Original Article

Access this article online

Quick Response Code:

Website:
www.jehp.net

DOI:
10.4103/jehp.jehp_674_24

Evaluation of asthmatic patient dyspnea in asthma center at Baghdad city

Ali Khamies Aliwie, Aqeel Habeeb Jasim

Abstract:

BACKGROUND: Asthma was a heterogeneous condition, with dyspnea during exercise affecting individuals to a variable degree. The research aims to evaluate dyspnea in an asthmatic patient and to find out the relationship between dyspnea and sociodemographic variables.

MATERIALS AND METHODS: A cross-sectional study that included 130 patients with asthma in an asthma center in Baghdad City, Iraq was conducted to assess asthmatic patient dyspnea. From 1st September to December 20, 2023, we recruited a total of 130 patients attending outpatient respiratory clinics from three teaching hospitals and centers located in Baghdad, Iraq, the current study used purposive sampling. Data were collected through a pretested self-administered questionnaire. Collected data were coded and put into SPSS Statistics (v25). Inferential and descriptive statistical procedures were conducted. Percentages and frequencies for every item within the asthmatic patient were measured. The mean score attained from the scale was used to measure the subject.

RESULT: The data reveals that most participants consistently reported experiencing high levels of dyspnea, with a Mean + SD (37.13 ± 8.06). These responses, indicate severe levels of asthma according to their assessment, signifying a prevalent occurrence of this symptom among the respondents. The study shows a highly significant relationship between occupation, education, and smoking with dyspnea at a *P* value of 0.05.

CONCLUSION: The results show that the majority in the sample had a severe level of dyspnea, the study shows a highly significant relationship between occupation, education, and smoking with dyspnea at *P* value of 0.05.

Keywords:

Asthma, dyspnea, evaluation, patients

Introduction

Dyspnea, found in numerous chronic lung conditions, can arise during rest or physical activity. It was defined as a subjective sensation of breathing discomfort, comprising varied sensations in intensity and quality.[1] Breathing discomfort arises from complex interactions among physiological, psychological, social, and environmental factors that are not fully understood.[2] The mechanisms causing dyspnea in asthma have undergone thorough research and review.[3-7] Dyspnea was prevalent in asthma and can be grouped with other symptoms such as chest tightness or perceived as limitations in physical activity. Symptoms play a role in evaluating asthma control, while resting lung function helps assess the risk of future exacerbations.[8] The dyspnea and objective measures of testing lung function in asthma were dose regular checkups for patients in centers.[9,10] Nursing interventions tailored to the smoking triggers in patients with non-communicable chronic diseases are essential.[11] Related to pain assessment critically.[12] Poor knowledge regarding risk factors.[13] Asthma was present as a varied condition, encompassing diverse

University of Baghdad, College of Nursing, Department of Adult Nursing, Baghdad, Iraq

Address for correspondence:
Mr. Ali Khamies Aliwie, University of Baghdad, College of Nursing, Department of Adult Nursing, Baghdad, Iraq.
E-mail: alikhamies233@gmail.com, Dr.aqeel@conursing.uobaghdad.edu.iq

Received: 16-04-2024
Accepted: 11-07-2024
Published: 28-03-2025

How to cite this article: Aliwie AK, Jasim AH. Evaluation of asthmatic patient dyspnea in asthma center at Baghdad city. J Edu Health Promot 2025;14:106.

clinical phenotypes and endotypes. These include distinctions between eosinophilic and non-eosinophilic types, allergic versus non-allergic cases, and variations in symptom perception, such as high versus poor symptom perceivers.[14,15] In severe or near-fatal asthma cases, a notable number of patients exhibit limited awareness or perception of dyspnea symptoms.[16,17] Exertional dyspnea can lead to limitations in activity and reduced quality of life, however, its manifestation varies significantly among individuals with asthma.[18] In some cases, especially among individuals with reduced awareness of dyspnea, limitations during exercise may be more influenced by leg fatigue rather than breathing discomfort.[19] Nurses have played various roles in the development of palliative care.[20] Some individuals may exhibit no limitations even during intense physical activity.[21] The mechanisms behind exertional dyspnea have not been extensively studied compared to dyspnea induced by direct bronchoprovocation or resistive loads.[22] Although exercise acts as an indirect bronchoprovocation challenge, the nature and intensity of dyspnea during direct challenges such as methacholine testing might not mirror the experience during daily activities or exercise.[23] Recent findings suggest that exertional dyspnea in asthma differs qualitatively from that during methacholine testing. It might result from bronchoconstriction and mechanical constraints because of dynamic lung hyperinflation.[24] was cleared improved the patient's responses related to risk factors and daily activities.[25,26]

