

Knowledge and Attitude of General Practitioners Regarding Pediatric Asthma and Allergy

Behzad Darabi ¹, * Mehdi Shokri ¹, Maryam Alemzadeh ²

¹ Assistant Professor of Allergy and Clinical Immunology, Department of Pediatrics, School of Medicine Emam Khomeini Hospital, Ilam University of Medical sciences, Ilam, Iran.

² Assistant Professor of Pediatric Intensive Care, Department of Pediatrics, School of Medicine Mofid Children's Hospital, Shahid Beheshti, University of Medical Sciences, Tehran, Iran.

Abstract

Background: Asthma and allergy symptoms are usually intermittent in nature and may not manifest in the clinical examination to the extent that affect the patient; this presents a challenge to the general practitioners (GPs) or the patient in the diagnosis and follow-up treatment phases.

Methods: The present cross-sectional study was conducted on 175 GPS. For collecting the data, the researchers-made online version of the Knowledge and Attitude questionnaire was uploaded in virtual networks, and all GPS were individually asked to fill the questionnaires. Data analysis was carried out using mean, standard deviation, ANOVA, independent t and regression statistical tests in SPSS ver. 16.

Results: It was found that 134 (76.6%) of the GPs had a partially true attitude and 41 (23.4%) of them had an excellent attitude. Also, GPs had moderate and excellent knowledge in 157 (89.7%) and 18 (10.3%) cases, respectively. The mean \pm SD of the overall score of knowledge and attitude towards asthma was equal to 55.04 ± 3.98 . The overall score of the questionnaire and the score of all of its domains significantly correlated with age and years of work experience ($p < 0.05$).

Conclusion: Considering that most of the GPs in the present study had moderate knowledge and attitude towards asthma management, it is necessary to conduct educational interventions for this group of medical staff.

Key Words: Allergy, Asthma, Attitude, Chronic diseases, Knowledge, Pediatrics.

* Please cite this article as: Darabi B, Shokri M, Alemzadeh M. Knowledge and Attitude of General Practitioners Regarding Pediatric Asthma and Allergy. Int J Pediatr 2023; 11 (01):17238-17245. DOI: 10.22038/ijp.2022.69439.5129

*Corresponding Author:

Mehdi Shokri, Assistant Professor of Allergy and Clinical Immunology, Department of Pediatrics, School of Medicine Emam Khomeini Hospital, Ilam University of Medical sciences, Ilam, Iran. Email: Mehdishokri557@gmail.com

Received date: Dec.08,2022; Accepted date:Dec.26,2022

1- INTRODUCTION

Chronic diseases cause many challenges for patients (1-3) and can involve people in all age groups (4). Various diseases affect a person during childhood and adolescence (5, 6). One of the most common inflammatory diseases of childhood and adolescence is asthma, which causes children to be hospitalized all over the world (7). Asthma is a long-term and life-threatening disease that despite its prevalence has reached a plateau in developed countries. However, changes in the physical environment, economic and social factors, etc. have led to a significant increase in the prevalence of this disease in developing countries (8-10). Allergy is another disease that affects people in this age group and includes different types including skin, food and air allergies (8, 9). Allergy has a growing prevalence and causes various complications, including personal, psychological, social and economic complications, and one of the best ways to control and prevent related complications is to prevent contact with allergens (11).

Asthma and allergy symptoms are usually intermittent in nature and may not manifest in the clinical examination to the extent that they affect the patient, and for this reason, they present a challenge to the general practitioners (GPs) or the patient in the diagnosis and follow-up treatment phases (12).

Various factors such as disease severity, race, disease-related behaviors, and health literacy are effective in the severity of asthma and allergy symptoms and complications (13). In this age group, asthma causes many complications for these people so that one of the main causes of school absence is asthma and it is estimated that it accounts for about 5.2 million days of school absence per year. Also, the disease causes academic failure and social isolation of patients (14, 15).

