searching the level of health anxiety among mothers with sick children, without chronic illness in an outpatient setting by using Beck anxiety inventory (BAI) and short-health anxiety inventory (HAI) test.

**Methods:** Mothers who brought their ill children to the pediatry unit with acute complains were enrolled in the study as trial group. Mothers with children who had no illness were included in the control group drawn from out-of-hospital settings. All subjects took HAI and BAI tests. Results were analysed using SPSS programme.

**Results:** Hundred and twelve trial subjects with average age of  $32 \pm 8$  years old and 97 control subjects with average age of  $31 \pm 7$  years old were included in the study. There wasn't any statistically significance found between groups in respect to age ( $p=0.483$ ) but average scores of both HAI and BAI of trial groups were significantly higher than those of control group ( $p$  values  $<0.001$  and  $<0.005$  respectively).

**Conclusion:** Mothers who brought their children to hospital with acute complaints had higher level of anxiety as well as it was observed that university-graduate subjects yielded higher HAI scores than those of high school and below graduate education.

**Keywords:** Mother; Anxiety; Health Anxiety; Hospital; Children

## INTRODUCTION

Health anxiety is characterized by excessive fears or beliefs that one has a serious illness often based on misinterpretation of bodily sensations or symptoms.<sup>1</sup> Health anxiety level effect parenting attitudes towards their children. Parenting is an important determinant in child development. Parenting style has been conceptualized as a relatively stable pattern of childrearing practice typically employed by a parent.<sup>2</sup> There is a large body of literature linking parental practices with child outcomes.<sup>3</sup> Thus anxiety level will be different in different parenting style in case of any problem related to child's health and also their threshold level to take their children to hospital will also be different accordingly. It is noted that in some situations, it is very important that child's health outcome control mother's psychological reaction. For example, explanation of the child's health problem more clearly may be necessary for mother with high anxiety level. So determination of anxiety level among mothers with children who have some health problem is important for better outcome. It was found that mothers with leukemic children had 60% more psychiatric morbidity compared the control.<sup>4</sup> Mothers and parents with lower education and professional level

were found to be more vulnerable to such situation. Psychological reaction of father and mother differ in case of chronic child illness such as in diabetes mellitus type I, mothers are more affected. It was also noted that father involvement in management of the disease brought better outcome plus better improved marital satisfaction.<sup>5</sup>

Anxiety level of mothers applying their children with acute rather than chronic illness in an outpatient setting before has not been studied in detail. Levels of maternal reaction towards a child's health problem before medical explanation is a very important phenomenon since it is well known that parental attitudes have significant influence on child's future behavioral problems.<sup>6</sup>

Anxiety level can be measured by many psychological tests. Health anxiety questionnaire and Beck anxiety inventory are two among them.<sup>7, 8</sup> In this study, we used first the short health anxiety inventory test which has been revised recently for the Turkish population.

In this study, we searched level of anxiety among mothers applying their children with acute illness without chronic illness in an outpatient setting by using

Beck Anxiety Inventory and Health Anxiety Inventory-short revision (Turkish form).

## METHODS

All volunteers participating in the study were informed according to Helsinki Declaration. Approval of the institutional ethics committee was obtained from "B. University Medical School Ethics Committee on Non-Interventional Clinical Investigations".

**Participants:** Mothers who brought their children to pediatrics department with acute complaints were enrolled in the study as trial group. Neither mothers nor children had any chronic illness which needed medical follow-up or treatment. Chronic illnesses for mothers were defined ones such as hypertension, cardiovascular diseases, diabetes, rheumatological disease, chronic kidney disease, psychological/psychiatric disorders necessitating medication. Chronic illnesses in children were defined as any psychiatric, heart, kidney, endocrinological, hematological or oncological diseases. Subjects of control group without any chronic illness were drawn from out-of-hospital setting and children without any chronic illness and those who didn't apply to hospital for the last three months. Mothers in both groups were married and had at least one child. Age, educational status of all subjects were recorded accordingly.

