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# The Effect of a Training Program on Oral Health and Behavior Change in Asthma Patients

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**Background:** Asthma is a chronic disease which is prevalent throughout the world. Physical problems such as deterioration in oral health, which may occur due to the triggering factors of asthma as well as the ineffective use of asthma medicine, seem to affect the daily lives of asthma patients. Therefore, it is important to protect oral health and promote positive behavior changes in asthma patients in order to achieve effective treatment and asthma control.

**Aims:** The present study aimed to determine the effects of a training program provided for asthma patients on oral health, inhaler use skills, and behavior change.

**Study Design:** Controlled experimental study.

**Methods:** A total of 124 asthma patients were included in the study. Of the patients, 62 were assigned to the experimental group and the other 62 were assigned to the control group. Data were collected using the patient identification form, the oral assessment guide, the inhaler use skill form, and the evaluation form for behavior change over time. The experimental group received training provided by the researchers on the first meeting and one month later. Written and visual training material were used. Both groups were subject to a final evaluation which was conducted 4 months after their first meeting.

**Results:** It was determined that the oral assessment guide scores ($p<0.01$) and inhaler use skills of the experimental group improved significantly after the training compared to the control group ($p<0.01$). In addition, it was observed that the number of patients in the experimental group who quit smoking ($p<0.05$), used their medicine ($p<0.01$) and brushed their teeth on a regular basis ($p<0.01$), and washed their mouth after inhaler use significantly increased in the experimental group after training compared to the control group ($p<0.01$).

**Conclusion:** The study demonstrated that the training provided for asthma patients improved oral health and promoted inhaler use skills and was partially effective in promoting positive asthma-related behavior change.

**Keywords:** Asthma, behavior change, inhaler use skill, oral health, training

Despite the recent developments in diagnosing and treating asthma, the prevalence, morbidity, and mortality rates of the disease continue to increase. Therefore, asthma is one of the chronic diseases which significantly affects patients' physical, emotional, and social lives, quality of life, and health care costs (1). Asthma is a prevalent disease worldwide and affects approximately 300 million people (2). In Turkey, asthma is among the first 20 diseases and is ranked 14$^{th}$ in urban and 19$^{th}$ in rural areas (3).

In the development of asthma, allergens (pollens or farina, fungus, animal types, etc.) and personal factors such as age, gender, genetics, and obesity as well as environmental factors including infections, vocational sensitizers, cigarettes, and indoor and outdoor air pollution play a role (4).

Asthma is a controllable disease when environmental factors are controlled. Since asthma is a chronic disease, its treatment includes pharmacological treatment, which is grounded on patient training, and individual control and protection. (4,5). Treatment via inhalers is more advantageous since it has few systemic side effects, is applied directly to airways, and is a fast acting drug (5,6). However, patients frequently misuse their inhaler device. Inefficient inhaler device use has a negative effect on asthma control and treatment, increasing the rate

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of presenting to emergency services (6). In addition, inhalers cause side effects similar to other steroids, such as hoarse voice, oropharynx, candidiasis, and coughing due to irritation (7-9); they also present a risk with regard to pathological changes in oral health, tooth decay, tooth loss, and periodontal disease (10).

The aims of asthma training are promoting the development of information, attitudes, and behaviors required for self-monitoring of asthma and taking precautions when necessary, increasing treatment adherence (11). In this context, it is important for health professionals to transfer understandable information to asthma patients, to provide oral hygiene training for patients receiving inhaler treatment, to teach the mouth-related local side effects of inhaler steroids, effective inhalation methods, and avoiding triggering factors to patients, and to promote positive health behaviors which contribute to disease control. There are no studies in the literature regarding the effects of training provided for asthma patients on oral health and behavior change. Considering this gap in the literature, the present study aimed to determine the effects of a training program provided for asthma patients on oral health, inhaler use skills, and behavior change.