Improper treatment, inadequate and poor medication, and palliative care adherence are important challenges in asthma and allergy management. If asthma and allergies are not properly managed, emergency department visits will increase, which leads to high costs for families and the healthcare system. Besides, the outpatient or inpatient visits cause stress, school absence, and exposure to other hospital-acquired infections and diseases (16-18). In childhood and adolescence, the patients are exposed to different types of allergens that can aggravate their asthma and allergy symptoms. For this reason, it is necessary to have the necessary knowledge regarding these allergens in the first stage and take proper steps in order to remove sensitive and effective allergens (19, 20).

According to Jasmi et al.'s meta-analysis, the prevalence of asthma in Iran among people aged 1-16 years with a sample size of 97,205 was 5.1% and the prevalence of allergic rhinitis in 13-14-year-old children was 21.2%, and in 6-7-year-old children, it was 11.9% (21).

A survey on the knowledge and attitude towards asthma and allergies in children and teenagers can provide good information on healthy behaviors to the healthcare policymaker. Also, these surveys can be helpful in planning the necessary ways to prevent, control and support patients with asthma and allergies (22). On the other hand, the knowledge and attitude towards asthma and allergy management can lead to the correct and better diagnosis of this disease in people and provide the appropriate ground for improving the health status of patients (23, 24).

Considering the importance of asthma and allergy in children and its impact on the quality of life of these groups, the aim of the present study was to determine the knowledge and attitudes of GPs in Ilam province regarding the asthma and allergy management.

2- MATERIALS AND METHODS

The present cross-sectional study was conducted on 175 general practitioners working in Ilam province, Iran, who agreed to participate in the study. Inclusion criteria included being employed in Ilam province and informed consent to participate in the study.

Data collection, similar to some previous studies (25-27), was carried out by the use of the asthma knowledge and attitudes questionnaire. The reliability and validity of this scale were confirmed by Kırkgöz et al. in Turkey. It consists of 50 questions in three areas of patients' demographic information, asthma attitude (26 questions) and knowledge (19 questions) (28), and its validity and reliability were re-assessed by the research team. First, permission was obtained from the instrument developer via an email; then, the Forward-Backward method was used for translating the scale. For this reason, the Persian translation of the questionnaire was carried out independently by two proficient translators, one of whom specialized in scientific texts and the other specialized in medical texts. After the initial translation, the two translations were quantitatively and qualitatively checked and a final Persian questionnaire was extracted. Then, the Persian questionnaire was translated back into English by two new translators who had not seen the English questionnaire, and the translated questionnaire was compared with the original version of the instrument. Afterwards, any disagreements were investigated and resolved by the research team (29-32). Cronbach's alpha of the Persian instrument was calculated as 0.96.

Face validity of the instrument was assessed by the use of quantitative and qualitative methods. For this reason, the questionnaire was sent to ten GPs and they were asked to read the questions aloud and inform the researchers in case of any ambiguity or difficulty in understanding the questions. In order to check the quantitative

face validity, the same ten people were asked to indicate the importance of the instrument's items based on a 5-point Likert scale ranging from 1 to 5. In order to carry out qualitative content validity, 10 people, including lung subspecialists, asthma and allergy subspecialists, and a person with PhD in epidemiology, were asked to review the Persian version of the questionnaire in terms of qualitative content. The inclusion criteria for the specialists were having at least two years of clinical work experience, having at least two original published articles, along with answering and cooperating in completing the questionnaire items (29-32). To perform quantitative content validity, content validity ratio and content validity index were used. At this stage, the experts were asked to check the importance of each item based on a three-part scale (Not necessary, useful but not necessary, and Necessary). The item relevance was checked using the Waltz and Basel index, and scores greater than 0.79 indicated acceptable item relevance (29-32). In this study, all questions remained and no question was removed from the study.

After obtaining permission from the University's Research Ethics Committee, as well as assessing the validity and reliability of the instrument, the questionnaires were sent to the GPs.

Prior to the start of the research process, the participants were informed about the research objectives and volunteer participation. The study population included GPs working in Ilam province, who were selected using convenience sampling methods. The researchers designed the online version of the questionnaire and uploaded it in virtual networks. They also emphasized on completing the online questionnaires by contacting the participating GPs.

Data analysis was carried out using mean, standard deviation and ANOVA,

independent t and regression statistical tests in SPSS ver. 16.

