



ORIGINAL ARTICLE

## Depression and anxiety levels in mothers of children with epistaxis: A controlled study



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### KEYWORDS

Childhood epistaxis;  
Depression;  
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### Abstract

**Introduction:** Pediatric epistaxis is very common. A child's illness can lead to depression and anxiety in the parents. The association between pediatric epistaxis and mothers' anxiety has not been well documented.

**Objective:** The present study is aimed at measuring depression and anxiety levels in mothers of children with mild, recurrent epistaxis.

**Methods:** This prospective, clinical, questionnaire-based study examined 43 mothers of children with recurrent epistaxis and 42 mothers of healthy children. The depression and anxiety levels of the mothers in both the groups were assessed with the Beck Depression Inventory (BDI), the state-trait anxiety inventory–state (STAI-S), and the state-trait anxiety inventory–trait (STAI-T).

**Results:** No statistically-significant differences were found between the two groups of mothers in terms of educational level, employment, age, or economic status. The mean STAI-S scores were higher in the mothers of children with epistaxis ( $p = .010$ ). However, no statistically-significant differences were found between the two groups for the BDI and STAI-T scores.

**Conclusions:** The results of this comparative study suggest that mild, recurrent epistaxis in children can significantly increase their mothers' state anxiety levels, but epistaxis has no significant effect on either depression or trait anxiety.

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**PALABRAS CLAVE**

Epistaxis pediátrica;  
Depresión;  
Ansiedad

**Niveles de depresión y ansiedad en madres de niños con epistaxis: un estudio controlado****Resumen**

*Introducción:* La epistaxis pediátrica es muy común. La enfermedad de un niño puede provocar depresión y ansiedad en los padres. La asociación entre la epistaxis pediátrica y la ansiedad de las madres no ha sido bien documentada.

*Objetivo:* El presente estudio tuvo como objetivo medir los niveles de depresión y ansiedad en madres de niños con epistaxis recurrente leve.

*Métodos:* Este estudio prospectivo, clínico y basado en cuestionarios, examinó a 43 madres de niños con epistaxis recurrente y 42 madres de niños sanos. Los niveles de depresión y ansiedad de las madres en ambos grupos se evaluaron con el Inventario de Depresión de Beck (BDI), el estado de inventario de ansiedad con rasgo de estado (STAI-S) y el rasgo de inventario de ansiedad con rasgo de estado (STAI-T).

*Resultados:* No se encontraron diferencias estadísticamente significativas entre los 2 grupos de madres en términos de nivel educativo, empleo, edad o estado económico. Las puntuaciones promedio de STAI-S fueron más altas en las madres de niños con epistaxis ( $p=0,010$ ). Sin embargo, no se encontraron diferencias estadísticamente significativas entre los 2 grupos para las puntuaciones BDI y STAI-T.

*Conclusiones:* Los resultados de este estudio comparativo sugieren que la epistaxis leve y recurrente en los niños puede aumentar significativamente los niveles de ansiedad del estado de sus madres, pero la epistaxis no tiene un efecto significativo sobre la depresión o la ansiedad.

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**Introduction**

Pediatric epistaxis is a common problem. Although it is rare before 2 years of age, it affects 30% of children aged 0–5 years, 56% of children aged 6–10 years, and over 60% of children aged 11–15 years.<sup>1,2</sup>

Epistaxis is different in children from what it is in adults. Most pediatric epistaxis arises from the anterior septum and is commonly self-limiting. Etiologies of epistaxis such as posterior bleeding sites, anticoagulant use, and hypertension, are uncommon in children; digital trauma, vestibulitis, and crusting are the most common causes.<sup>3,4</sup> Although most pediatric epistaxis is self-limiting, responds to symptomatic therapy, and requires no medical attention, it can affect the quality of life of the families concerned. However, only one study thus far has evaluated how children's epistaxis affects their parents' quality of life.<sup>5</sup> A child's illness can lead to depression and anxiety in the parents. Because mothers often spend a large amount of time with their children and are generally in charge of their care, mothers tend to be more affected than fathers by their children's illnesses.<sup>6</sup> In the current literature, there are no studies comparing depression and anxiety in mothers of children with epistaxis and in mothers of healthy children. The aim of this study was to determine whether there is an association between children's epistaxis and their mothers' depression and anxiety levels.