**Health anxiety inventory (short revision) :** Health Anxiety Inventory is a self-reporting scale developed by Salkovskis et al. and includes 18 items.<sup>8</sup> First 14 items with four choices in order consisting of phrases questioning psychological status and the last four items question the reaction of the patient to presence of possible severe illness and are asked to give ideas about psychological status in such situation. The scale is scored between 0 to 3 for each item and higher scores indicate higher level of anxiety. Validity and safety of

the test was performed by Aydemir et al. for Turkish population.<sup>9</sup>

**Beck Anxiety inventory (BAI):** The test measures the severity of experienced anxiety in adolescents and adults, and was developed by Beck et al.<sup>10</sup> It is a self-evaluating 21-item scale. Every item is scored between 0 to 3 points and as the score increases, severity of anxiety increases as well. Ulusoy et al. adapted the test for the Turkish population.<sup>11</sup>

**Statistical analysis:** The analyses were carried out using SPSS 18.0 version. Continuous variables were expressed as average  $\pm$  standard deviation while nominal variables were shown as frequencies (%). Since age, Beck anxiety inventory and health anxiety scores weren't distributed normally and homogeneously, non-parametric tests were used for the analyses. Differences between groups concerning age, health anxiety scores and Beck anxiety inventory were tested by using Mann-Whitney U test. Correlations between continuous variables were tested by the Spearman's correlation coefficient. In the study, p value of  $<0.05$  were assumed statistical significant.

## RESULTS

Hundred and twelve trial subjects with average age of  $32 \pm 8$  years old and 97 control subjects with average age of  $31 \pm 7$  years old were included in the study. 54% of subjects of trial group (n= 61) graduated from primary school, 35%(n=39) from high school, and the rest from university (n=12). In the control group, 28% of the subjects (n=27) graduated from primary school, 42% of them (n=41) from high school and the rest from university (n=29). Anxiety level of all subjects were measured via health anxiety inventory (short revision) (HAI) and Beck anxiety inventory (BAI) Tests. Average scores of HAI and BAI for trial group were  $17 \pm 6$  and  $14 \pm 8$  accordingly while those for control group were  $9 \pm 5$  and  $11 \pm 6$  (Table 1).

**Table 1. Demographic properties and test results of the subjects**

Variables	Trial Group (n=112)	Control Group (n=97)	p value
Age (years)	$32 \pm 8$	$31 \pm 7$	0.483
<b>Educational Status</b>			
Primary School (%)	61 (54%)	27 (28%)	$p < 0.001$
High School (%)	39 (35%)	41 (42%)	
University (%)	12 (9%)	29 (30%)	
Health Anxiety Inventory (Short Revision) Score	$17 \pm 6$	$9 \pm 5$	$< 0.001$
Beck Anxiety Inventory Score	$14 \pm 8$	$11 \pm 6$	$< 0.005$

There wasn't any statistically significant difference between groups in respect to age ( $p=0.483$ ) but average scores of both HAI and BAI of trial groups were significantly higher than those of control group (p values  $<0.001$  and  $<0.005$  respectively) (Figure 1). Similarly it was found that HAI scores were well correlated with BAI scores (p value  $<0.001$ ).

Age in years wasn't statistically correlated with either HAI or BAI ( $p=0.302$  and  $p=0.204$  accordingly). It was observed that as the educational status increase, anxiety level measured by HAI decreased accordingly. Similar relation wasn't observed between educational status and BAI results. It was found that subjects of university graduate (n=41) had lower HAI score compared to high school and undergraduate (n=169). Average HAI scores

were  $9 \pm 5$  and  $14 \pm 7$  respectively ( $p < 0.001$ ). Number of university graduate was significantly higher in control

group ( $n=29$  (30%)) in respect to trial group ( $n=12$  (9%)) ( $p$  value  $< 0.001$ ).