3- RESULTS

Among the participating GPs, 81 (46.3%) worked in the health department and 94 (53.7%) worked in hospitals. Means \pm SDs of the GPs' age and years of work experience were equal to 37.05 ± 5.95 and

7.10 ± 4.87 , respectively. 134 (76.6%) of the GPs had a partially true attitude and 41 (23.4%) of them had an excellent attitude. Moreover, the GPs had moderate and excellent knowledge in 157 (89.7%) and 18 (10.3%) cases, respectively. The mean \pm SD of the overall score of knowledge and attitude towards asthma was equal to 55.04 ± 3.98 (**Table 1**).

Table 1- Mean (SD) scores of the GPs in the overall scale of asthma knowledge and attitude and its constructs

Constructs of the Questionnaire		Mean	SD
Construct 1	Pathogenesis of Asthma and its Risk Factors	14.70	2.26
Construct 2	Asthma Predictive Index	14.61	1.64
Construct 3	Laboratory And Clinical Examinations Related to Asthma	6.17	1.09
Construct 4	Asthma Attack Laboratory and clinical examination	10.17	1.72
Construct 5	Asthma Attack Management	9.37	1.57
Overall score		55.04	3.98

Age and years of work experience significantly associated with the overall score of the questionnaire and all of its domains ($p < 0.05$). That is, with the increase in age and years of work experience, the

asthma knowledge and attitude score of GPs increased; however, gender and workplace did not correlate with asthma knowledge and attitude scores (**Table 2**).

Table-2: Mean (SD) of the overall score and the constructs of the questionnaire based on the demographic characteristics of the GPs

Variable		Construct 1	Construct 2	Construct 3	Construct 4	Construct 5	Total
Gender	Male	14.02 (2.02)	14.46 (1.61)	6.12 (1.11)	9.81 (1.61)	9.24 (1.59)	53.67 (3.35)
	Female	15.47 (2.28)	14.78 (1.67)	6.23 (1.08)	10.58 (1.75)	9.52 (1.53)	56.59 (4.1)
P		0.30	0.73	0.76	0.32	0.76	0.41
F		1.04	0.12	0.08	0.96	0.08	0.66
Service location	health Network	13.66 (1.81)	14.08 (1.58)	5.83 (1.03)	9.53 (1.66)	8.61 (1.40)	51.74 (2.49)
	Hospital	15.59 (2.24)	15.06 (1.57)	6.46 (1.07)	10.73 (1.57)	10.03 (1.41)	57.89 (2.59)
P		0.14	0.80	0.50	0.68	0.78	0.80
F		2.81	0.06	0.45	0.16	0.07	0.06
Age	P	0.000	0.000	0.11	0.003	0.000	0.000
	F	17.91	28.52	2.48	8.88	27.97	99.36
	R Square	0.094	0.14	0.11	0.049	0.13	0.36
Advance service	P	0.000	0.000	0.056	0.002	0.000	0.000
	F	14.52	22.78	3.69	9.59	24.82	86.27
	R Square	0.077	0.116	0.021	0.053	0.12	0.33

4- DISCUSSION

Infectious diseases and diseases related to the pulmonary system in children may have different symptoms from those in adults (33). According to the results, Age and years of work experience were significantly associated with the overall score of the questionnaire and all of its domains; however, gender and workplace did not correlate with asthma knowledge and attitude scores. In line with our results, a study by Chua et al., on knowledge and attitude of GPs regarding generic drugs, found that the knowledge and attitude of GPs was correlated with age and years of work experience, but not gender (34).

Riccò et al. also reported that the knowledge and attitude of Italian GPs regarding chicken pox had significantly correlated with their age and years of work experience, but not with their gender (35). However, inconsistent with our finding, Rahbar et al. investigated the autism knowledge and attitude of GPs finding that the GPs' age and years of work experience did not correlate with their knowledge and attitude towards autism (36). It seems that work experience, knowledge, and skills increase with the increase in years of work experience and age of GPs.

In the current study, most of the GPs (89.7%) had a moderate knowledge, and 76.6% of them had a partially true attitude; the mean \pm SD of overall asthma and allergy score was 55.04 ± 3.98 . Kırkgöz et al., using the same questionnaire for pediatricians, reported the mean \pm SD of 65.3 ± 5.7 for the overall scale, which was about 10 scores higher compared to that of the present study (28).