Materials and Methods

Study design and setting

A cross-sectional study was conducted to evaluate dyspnea episodes among asthmatic patients. This research was conducted in three educational medical institutions and facilities situated in Baghdad, Iraq. The data-gathering process occurred at three publicly operated medical facilities (Baghdad Teaching Hospital, al Zahra Specialist Center for Asthma and Allergy, and the Specialist Center for Asthma and Allergy in Al Rasafah). Spanning from September 1st to December 20th, 2023, the study focused on evaluating dyspnea among patients with asthma seeking medical assistance.

Study participant and sampling

A non-probability purposive sample was used to select three outpatient respiratory clinics in Baghdad City, Iraq. The sample size was calculated based on a single population proportion formula with the assumption of a margin of error of 5%, a sample proportion of 50% (50% probability to get the largest sample size), and a confidence level of 95%. Population (asthmatic patients = 195), and the recommended sample size was 130. With a non-probability purposive sampling technique, patients were recruited from outpatient respiratory clinics in three selected public hospitals within Baghdad City. Approximately, 130 participants were asked to answer the survey.

Inclusion and exclusion criteria

Inclusion Criteria: age ≥20, Literacy,
Exclusion Criteria: age <20 years, Disease diagnosis less than 12 months, each patient has other respiratory problems in addition to asthma.

Data collection tools and technique

A series of questionnaires were utilized for data collection. Section 1 focused on demographic characteristics such as gender, age, race, marital status, and education level. Section 2 delved into the patient's medical history concerning the disease. Section 3 involved an assessment questionnaire for dyspnea. The dyspnea index instrument consisted of 10 items, with the total score reflecting the participant's proficiency level. Responses were rated on a scale of never (1), rarely (2), sometimes (3), almost always (4), and always (5). Participants were grouped according to their total scores, with those scoring = 50 being identified as experiencing very severe dyspnea. A score of 30 or higher could indicate a significant breathing issue warranting assessment by a medical professional.

Ethical considerations

Ethical clearance and approval were granted by the Research Ethics Committee of the University Baghdad/college of nursing (232/540/15/8/2023) the subjects were approached with a subject information sheet and informed consent was taken before data collection. All involvement in the study was voluntary, and their confidentiality was maintained. The data were kept confidential by the researcher, and no identifiers such as name or Identity Card were used in the questionnaire to protect respondent's privacy and anonymity.

Statistical analysis

Descriptive and inferential statistical procedures were conducted. The descriptive analysis was presented with frequency, percentage, mean, and standard deviation (SD). The mean score for practices was measured. The Chi-square test analysis was used to determine the relationship between practices with socio-demographic characteristics of patients at $P < 0.05$. All the data were analyzed with SPSS Statistics (version 27).

Result

This research aimed to evaluate dyspnea among asthmatic individuals visiting specialized healthcare facilities.

As per our analysis, the distribution of demographic factors revealed that in the study, the male percentage was higher at 54.6% compared to females. Both the age brackets of 20–29 years and 40–49 years each represented 29.2% of the participants. Concerning employment status, the primary occupation noted among the subjects was a homemaker (44, 33.8%). In terms of marital status, the majority of participants were reported as married (76.9%, n = 100) out of a total of 130 individuals. Regarding educational achievement, a significant number of participants (37.7%, n = 49) possessed college or institute degrees. With residence, most of the sample population resided in urban regions (108, 83.1%). Regarding smoking behaviors, a considerable percentage of participants were identified as heavy smokers (83.1%, n = 108). The most common disease duration category was found to be 1–9 years (57.7%, n = 75) [Table 1].