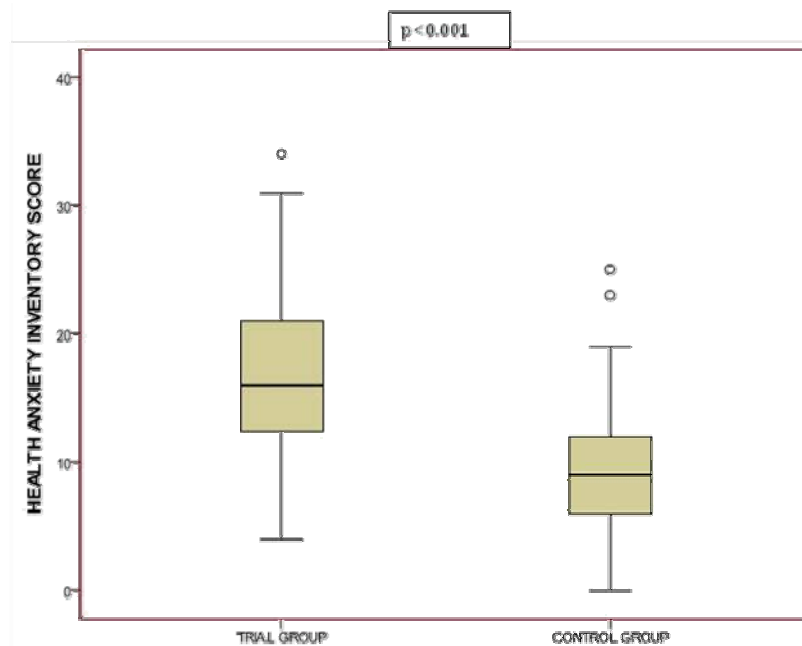


Fig 1: Comparison of HAI (Short Revision) scores of trial and control groups

## DISCUSSION

Health anxiety develops due to catastrophic misinterpretations of sensations and symptoms.<sup>12</sup> Severe and persistent health anxiety is often diagnosed as hypochondriasis (using DSM-IV criteria) or hypochondriacal disorder (ICD-10). Severe health anxiety is characterized by pronounced disease conviction: sufferers believe that they have a serious, terminal or degenerative physical disease that doctors have failed to diagnose.<sup>13</sup> It is well known that mother's psychological well being is very important in child's future behavioral problems.<sup>6</sup> Parents with anxiety are more possibly to have anxious children.<sup>14</sup> Even low level of anxiety was related to a child's temperament and emotion regulation, including the ability to focus and/or maintain attention.<sup>15</sup> Thus it is important to detect any anxiety deviation before leading to worrisome consequences on child's behavior. In this study, we aimed at measuring anxiety level of mothers who applied their children to hospital in an outpatient setting. Health anxiety inventory and Beck anxiety inventory are useful tools to detect anxiety disorders. The Health Anxiety Inventory (HAI) was developed specifically to assess health anxiety<sup>8</sup>, and has satisfactory psychometric properties.<sup>16</sup> It has two main factors: probability and severity of illness<sup>16</sup>, and can be used to assess therapeutic improvement.<sup>17</sup> In our study we used HAI and BAI. Both tests showed similar results and well correlated to each other ( $p < 0.001$ ).

In the study, we found that BAI and HAI scores of trial group had higher values compared to control group.

Taking child complaint to hospital is compelling trigger for anxious mother. Mother with health anxiety also reflects her anxiousness in different ways such as taking child to another medical facility to get different opinion or exaggerating the medical condition of the child. Educational status is also important factor in dealing with problems triggering anxiety. Higher frequency of anxiety and depression is well known in different subset of population with lower educational status.<sup>18</sup> In our study, we also found similar result of higher level of anxiety with lower educational status. University graduate subjects had lower BAI scores compared to high school and undergraduates ( $p < 0.001$ ). Similar significant finding couldn't be shown in BAI tests although their scores were lower than those of high school and undergraduate ( $12 \pm 7$  vs.  $13 \pm 7$  with  $p = 0.273$  respectively). The difference can be due to limited number of subjects or study design.

In the study, we didn't differentiate complaints of children such as cough, sore throat, short of breath, fever and other to the anxiety levels of mothers accordingly. Additionally we didn't group mothers according to age of children since the level of anxiety can differ at different stage of parenting. We enrolled any mother with 0-15 years old children with complaint.

In conclusion, we found that mothers who brought their children to hospital with complaint had higher level of anxiety compared to the control group as well as it was observed that university-graduate subjects yielded higher HAI scores compared to subjects with high school and undergraduate level of education.

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