## MATERIALS AND METHODS

This controlled experimental study was conducted in the chest diseases clinic of a training and research hospital in Istanbul. The study included 3780 asthma patients who presented at the chest diseases clinic between March 1 and August 31, 2011. Sample size was calculated according to alpha ($\alpha$)=0.05, beta ($\beta$)=0.20, and 1-$\beta$=0.8; it was calculated that 62 individuals should be assigned to each group. A total of 124 patients (62 experiment and 62 control) who were diagnosed with asthma and continued their treatment, did not have a lung disease other than asthma, were at least literate in means of educational status, did not have barriers to physical communication, and agreed to participate in the study. The power analysis revealed that the power of the test was p=0.8019. Patients who met the inclusion criteria were divided into experiment and control groups at the first interview using the non-probability random sampling method. In this sampling method, variables such as age, gender, educational status, and disease duration were taken into account. In order to prevent patients from affecting each other during the training, the experiment group was formed within the first week of the study and the control group was formed during the second week. This order was followed in the continuing weeks until the target sample size was reached.

In the study, the dependable variables were the level of inhaler use skills, oral health status, and behaviors affecting asthma and its treatment, while the independent variable was patient education.

### Data collection instruments

Patient identification form: In light of the literature and similar studies, a form investigating the descriptive and disease related characteristics of the patients was developed by the researcher.

Inhaler use skill form: This form, which evaluates the inhalation device use skills, was prepared by utilizing literature knowledge and similar studies. The form consists of 4 subgroups including the steps toward meter-dosed inhaler (MDI), turbohaler, discus, and aeroliser utilization. For each device, there are 10 steps to conduct. While completing the form, the patients were asked to show how they used their inhaler devices on each meeting. In the evaluation, 0 points were assigned to the misapplication of a step or not applying a step, whereas1 points were assigned to the correct application of a step. Points received from each step is added and total scores range between 0 and 10. In case of multiple device utilization, an average score is received. In the evaluation of the form, higher scores indicate good levels of inhaler use skills.

Oral assessment guide: The "Oral Assessment Guide", which was developed and tested for reliability and validity by Eilers, Berger, and Peterson (1988), includes eight items for the evaluation of voice, difficulty in swallowing, lips, tongue, saliva, mucose membranes, gum, and teeth and prosthesis. Each category is evaluated by talking to the patient, observing the patient's mouth cavity, and manual examination techniques. If the results are normal, the item is scored by assigning one point, 2 points are assigned if hoarse voice, pain during swallowing, dry or chapped lips, redness, and thick and sticky saliva is present and 3 points are assigned if difficulty or pain during speaking, being unable to swallow, and ulceration or bleeding is present. Total scores of the guide range between 8 and 24. Overall, a score of 8-14 points indicate the risk of mucous membrane deformation and one of 15-24 points indicate deformation of the oral mucous membrane (12). In our study, in order to detect oral problems resulting from inhaler use, the oral condition of the patients was examined and scores during each meeting.

The evaluation form for behavior change over time: This form was prepared by the researcher according to data in the literature. The form involves smoking status, indoor exposure to smoking, having a pet in the house, having flowers in the house, regular use of medicine, brushing teeth regularly, and washing one's mouth after using inhaler drugs.

### Data collection and the training program

Data were collected by the researcher via face-to-face interviews with the patients. Three meetings were conducted with each patient. At the first meeting, data collection forms were administered to the patients in both groups. The patients in the experimental group received individual training, which took 15-20 minutes and included verbal narration, question-answer, and demonstration methods, and also received a training booklet titled "Living with asthma", which was prepared by the researcher. Five experts were consulted in order to determine the content of the training booklet.

At the end of the first meeting, information on the date of the second meeting, which was after one month, was given to the participants in both groups. Data collection forms used in the first meeting were administered again to the participants in both groups except for the patient identification form. Patients in the experimental group received a single treatment session in group format via computer (Power Point) presentations. The training session took approximately 30-45 minutes and was conducted in a room spared for training. At the end of the second meeting, information on the date of the last meeting, which was after 3 months, was given to the participants in both groups. Data collection forms were administered again to the participants who came to the last meeting. At the end of the last meeting, in order to not violate the patients' right to receive information, the control group was provided with an individual training session on asthma, which took 15-20 minutes, and the training booklet.

### Statistical analysis

The data collected were analyzed using the Statistical Package for Social Sciences version 15 (SPSS Inc.; Chicago, IL, USA). In addition to descriptive statistical methods (mean, standard deviation), Chi-square test and Fisher's exact Chi-square test for those with a frequency value below 5 were used in order to compare disease-related characteristics of the patients in the experiment and control groups. Student's t test was used for comparing the two groups in means of the oral assessment guide mean scores, which showed a normal distribution and the paired sample t test was used for intragroup comparisons. The Mann-Whitney U test was used for comparing the two groups in means of inhaler use skill mean scores which did not show a normal distribution, and the Wilcoxon sign test was used for intragroup comparisons. The McNemar test was used for comparing the two groups in means of behavior change over time and the Chi-square and Fisher's exact Chi-square tests were used for comparisons between the two groups. In statistical evaluation, a significance level was accepted as $p<0.05$.