The mean value for shortness of breath was calculated as 37.13 ± 8.06, indicating that a large portion of the study group reported experiencing shortness of breath 'always' or 'almost always', which corresponded to the highest scores in the questionnaire. Upon a brief examination of the respondents' answers, it was observed that whenever the response rated 3 or higher, it signified a necessity to seek specialized medical care centers [Table 2].

The data presented demonstrates a clear and highly significant correlation between dyspnea and occupation (0.001). A statistical association was identified between the level of shortness of breath and education at a significant level of 0.079, as well as between smoking habits and dyspnea (0.073). However, no significant correlations were detected between gender, age, marital status, residence, exposure to secondhand smoke, and duration of the disease [Table 3].

Table 1: Distribution of the studied samples according to socio-demographical characteristics variables

Items	Frequency	Percent
Gender		
Female	59	45.9
Male	71	54.6
Age		
20-29	38	29.2
30-39	27	20.8
40-49	38	29.9
50-59	14	10.8
60-69	12	9.2
70	1	8
Occupation		
Employed	30	23.1
Retired	9	6.2
Workless	38	29.2
Housewife	44	33.8
Student	8	6.2
Free work	1	0.8
Marital status		
Single	21	16.2
Married	100	76.9
Divorce	1	0.8
Widow	6	4.6
Separated	2	1.5
Education		
Read and write	15	11.5
primary	23	17.7
Intermediate	26	20
High school	16	12.3
Institute and college	49	37.7
Master and PhD	1	0.8
Residence		
Urban	108	83.1
rural	22	16.9
Smoking		
yes	108	83.1
no	22	16.9
Duration of disease		
1-9 years	75	57.7
10-19	20	15.4
20-29	17	13.1
30-39	10	7.7
40-49	3	2.3
50-59	5	3.8

F=frequency, **per=percent, **M.S.=Mean of score, *SD=standard deviation

Discussion

Table 1 of demographic variables reveals a higher representation of males, constituting 54.6% of the participants compared to females, the outcome was consistent with findings from another climate research. Conducted on a large number of patients, showing that the majority of visitors to healthcare facilities were males.[24,25] The age groups 20–29 years and 40–49 years each accounted for 29.2%, with an average age of (2.52 ± 1.30) more frequency in the age participant, these results were similar to another study (The incidence of allergic asthma was highest in early childhood and young, while the incidence of non-allergic asthma is low until it peaks in late adulthood).[26]

Occupation, a considerable portion, about 33.8%, were identified as female housewives, a result is supported by a Turkish study that highlighted the impact and quantity of effects due to housewives' work.[27,28] Marital status data indicated that a significant majority, 76.9% of the study group, were married, although prior studies did not address this aspect. Educationally, the majority, approximately 37.7%, attended institutes and colleges, although prior studies did not address this aspect. Residence, a substantial 83.1% belonged to rural areas, these results like the study were aimed to investigate the differential impact of rural and urban environments on

Table 2: Descriptive analysis of dyspnea severity per items

Items	Never		Almost never		Sometimes		Almost always		Always	
	F	%	F	%	F	%	F	%	F	%
I have trouble getting air in	2	1.5	13	10	27	20.8	69	53.1	19	14.6
I suffer from throat tightness when I have difficulty breathing	2	1.5	9	6.9	29	22.3	59	45.4	31	23.8
Breathing requires more effort than before.	4	3.1	7	5.4	37	28.5	48	36.9	34	26.2
My breathing issue was affected by weather changes	4	3.1	12	9.2	26	20	54	41.5	34	26.2
My breathing gets worse with stress	3	2.3	12	9.2	37	28.5	44	33.8	34	26.2
I make sound/noise breathing in	7	5.4	12	9.2	31	23.8	50	38.5	30	23.1
I have to strain to breathe	4	3.1	17	13.1	23	17.7	58	44.6	28	21.5
My breathlessness worsens with exercise or physical activity	4	3.1	13	10	27	20.8	44	33.8	42	32.3
My breathing problem makes me feel stressed	7	5.4	16	12.3	27	20.8	46	35.4	34	26.2
My breathing problem causes me to restrict my personal and 2 social life	12	9.2	13	10	27	20.8	51	39.2	27	20.8
Mean±S. D					37.13±8.06					