This discrepancy may be due to the fact that the pediatricians were investigated in Kırkgöz et al.'s study, and 79% of them were specialists, while the population of the present study included general practitioners. It was also shown in Bhulani et al.'s study that 28.6% of GPs had sufficient asthma

knowledge, which is much lower than the score obtained in the present study (37). This discrepancy may be due to the use of different instruments.

5- CONCLUSION

Considering that most of the GPs in the present study had moderate knowledge and attitude towards asthma management, it is necessary to conduct necessary educational interventions for this group of medical staff. Regarding the training program, it is suggested that these trainings be included in the in-service training program for doctors. Also, in the curriculum of medical students, necessary training in the field of asthma and allergy should be emphasized.

6- ETHICAL CONSIDERATIONS

Prior to data collection, all participating GPs were informed about the objectives of the study and assured about the confidentiality of the data. Informed consent was then obtained from all the participants. To participate in the study was obtained.

7- ACKNOWLEDGEMENTS

Ilam University of medical science

8- COMPETING INTERESTS

None.

9- AVAILABILITY OF DATA AND MATERIALS

Available by request.

10- FUNDING

This study was funded by the Ilam university of medical science (Code of the Project: A-10-3671-3)

11- AUTHORS' CONTRIBUTIONS

BD, MSH, MA conceptualized the study and conducted the data analysis, and manuscript writing. BD, MSH, MA conducted the data collection and manuscript writing. All authors (BD, MSH, MA) contributed to all stages of the article.

12- REFERENCES

1. Hatefi M, Komlakh K, Nouri L. Investigating the effect of methylprednisolone pulse on the treatment of back pain. *Romanian Journal of.* 125(2):264, DOI: 10.22034 /ecc.2022.323514.1293.
2. Komlakh K, Karbasfrushan A. The effect of Pregabalin on the pain status of patients with disc and spinal surgeries: A systematic review of drug therapy. *Eurasian Chemical Communications.* 2022; 4(11):1147-55, <https://doi.org/10.22034/ecc.2022.348692.1491>.
3. Khosravi S, Khayyamfar A, Shemshadi M, Koltapeh MP, Sadeghi-Naini M, Ghodsi Z, et al. Indicators of quality of care in individuals with traumatic spinal cord injury: a scoping review. *Global spine journal.* 2022; 12(1):166-81, <https://doi.org/10.1177/2192568220981988>.
4. Karbasfrushan A, Karimiyarandi H. Role of vitamin D on knee osteoarthritis pain: a systematic review. *Eurasian Chemical Communications.* 2022; 4(12):1241-50, <https://doi.org/10.22034/ecc.2022.351411.1505>.
5. Shokri M, Tarjoman A, Borji M, Solaimanizadeh L. Investigating psychological problems in caregivers of pediatrics with cancer: A systematic review. *Journal of Child and Adolescent Psychiatric Nursing.* 2020; 33(4):229-38, <https://doi.org/10.1111/jcap.12269>.
6. Shokri M, Karimian M, Mansouri F, Mahdikhani S, Borji M, Solaimanizadeh L, et al. Laboratory and radiologic findings in pediatrics with COVID-19: A systematic review. *Archives of Clinical Infectious Diseases.* 2020; 15(3): DOI: 10.5812/archcid.103483.
7. Lu C, Zhang Y, Li B, Zhao Z, Huang C, Zhang X, et al. Interaction effect of prenatal and postnatal exposure to ambient air pollution and temperature on childhood asthma. *Environment International.* 2022; 167:107456.
8. Gaffin JM, Kanchongkittiphon W, Phipatanakul W. Reprint of: perinatal and early childhood environmental factors influencing allergic asthma immunopathogenesis. *International immunopharmacology.* 2014; 23(1):337-46, <https://doi.org/10.1016/j.intimp.2014.09.028>.
9. Yu H, Zhou Y, Wang R, Qian Z, Knibbs LD, Jalaludin B, et al. Associations between trees and grass presence with childhood asthma prevalence using deep learning image segmentation and a novel green view index. *Environmental Pollution.* 2021; 286:117582, <https://doi.org/10.1016/j.envpol.2021>.
10. Mehrabi Nasab D, Taheri A, Athari SS. Conjugation of Cortistatin Peptide with Gold Nanoparticles Synthesized to Investigate Anti-Inflammatory Effects in Allergic Asthma. *Journal of Medicinal and Chemical Sciences.* 2023; 6(1):20-8, <https://doi.org/10.26655/JMCHEMSCI.2023.1.3>.
11. Epstein-Rigbi Na, Goldberg MR, Levy MB, Nachshon L, Elizur A. Quality of life of children aged 8-12 years undergoing food allergy oral immunotherapy: Child and parent perspective. *Allergy.* 2020; 75(10):2623-32, <https://doi.org/10.1111/all.14350>.
12. Martin J, Townshend J, Brodlie M. Diagnosis and management of asthma in children. *BMJ pediatrics open.* 2022; 6(1): doi: 10.1136/bmjpo-2021-001277.
13. McQuaid EL, Koinis Mitchell D, Walders N, Nassau JH, Kopel SJ, Klein RB, et al. Pediatric asthma morbidity: The importance of symptom perception and family response to symptoms. *Journal of pediatric psychology.* 2007; 32(2):167-77.
14. Nurmagambetov T, Kuwahara R, Garbe P. The economic burden of asthma in the United States, 2008–2013. *Annals of the*