### Ethical considerations

An approval was obtained from the ethical committee of the institution to conduct the study. The study conducted according to the ethical standards of the Helsinki Declaration of 2000. Participation in the study was based on the principle of volunteerism. Written consent was obtained from the participants.

## RESULTS

The mean age of the experimental group was 36.36±12.13 years, whereas the mean age of the control group was 38.32±12.01 years. In the experimental group, 66.1% of the patients were female, 75.8% were married, 54.8% graduated from primary school, and 37.1% worked freelance. In the control group, 74.2% were female, 75.8% were married, 62.9% graduated from primary school, and 51.6% were housewives. There were no significant differences between the experimental and control group patients regarding age, gender, marital status, educational status, and occupation ($p>0.05$). The disease-related characteristics of the experimental and control groups are shown in Table 1.

The inhaler use skill mean scores of the last meeting were found to be significantly higher than those of the first meeting in both groups ($p<0.01$). While there was no significant difference between the groups regarding the inhaler use skill mean scores of the first meeting ($p>0.05$), the inhaler use skill mean scores of the last meeting were significantly higher in the experimental group compared to the control group ($p<0.01$) (Table 2).

The oral assessment guide mean scores of the first and last meeting were found to be significantly lower in both groups ($p<0.01$). While there was no significant difference between the groups regarding the oral assessment guide mean scores of the first meeting ($p>0.05$), the oral assessment guide mean scores of the last meeting were significantly lower in the experimental group compared to the control group ($p<0.01$) (Table 3).

The number of patients in the experimental group who reported that they quit smoking, used their medicine on a regular basis, and washed their mouth after inhaler use at the last meeting was found to be significantly higher than those in the control group ($p<0.05$, $p<0.01$). However, there were no significant differences between the groups at the last meeting regarding exposure to smoking and having pets or flowers at home ($p>0.05$) (Table 4).

**TABLE 1.** Disease related characteristics of the experimental and control groups (N=124)

| Characteristics | Experimental group (n=62) | | Control group (n=62) | | p+ |
|---|---|---|---|---|---|
| | n | % | n | % | |
| Disease duration | | | | | |
| 0-11 months | 30 | 48.4 | 24 | 38.7 | 0.429 |
| 1-5 years | 21 | 33.9 | 30 | 48.4 | |
| 6 years and more | 11 | 17.8 | 8 | 13 | |
| Asthma severity level | | | | | |
| Intermittent | 19 | 30.6 | 15 | 24.2 | 0.715 |
| Slightly persistent | 29 | 46.8 | 31 | 50.0 | |
| Moderately persistent | 14 | 22.6 | 16 | 25.8 | |
| Triggering factors | | | | | |
| House dust | 35 | 56.5 | 35 | 56.5 | 1.000 |
| Pollen | 18 | 29.0 | 18 | 29.0 | 1.000 |
| Cigarette | 32 | 51.6 | 41 | 66.1 | 0.100 |
| Bleach etc. | 34 | 54.8 | 36 | 58.1 | 0.717 |
| Room spray etc. | 24 | 38.7 | 41 | 66.1 | 0.002** |
| Infection | 13 | 21.0 | 11 | 17.7 | 0.649 |
| Drugs | 9 | 14.5 | 7 | 11.3 | 0.592 |
| Food additives | 4 | 6.5 | 3 | 4.8 | 1.000 |
| Additional chronic disease | | | | | |
| Yes | 12 | 19.4 | 14 | 22.6 | 0.659 |
| No | 50 | 80.6 | 48 | 77.4 | |
| Regular drug use | | | | | |
| Yes | 9 | 14.5 | 14 | 22.6 | 0.248 |
| No | 53 | 85.5 | 48 | 77.4 | |
| Inhaler drugs++ | | | | | |
| Inhaler Corticosteroid | 6 | 9.7 | 5 | 8.1 | 0.752 |
| Long effect beta 2-agonist | 6 | 9.7 | 13 | 21.0 | 0.081 |
| Short effect beta 2-agonist | 25 | 40.3 | 28 | 45.2 | 0.586 |
| Leukotriene system effect | 3 | 4.8 | 6 | 9.7 | 0.491 |
| Anticholinergics | 1 | 1.6 | 0 | 0.0 | 1.000 |
| Combined drugs | 54 | 87.1 | 41 | 66.1 | 0.006** |
| Inhalation device type++ | | | | | |
| Metered dose inhaler | 32 | 51.6 | 29 | 46.8 | 0.590 |
| Turbohaler | 30 | 48.4 | 22 | 35.5 | 0.145 |
| Discus | 16 | 25.8 | 17 | 27.4 | 0.839 |
| Aeroliser | 8 | 12.9 | 14 | 22.6 | 0.158 |
| Information about the disease | | | | | |
| Yes | 2 | 3.2 | 0 | 0.0 | 0.496* |
| No | 60 | 96.8 | 62 | 100 | |