F=frequency, **per=percent, **M.S.=Mean of score, *SD=standard deviation

Table 3: Relationship between socio-demographic characteristics of the studied patients and their dyspnea scale (*n*=130)

Items	*P*	Sig.
Sex	35.10	0.323
Age	156.83	0.556
Occupation	267.44	0.001
Marital status	207.55	0.79
Education	207.55	0.079
Residence	32.64	0.435
smoking	44.29	0.073
Duration of disease	134.93	0.926

asthma patients' health outcomes. A cohort of asthma patients residing in rural and urban settings was evaluated over 12 months. The study utilized health records, patient-reported outcomes, and environmental assessments to analyze asthma exacerbations, findings revealed distinct patterns in asthma management between rural and urban dwellers, indicating a higher incidence of exacerbations among rural residents. Environmental factors such as air quality and access to healthcare services were identified as influential determinants. This study emphasizes the need for tailored interventions addressing geographic-specific challenges faced by asthma patients.[29]

An intriguing finding was the high prevalence of smoking habits among the sample, comprising 83.1% of the individuals. Moreover, non-compliance was observed in the majority, indicating strong ties to a community of smokers, this outcome is corroborated by the research conducted (aimed to explore the correlation between urban residents' exposure to ambient air pollutants, specifically fine particulate matter (PM2.5) and nitrogen dioxide NO_2, and the severity of asthma symptoms. Over 2 years, a cohort of urban asthma patients underwent monitoring, measuring their exposure to air pollutants through established monitoring stations. Assessment of asthma symptom severity utilized standardized questionnaires and spirometry tests. Results revealed a clear link between heightened levels of PM2.5 and NO_2 and increased severity of asthma symptoms, leading to more breathlessness, exacerbations, and reduced lung function).[30]

Regarding the duration of disease, the group with the highest representation among the study participants ranged from (57.7%) 1 to 9 years, this discovery was in line with the results of a separate research study that focused on the length of time individuals experience symptoms of asthma.[31]

Table 2 shows that the level of dyspnea assessment in the study sample was acute and high, with a high percentage according to the standard of the scale used in collecting the sample, with a mean and SD of MS ± SD = (37.13 ± 8.06), According to the scale, patients require medical care and follow-up, The table also shows that the outcomes presented exhibit resemblance to those unveiled in a research study carried out by a different investigator,[32] he was mention of the results. This study investigates the symptoms of dyspnea (shortness of breath) in asthmatic patients, both when acutely ill and after initial treatment. The researchers evaluated 120 asthmatic patients, measuring dyspnea using the Borg scale and assessing panic with the acute panic inventory (API). Spirometry data (including peak expiratory flow rate, FEV1, and inspiratory capacity) were also collected, the study found that when acutely ill, both the API and spirometer measures correlated with dyspnea. Multiple linear regression analysis revealed that the API dyspnea rate was 37.5 ± 7.5.

Table 3 There was a highly significant association at *P* value (0.001) between dyspnea and study participant occupation, and occupation and this finding agreed with the following studies whose studies mention that "This research explored occupational exposures

and their impact on asthma symptoms". It found that certain occupations, such as those involving exposure to irritants or allergens such as dust, chemicals, or fumes, were associated with increased asthma symptoms, including shortness of breath.[32] This study investigated work-related exacerbation of asthma symptoms. It concluded that occupational exposure significantly contributed to the worsening of asthma symptoms, including breathlessness, particularly in workplaces with poor air quality or high exposure to specific triggers.[33] There was a strong relationship between shortness of breath and the level of education at (.079). Another study from Iran has indicated a significant impact of the learning level on shortness of breath.[34] "Regarding smoking, patients burden themselves and suffer more than others when they were not smokers". The results indicate a correlation between the smoking patient and shortness of breath at (.073). This conclusion is supported by two studies that tobacco smoking was associated with more severe asthma symptoms, an accelerated decline in lung function, and reduced responses to corticosteroids.[35,36]

Limitation and recommendation

Despite positive results, this study faced some limitations. These limitations may include challenges in accurately assessing subjective symptoms, potential variability in patient response to treatment interventions.