- American Thoracic Society. 2018; 15(3):348-56, <https://doi.org/10.1513/AnnalsATS.201703-259OC>.
15. Mehrabi Nasab D, Taheri A, Athari SS. Conjugation of Cortistatin Peptide with Gold Nanoparticles Synthesized to Investigate Anti-Inflammatory Effects in Allergic Asthma. *Journal of Medicinal and Chemical Sciences*. 2023; 6(1):20-8, <https://doi.org/10.26655/JMCHEMSCI.2022.5.2>.
16. Rottier BL, Rubin BK. Asthma medication delivery: mists and myths. *Pediatric respiratory reviews*. 2013; 14(2):112-8, <https://doi.org/10.1016/j.prrv.2013.02.013>.
17. Roncada C, Cardoso TdA, Bugança BM, Bischoff LC, Soldera K, Pitrez PM. Levels of knowledge about asthma of parents of asthmatic children. *Einstein (São Paulo)*. 2018; 16:<https://doi.org/10.1590/S679-45082018AO4204>.
18. Onay ZR, Deniz M, Ayhan Y, OKSAY SC, Bilgin G, Girit S. Did hospital admissions caused by respiratory infections and asthma decrease during the COVID-19 pandemic? *Medeniyet Medical Journal*. 2022; 37(1):92, doi: 10.4274/MMJ.galenos.2022.02779.
19. Magzamen S, Patel B, Davis A, Edelstein J, Tager IB. Kickin Asthma: School-Based asthma education in an urban community. *Journal of School Health*. 2008; 78(12):655-65, <https://doi.org/10.1111/j.746-561.2008.00362.x>.
20. Testa D, Bari MD, Nunziata M, Cristofaro GD, Massaro G, Marcuccio G, et al. Allergic rhinitis and asthma assessment of risk factors in pediatric patients: a systematic review. *International journal of pediatric otorhinolaryngology*. 2020; 129:109759, <https://doi.org/10.1016/j.ijporl.2019>.
21. Mohammadzadeh I, Barari-Savadkoohi R, Alizadeh-Navaei R. The prevalence of allergic rhinitis in Iranian children: A systematic review and descriptive meta-analysis. *Journal of Pediatrics Review*. 2013; 1(2):19-24, <https://jpr.mazums.ac.ir/article-1-59-en.html>.
22. Werthmann D, Rabito FA, Reed C. Knowledge, attitudes, and practices concerning cockroach exposure among caregivers of children with asthma. *BMC Public Health*. 2021; 21(1):1-10, <https://doi.org/10.1186/s12889-021-1497-y>.
23. Poowuttikul P, Seth D. New concepts and technological resources in patient education and asthma self-management. *Clinical Reviews in Allergy & Immunology*. 2020; 59(1):19-37, <https://doi.org/10.1007/s12016-020-08782-w>.
24. Hui CY, McKinstry B, Fulton O, Buchner M, Pinnock H. Patients' and clinicians' visions of a future internet-of-things system to support asthma self-management: mixed methods study. *Journal of medical Internet research*. 2021; 23(4):e22432, doi: 10.2196/
25. Farpour HR, Kazemi M, Dehghanian KS, Moradi M, Farpour S. Knowledge, Attitude, and Practice of General Practitioners Toward the Rehabilitation Field and Team Experts in Shiraz, Iran, in 2018. *Shiraz E-Medical Journal*. 2021; 22(7): doi: 10.5812/semj.105821.
26. Dhobale RV, Waghacha Vare VB, Gore AD, Dhumale GB. General practitioners' knowledge, attitude, and practices regarding optional immunization in urban areas of Sangli District: A cross sectional study. *Journal of Family Medicine and Primary Care*. 2022; 11(7):3923-8, doi: 10.4103/jfmpe.jfmpe_1966_21.
27. Farpour HR, Kazemi M, Seyed Dehghanian K, Moradi M, Farpour S. Knowledge, Attitude, and Practice of General Practitioners Toward the Rehabilitation Field and Team Experts in Shiraz, Iran, in 2018. 2021; 22(7):e105821, doi: 10.5812/semi.