+Chi-square test was used.
++ More than one option is marked.
*Fisher's Exact Chi-square test was used.
**p<0.01.

**TABLE 2.** Comparison of the mean scores for inhaler use skill level in the first and last meetings for the experimental and control group patients

| Parameters | Experimental group (n=62) M±SD | Control group (n=62) M±SD | p+ |
|---|---|---|---|
| Inhaler use skill level | | | |
| First meeting | 3.22±2.74 | 3.32±2.38 | 0.998 |
| Last meeting | 8.43±0.89 | 6.62±0.72 | 0.001** |
| p++ | 0.001** | 0.001** | |

+Mann-Whitney U test was used.
++Wilcoxon sign test was used.
**p<0.01.
M±SD: mean±standard deviation

**TABLE 3.** Comparison of the mean scores for the oral assessment guide in the first and last meetings for the experimental and control group patients

| Parameters | Experimental group (n=62) M±SD | Control group (n=62) M±SD | p+ |
|---|---|---|---|
| Oral assessment guide | | | |
| First meeting | 10.06±1.43 | 10.00±1.49 | 0.807 |
| Last meeting | 8.35±0.60 | 9.19±0.82 | 0.001** |
| p++ | 0.001** | 0.001** | |

+Student t test was used.
++Paired sample t test was used.
**p<0.01
M±SD: mean±standard deviation

## DISCUSSION

Insufficient asthma control can be related to underlying factors such as disease severity or resistance to treatment. However, the reason generally involves treatment non-adherence, incorrect inhaler use methods, insufficient drug doses, and environmental factors such as continuance of allergen exposure or cigarettes (13). In our study, when the disease triggering factors were examined, it was observed that 56.5% of the patients in the experimental group were affected by house dust, 29.0% by pollens, 51.6% by cigarettes, and 54.8% by cleaning materials such as bleach and hydrochloric acid, whereas 56.5% of the patients in the control group were affected by house dust, 29.0% by pollens, 66.1% by cigarettes, and 58.1% by cleaning materials such as bleach and hydrochloric acid. In another study, it was determined that 98.4% of factors provoking asthma consisted of viral infections, 79.7% weather, 68.8% exercise, 67.2% cigarette smoke and 65.6% allergies (mites, cat, dog, tree, grass) (14).

The accurate use of inhaler devices is important as a means of effective treatment of lung diseases, but it is also important for the maintenance of oral health. Therefore, inhalation tech-

**TABLE 4.** Comparison of the experimental and control groups with regard to behavior change over time according to the first and last meetings