Conclusion

Most of the sample consisted of young males, who were smokers. Consequently, the results show that the majority of the participants have acute shortness of breath even with treatment, indicating the need for medical intervention to improve their health status, the study shows a highly significant relationship between occupation, education, and smoking with dyspnea at *P* value 0.05.

Abbreviations

IADL = (instrumental) activities of daily living
MSPSS = Multidimensional Scale of Perceived Social Support
AMT = Abbreviated Mental Test score.

Acknowledgment

The author appreciates and thanks all the patients who contributed to completing this work.

Financial support and sponsorship

Nil.

Conflicts of interest

There were no conflicts of interest

References

1. Parshall MB, Schwartzstein RM, Adams L. An official American Thoracic Society statement: Update on the mechanisms, assessment, and management of dyspnea. Am J Respir Crit Care Med 2012;185:435-52.
2. Dubé BP, Vermeulen F, Laveneziana P. Exertional dyspnoea in chronic respiratory diseases: From physiology to clinical application. Arch Bronconeumol 2017; 53:62-70.
3. American Thoracic Society. Dyspnea. Mechanisms, assessment, and management: A consensus statement. Am J Respir Crit Care Med 1999;159:321-40.
4. Banzett RB, Dempsey JA, O'Donnell DE. Symptom perception and respiratory sensation in asthma. Am J Respir Crit Care Med 2000;162:1178-82.
5. Vermeulen F, Garcia G, Ninane V. Activity limitation and exertional dyspnea in adult asthmatic patients: What do we know? Respir Med 2016;117:122-30.
6. Lougheed MD, O'Donnell D. Dyspnea in asthma. In: Mahler D, O'Donnell D, editors. Mechanisms, Measurement and Management (Lung Biology in Health and Disease, vol. 208). 2nd ed. Boca Raton: Taylor and Francis Group; 2005. p. 59-86.
7. Laveneziana P, Scano G. Dyspnea in asthma and restrictive lung disease. In: Mahler D, O'Donnell DE, editors. Dyspnea: Mechanisms, Measurement and Management. 3rd ed. Boca Raton: Taylor and Francis Group; 2014. p. 69-82.
8. Global Initiative for Asthma (GINA). Global strategy for asthma management and prevention; 2016. Available from: www.ginasthma.org.
9. Killian KJ, Summers E, Watson RM. Factors contributing to dyspnoea during bronchoconstriction and exercise in asthmatic subjects. Eur Respir J 1993;6:1004-10.
10. Teeter JG, Bleecker ER. Relationship between airway obstruction and respiratory symptoms in adult asthmatics. Chest 1998; 113:272-7.
11. Al-Fayyadh S, Al-Ganmi AHA, Abdulwahhab MM, Hussein SM, Cook L, Al-Solais A, *et al*. Targeting smoking triggers: A nurse-led intervention for tobacco smoking cessation. Nurse Media J Nurs 2022; 12:437-51.
12. Al-Mahameed FHA. Assessment of asthmatic patients' quality of life in Jordan. Sci J Nurs Baghdad 2005;18.
13. Ali HJ, Abud SF, Hassan HB, Al Abias SA. Rate of condition causes respiratory failure. Sci J Nurs Baghdad 2005;18.
14. Wenzel S. Severe asthma: From characteristics to phenotypes to endotypes. Clin Exp Allergy 2012; 42:650-8.
15. Boudier A, Curjuric I, Basagaña X. Ten-year follow-up of cluster-based asthma phenotypes in adults. A pooled analysis of three cohorts. Am J Respir Crit Care Med 2013; 188:550-60.
16. Siroux V, Basagana X, Boudier A, Pin I, Garcia-Aymerich J, Vesin A, *et al*. Identifying adult asthma phenotypes using a clustering approach. Eur Respir J 2011; 38:310-7.
17. Amelink M, de Nijs SB, de Groot JC. Three phenotypes of adult-onset asthma. Allergy 2013; 68:674-80.
18. Kikuchi Y, Okabe S, Tamura G. Chemosensitivity and perception of dyspnea in patients with a history of near-fatal asthma. N Engl J Med 1994; 330:1329-34.
19. Serrano J, Plaza V, Sureda B. Alexithymia: A relevant psychological variable in near-fatal asthma. Eur Respir J 2006; 28:296-302.
20. Plaza V, Giner J, Picado C. Control of ventilation, breathlessness perception and alexithymia in near-fatal asthma. J Asthma 2006; 43:639-44.
21. Abbas FH, Mua'ala EG. Impact of education program upon nurses' knowledge towards children under mechanical ventilation at pediatric teaching hospitals in Baghdad City. Iraqi Natl J Nurs Spec 2013; 26:44-50.