**Methods****Study population and inclusion criteria**

This prospective controlled study was performed between March 2015 and February 2016. Local Ethics Committee approval was obtained prior to initiation of this study (approval number 2015/76). The childrens' medical history revealed that they had recurrent epistaxis. All of them were apparently healthy, except for being diagnosed with epistaxis. The evaluation of the patients included a detailed anamnesis (medical record) and a routine ENT examination. In all the cases, an anterior rhinoscopic or endoscopic nose examination was performed. All cases of epistaxis were controlled with conservative measure only and none of the children required nasal packing, hospitalization, or a blood transfusion due to excessive bleeding. Inclusion criteria were children between 3 and 16 years of age, having mothers with recurrent epistaxis. Children excluded from the study comprised those who had comorbid disease, coagulopathy, hematologic disorder, acute epistaxis; or those who presented with epistaxis following a surgical procedure, as well as those whose mothers had a history of comorbid disease or psychiatric disorders.

In total, 43 mothers aged between 24 and 50 (mean: 36.02) of children with recurrent epistaxis were included in the study group. The control group consisted of 42

mothers of healthy children, aged between 24 and 50 (mean: 37.88). We had been very careful in our selection of the control group, choosing mothers who were similar in age, education status, and in terms of socio-demographic characteristics. Mothers were excluded from the control group if they had any history of comorbid disease or psychiatric disorders. Written consent was provided by all the mothers who took part in the study.

### Forms and scales used in the study

An epistaxis form was designed to record the name, sex, age, duration of the bleeding, frequency of bleeding, bleeding side, seasonal pattern, and the family history of epistaxis of the participants.

Demographic data, educational status of the mothers, and data concerning family characteristics were obtained from the mothers. The Turkish version of the questionnaire forms that related to the Beck Depression Inventory (BDI), state-trait anxiety inventory-state (STAI-S), and state-trait anxiety inventory-trait (STAI-T) were used to evaluate the depression and anxiety levels of the mothers of children with recurrent epistaxis, to evaluate the depression and anxiety levels of the healthy ones.

The BDI (Beck's Depression Inventory) questionnaire includes 21 questions related to symptoms of depression, with every question being scored from 0 to 3. Scores yielded for the entire questionnaire ranged from 0 to 63. Higher scores imply the existence of higher depression rates. State-Trait Anxiety Inventory is a self-report questionnaire consisting of 2 sub-scales (state anxiety and trait anxiety), each including 20 items evaluating the level of anxiety. State anxiety (STAI-S) describes the person's feelings at a specific moment and under particular conditions, whereas trait anxiety scale (STAI-T) is used to describe how subjects generally feel. The responses to each item in the anxiety questionnaire are assigned a score from 1 to 4. Possible scores vary from 20 to 80, with higher scores indicating more anxiety.

### Statistical analysis

SPSS (Statistical Package for Social Sciences) for Windows 19.0 program was used for statistical analysis. All parameters were normally distributed and presented with mean and  $\pm$ S.D. Categorical variables are shown as frequencies. Continuous variables were correlated using *independent samples t-test*, while *Mann Whitney U test* was used for

comparing categorical variables. A value of  $p < 0.05$  level was considered statistically significant.

### Results

There were 43 children (27 boys and 16 girls) with recurrent epistaxis, with an age range of 3 to 16 years (mean 9.63 years). Bleeding was reported from the right side in 19 cases, the left in 15 cases, and both in 9 cases. The frequency of epistaxis ranged from 4 to 30 episodes per month, with a mean of 14 bleeds per month. At the time of the study, epistaxis had been occurring in the children for 3 to 48 months, with a mean of 11 months. The highest number of epistaxis episodes occurred during the months of summer (27 cases), followed by spring (12 cases), winter (3 cases), and fall (1 case). There was a family history of epistaxis in 11 cases (25.6%) but not in the other 32 (74.4%). Of the 43 children in the study, all of whom had mild epistaxis, 39 were treated with topical antiseptic cream, and 4 received topical silver nitrate cautery. None of the children required nasal packing, hospitalization, or a blood transfusion due to excessive bleeding.

The 43 mothers of children with recurrent epistaxis—the study group—were aged between 24 and 50 years (mean age 36.02 years). The 42 mothers of healthy children—the control group—were aged between 24 and 50 years (mean age 37.88 years). There was no statistically significant difference in age, socio-economic level, or educational level of the epistaxis-group mothers and the control-group mothers. Of the 43 mothers in the study group, 40 were stay-at-home mothers; of the 42 mothers in the control group, 38 were stay-at-home mothers. There was no statistically significant difference between the control and study groups in terms of the mothers' employment. Mothers in both the groups were studied during the same time interval and in the same city.