| | | Experimental group (n=62) | | Control group (n=62) | | |
|---|---|---|---|---|---|---|
| | | n | % | n | % | p++ |
| Smoking status | | | | | | |
| First meeting | Smokers | 18 | 29.0 | 14 | 22.6 | 0.076 |
| | Never smoked | 27 | 43.5 | 39 | 62.9 | |
| | Quit smoking | 17 | 27.4 | 9 | 14.5 | |
| Last meeting | Smokers | 13 | 21.0 | 13 | 21.0 | 0.035* |
| | Never smoked | 27 | 43.5 | 39 | 62. 9 | |
| | Quit smoking | 22 | 35.5 | 10 | 16.1 | |
| p+ | | 0.059 | | 0.317 | | |
| Smoking exposure at home | | | | | | |
| First meeting | Yes | 29 | 46.8 | 30 | 48.4 | 0.857 |
| | No | 33 | 53.2 | 32 | 51.6 | |
| Last meeting | Yes | 22 | 35.5 | 28 | 45.2 | 0.272 |
| | No | 40 | 64.5 | 34 | 54.8 | |
| p+ | | 0.016* | | 0.500 | | |
| Having a pet at home | | | | | | |
| First meeting | Yes | 6 | 9.7 | 9 | 14.5 | 0.409 |
| | No | 56 | 90.3 | 53 | 85.5 | |
| Last meeting | Yes | 4 | 6.5 | 8 | 12.9 | 0.224+++ |
| | No | 58 | 93.5 | 54 | 87.1 | |
| p+ | | 0.625 | | 1.000 | | |
| Having a flower at home | | | | | | |
| First meeting | Yes | 31 | 50.0 | 23 | 37.1 | 0.147 |
| | No | 31 | 50.0 | 39 | 62.9 | |
| Last meeting | Yes | 14 | 22.6 | 19 | 30.6 | 0.310 |
| | No | 48 | 77.4 | 43 | 69.4 | |
| p+ | | 0.001** | | 0.125 | | |
| Regular drug use | | | | | | |
| First meeting | Yes | 4 | 6.5 | 7 | 11.3 | 0.631+++ |
| | Partially | 34 | 54.8 | 33 | 53.2 | |
| | No | 24 | 38.7 | 22 | 35.5 | |
| Last meeting | Yes | 52 | 83.9 | 31 | 50.0 | 0.001** |
| | Partially | 10 | 16.1 | 27 | 43.5 | |
| | No | 0 | 0.0 | 4 | 6.5 | |
| p+ | | 0.001** | | 0.001** | | |
| Regular tooth brushing | | | | | | |
| First meeting | Yes | 36 | 58.1 | 28 | 45.2 | 0.151 |
| | No | 26 | 41.9 | 34 | 54.8 | |
| Last meeting | Yes | 49 | 79.0 | 30 | 48.4 | 0.001** |
| | No | 13 | 21.0 | 32 | 51.6 | |
| p+ | | 0.001** | | 0.727 | | |
| Washing mouth after inhaler use | | | | | | |
| First meeting | Always | 7 | 11.3 | 2 | 3.2 | 0.219+++ |
| | Sometimes | 9 | 14.5 | 9 | 14.5 | |
| | Never | 46 | 74.2 | 51 | 82.3 | |
| Last meeting | Always | 44 | 71.0 | 2 | 3.2 | 0.001**+++ |
| | Sometimes | 18 | 29.0 | 33 | 53.2 | |
| | Never | 0 | 0.0 | 27 | 43.5 | |
| p+ | | 0.001** | | 0.001** | | |

+McNemar test was used.
++Chi-square test was used.
+++Fisher's Exact Chi-square test was used.
*p<0.05.
**p<0.01.

niques should be taught to asthma patients prescribed inhaler drugs and whether the patients use the devices correctly should be assessed at each check-up (15). In our study, it was found that the patients in the experimental group had higher inhaler use skill mean scores after training compared to the control group. In a study by Choi and Chung (16), it was determined that the level of inhaler use skills significantly improved after individual training. In a study by Kishan and Garg (17), it was reported that after a period of 3 months following asthma training, the rate of accurate inhaler use increased from 44% to 86% in elderly patients and increased from 64% to 98% in young individuals. Other studies also reported that mistakes in inhaler drug use were corrected and the drug effects were at a desirable level after inhaler drug use training (15,18,19). These results are in parallel with our study findings. Contrary to literature findings, in a study by Rootmensen et al. (20), it was determined that there was no significant difference between the experimental and control groups regarding their inhaler skill scores after training. In a study by Dalcin et al. (21), the rate of correct inhaler use after training was not significantly different from the rate before training.