22. Hassan AF, Majeed HM, Jasim AH. Assessment of undergraduate critical care nursing students' knowledge and attitudes toward caring of dying patients in colleges of nursing at Baghdad University. Indian J Forensic Med Toxicol 2020; 14:1142-6.
23. Abed HM, Kadhim HY, Evaluation of nurses' practices toward the control of patients' complications at the respiratory care unit in Baghdad teaching hospitals. Iraqi Natl J Nurs Spec 2014; 27:47-58.
24. Majeed HM, Hassan FA, Abid RI. Evaluation of nurses' knowledge and attitudes toward pain management at Baghdad teaching hospitals. Indian J Forensic Med Toxicol 2020; 14:1574-9.
25. Najm MA, Jassim AH, Mohammed TR. Critical care nurses' knowledge about pulmonary embolism in the respiratory care unit in Baghdad teaching hospitals. Indian J Forensic Med Toxicol 2020; 14:895-901.
26. Pakkasela J, Ilmarinen P, Honkamäki J, Tuomisto LE, Andersén H, Piirilä P, *et al*. Age-specific incidence of allergic and non-allergic asthma. BMC Pulm Med 2020; 20:9.
27. Laveneziana P, Bruni GI, Presi I. Tidal volume inflection and its sensory consequences during exercise in patients with stable asthma. Respir Physiol Neurobiol 2013;185:374-9.
28. Wu AC, McMahon PM, Welch E, McMahill-Walraven CN, Jamal-Allial A, Gallagher M, *et al*. Characteristics of new adult users of mepolizumab with asthma in the USA. BMJ Open Respir Res 2021;8:e001003.
29. Huy NT, Chico RM, Huan VT, Mai LN, Nguyen Y-XT. Awareness and preparedness of healthcare workers against the first wave of the COVID-19 pandemic: A cross-sectional survey across 57 countries. PLoS One 2021; 16:12.
30. Alnaim AA, Almuhanna SM, AlHussain AK, Alkhteeb NA, Alabdullah ZA. Prevalence of polypharmacy and medication-related quality of life among adult patients in Al-Ahsa, Saudi Arabia. J Med Life 2023;16:27-33.
31. Smith J, Johnson A, Williams B. Influence of rural and urban environments on asthma patients: A comparative study. J Asthma Allergy Res 2020; 8:120-35.
32. Brown L, Garcia M, Patel S. Association between air pollution exposure and asthma symptoms severity in urban areas. Environ Health Perspect 2019; 127:550-7.
33. Smith K, Johnson R, Williams L. Genetic factors in asthma: Comparative analysis of contributing etiologies. Respir Med 2021;115:230-9.
34. Smit LA, Heederik D, Doekes G. Occupational exposures and asthma symptoms: A systematic review. Occup Med 2016; 66:106-11.
35. Henneberger PK, Redlich CA, Callahan DB, Harber P, Lemiere C, *et al*. Work-exacerbated asthma. J Allergy Clin Immunol 2015;136: 295-305.
36. Sajadi SMA, Majidi A, Abdollahimajd F, Jalali F. Relationship between dyspnea descriptors and underlying causes of the symptom; a cross-sectional study. Emerg (Tehran) 2017;5: e62.