The STAI-S scores were  $42.02 \pm 8.59$  in the study group and  $37.07 \pm 8.68$  in the control group; the study group scores were significantly higher ( $p = 0.010$ ). The STAI-T scores were  $45.02 \pm 8.03$  in the study group and  $43.17 \pm 7.62$  in the control group; these scores were not significantly different ( $p = 0.278$ ). The BDI scores were  $11.91 \pm 9.40$  in the study group and  $11.10 \pm 7.64$  in the control group; these scores were not significantly different either ( $p = 0.664$ ). The scores and their ratings for both inventories are furnished in [Table 1](#).

### Discussion

Recurrent epistaxis is a common cause of hospital referral for children. In the majority of pediatric epistaxis cases,

**Table 1** Comparison of depression and anxiety levels among in the mothers of children with epistaxis and the mothers of healthy children.

	Mothers of children with epistaxis ( $n = 43$ ) Mean $\pm$ SD	Mothers of healthy children ( $n = 42$ ) Mean $\pm$ SD	$p$
STAI-S	42.02 $\pm$ 8.59	37.07 $\pm$ 8.68	0.010*
STAI-T	45.02 $\pm$ 8.03	43.17 $\pm$ 7.62	0.278
BDI	11.91 $\pm$ 9.40	11.10 $\pm$ 7.64	0.664

\* Statistically significant.

bleeding originates in the Little's area, located in the antero-inferior part of the nasal septum.<sup>6</sup> The majority of epistaxis cases are idiopathic, but epistaxis in childhood is frequently caused by digital trauma and increased vascular fragility induced by local nasal infection. Less frequently, an underlying bleeding disorder or a benign or malignant neoplasm can be involved in recurrent epistaxis.<sup>7</sup>

Most epistaxis cases are easily treated with conservative measures or silver nitrate cauterization.<sup>8</sup> Recurrent idiopathic pediatric epistaxis usually does not require nasal packing or hospitalization in children with no other illnesses. However, the incidence of hospital admission may be high in patients with hematological diseases or bleeding disorders.<sup>9</sup> There are very few data about severe recurrent epistaxis requiring hospital admission in healthy children. Brown et al. reported only 14 healthy cases that required hospital admission over a 10-year period at a major pediatric center.<sup>10</sup>

Despite being a self-limiting condition, pediatric epistaxis may cause anxiety in both children and parents. The parents' worries may lead to a lower quality of life, as well as an increased number of absences of their children from daycare.<sup>5,8</sup> Currently, only one study has reported the effect of recurrent pediatric epistaxis on parents' quality of life. Davies et al. examined 50 parents of children with recurrent epistaxis, assessing their quality of life using the Parental Stress Index Form. The researchers found that 44% of the parents reported high total stress scores associated with each bleeding episode. However, the authors did not compare these scores to those of parents with healthy children.<sup>5</sup>

No previous studies have compared depression and anxiety levels in the mothers of children with epistaxis and the mothers of healthy children. Our single-institution study is the first to do this, with widely-used and reliable tests. We found that the state scores of anxiety (STAI-S) were higher in the mothers of children with recurrent epistaxis than in the mothers of healthy children. The highest STAI-T and BDI scores were seen in the study group, but there was no significant difference between the study and control groups in respect of these scores. This is probably because none of the studied children had excessive bleeding or a significant underlying cause such as bleeding disorder and tumor.

State anxiety can be defined as a transient emotional status caused by situational stress.<sup>11</sup> The results of our research suggest that recurrent epistaxis in children—specifically, the presence of blood—can increase their mothers' state anxiety. Excessive blood loss and soiling of clothes and bed-wear with blood may be the main causes of the mothers' anxiety.<sup>5</sup>

## Conclusions

Recurrent pediatric epistaxis is a common condition. Usually, it is a mild and self-limiting condition, but can also be a major cause of medical consultation and parental anxiety.

This is the first study to compare depression and anxiety levels in the mothers of children with epistaxis and the mothers of healthy children. It was observed that the children's nosebleeds caused transient anxiety in the mothers, but continuous depression and anxiety were not found to be associated with nosebleed. However, in this study, all of the children had mild, recurrent epistaxis and were completely healthy, but for the epistaxis episodes. Therefore, further research is needed about the effect of severe recurrent epistaxis of children, on their mothers' depression and anxiety.

## Conflict of interests

The authors declare no conflict of interests.

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