28. Kirkgoz T, Dogrn M, Kirkgoz H, Çicek F, Sexer R, Bozaykut A. Evaluation of Knowledge Among Pediatricians on Childhood Asthma and Asthma Attack. *Journal of Contemporary Medicine*. 11(3):310-6, <https://doi.org/10.16899/jcm.799961>.
29. Sharifi A, Arsalani N, Fallahi-Khoshknab M, Mohammadi-Shahbolaghi F, Ebadi A. Psychometric Properties of the Persian Version of Perceptions of Physical Restraint Use Questionnaire. *Salmand-Iranian Journal of Ageing*. 2021; 16(2):260-72, 73, doi:10.32598/sija.16.2.2855.1.
30. Mundfrom DJ, Shaw DG, Ke TL. Minimum sample size recommendations for conducting factor analyses. *International journal of testing*. 2005; 5(2):159-68, https://doi.org/10.1207/s15327574ijt0502_4
31. Plichta SB, Kelvin EA, Munro BH. *Munro's statistical methods for health care research*: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2013.
32. Yu DS, Lee DT, Woo J. Issues and challenges of instrument translation. *Western journal of nursing research*. 2004; 26(3):307-20, <https://doi.org/10.1177/0193945903260554>.
33. Karimian M, Mansouri F, Borji M, Tarjoman A, Mahdikhani S, Soltany B, et al. Prevention, diagnosis, and treatment of covid-19 in infants and children: a systematic review study of performed protocols. *Archives of Clinical Infectious Diseases*. 2020; 15(6):doi: 10.5812/archcid.103180.
34. Chua GN, Hassali MA, Shafie AA, Awaisu A. A survey exploring knowledge and perceptions of general practitioners towards the use of generic medicines in the northern state of Malaysia. *Health policy*. 2010; 95(2-3):229-35, <https://doi.org/10.1016/j.healthpol.2009.11.019>.
35. Riccò M, Ferraro P, Camisa V, Satta E, Zaniboni A, Ranzieri S, et al. When a neglected tropical disease goes global: Knowledge, attitudes and practices of Italian physicians towards monkeypox, preliminary results. *Tropical medicine and infectious disease*. 2022; 7(7):135, <https://doi.org/10.3390/tropicalmed7070135>.
36. Rahbar MH, Ibrahim K, Assassi P. Knowledge and attitude of general practitioners regarding autism in Karachi, Pakistan. *Journal of autism and developmental disorders*. 2011; 41(4):465-74 doi <https://doi.org/10.1007/s10803-010-1068-x>.
37. Bhulani N, Lalani S, Ahmed A, Jan Y, Faheem U, Khan A, et al. Knowledge of asthma management by general practitioners in Karachi, Pakistan: comparison with international guidelines. *Primary Care Respiratory Journal*. 2011; 20(4):448-51, <https://doi.org/10.4104/pcrj.2011.00096>.