Inhaler corticosteroids, which are widely used in asthma treatment, may have negative effects on dental and oral health (9,22,23). When the aimed oral evaluation guideline score (eight) in the first interview in our study is taken into consideration, the oral health of patients with asthma in the study and control groups was not found to be at the desired level. In a study by Ceylan et al. (19), it was determined that 45% of asthma patients had a hoarse voice, 19% throat irritation, and 17% had mouth lesions due to used drugs. In a study by Stensson et al. (7), the oral health status of young adults with asthma who were under control for a long time was compared to that of healthy individuals and it was found that decay lesions were observed more often in the asthma group (6.0) compared to the healthy group (1.3). In another study, it was determined that periodontal tissue deterioration and tooth decay and loss increased as the duration of inhaler steroid use continued (10). In the last meeting in our study, the oral evaluation score average of the study group was found to be better than the control group. In a study by Selroos et al. (24), which examined the local side effects of inhaler corticosteroids during 4 years of treatment by comparing metered dose inhalers and turbuhaler devices, patients using both devices were told to rinse their mouths with water after inhalation. It was reported that the incidence of local side effects such as candidiasis or hoarseness of voice in patients using a metered dose inhaler reduced from 21% to 6% and there were no side effects in patients using a turbuhaler. Providing information on the possible side effects of inhalation treatment, on having regular dental checkups every 6 months, on brushing the teeth after every meal, on using dental floss at least once a day, and on rinsing the mouth immediately after inhaler use for people with asthma who receive inhalation treatment may prevent future oral and dental problems (23). In this context, health professionals should particularly assess the oral health status of people with asthma who use inhaler steroids via guidelines or scales during each control admission and inform patients about oral hygiene. In the current study, the patients in the study and control groups were under similar control with regard to disease management. In this regard, our study results showed that training on preventing the side effects of inhaler steroids by mouth rinsing and regular oral care led to decreases in patients' scores obtained from the oral assessment guide. Therefore, our results may be important in means of its contribution to improving oral health.

Both active and passive smoking increase the risk of asthma in adults and has negative effects on respiratory functions and symptoms (25). Among the patients included in the study, 29% of the patients in the study group and 22.6% of the patients in the control group were found to continue smoking. Nevertheless, it was found that 46.8% of the patients in the experimental group and 48.4% in the control group were exposed to cigarette smoke at home. In a study by Aytemur et al. (25), the rate of active smoking was found to be low (5%) in asthma patients; however, it was observed that one third of the patients were passive smokers.

In asthma patients who smoke, intensification of symptoms, deterioration in respiratory functions, increase in hospitalization, and death risk is higher and more prevalent compared to those who do not smoke (26). Therefore, patients should be encouraged to cease smoking (27). In our study, the rate of patients in the experimental group who quit smoking at the last meeting was found to be significantly higher compared to the control group. However, there was no significant difference between the groups regarding exposure to cigarette smoke at home. In a study by Önen et al. (28), 28 asthma patients were followed up for a year and it was found that 50% of them continued smoking and 32% were able to quit smoking. It was also stated that smoking cessation continues to be a major problem in respiratory system diseases.

During long-term treatment, the adherence of asthma patients should be increased. In our study, it was found that the number of patients who used their drugs on a regular basis was higher than those in the control group. In a study by Dalcin et al. (21), the regular long-term beta 2-agonist and combined drug use was significantly higher after training. In a study by Janson et al. (29), it was determined that the regular inhaler corticosteroid use of patients increased after training; however, there was no significant difference between the intervention and control groups. In the same study, the level of taking

precautions against environmental control was found to be higher in the intervention group after training compared to the control group.

Due to the acidic properties of inhaler drugs, intraoral balance may change. Also, inhaler drugs may have a negative effect on oral health due to a decrease in the amount and quality of saliva (30). In this context, brushing teeth and mouth washing after inhalation are important habits in means of protecting dental and oral health (23). In our study, the number of patients in the experimental group who regularly brushed their teeth and washed their mouth after inhaler use in the last meeting was higher than those in the control group. This finding is important considering the necessity of training for achieving and maintaining oral health.

In conclusion, the study demonstrated that the training provided for asthma patients improved oral health and promoted inhaler use skills and was partially effective in promoting asthma-related positive behavior change. In light of these results, we suggest that in order to maintain the physical health of asthma patients, to prevent oral health-related side effects of asthma treatment, to protect oral health, to promote regular and effective drug use, and to promote positive health behaviors, patient training on asthma and its treatment should be provided on a regular basis via written and visual material in combination with medical treatment immediately after asthma diagnosis, feedback regarding the training program should be obtained, and drug use should be controlled via checklists. In addition, our study should be replicated with a larger sample group and by spreading the training program over time.

**Ethics Committee Approval:** Ethics committee approval was received for this study from the ethics committee of Cumhuriyet University (Decision No: 2010-08/12).

**Informed Consent:** Written informed consent was obtained from participants who participated in this study.

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