

The impact and treatment of allergic rhinitis in the Middle East: A comparison with the landmark allergy surveys from other worldwide regions

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ABSTRACT

Background: Allergic rhinitis is a global health problem that significantly affects quality of life. It is associated with illness, disability, health care costs, and comorbidities such as asthma.

Methods: Between 2006 and 2011, a series of patient surveys were conducted covering the United States, Asia-Pacific, Latin America, and the Middle East. This article compares data regarding disease burden, treatment patterns, and patient expectations in Middle Eastern countries with those from other regions.

Results: The surveys highlighted the relatively low use of intranasal corticosteroids (INCSs), the current "gold standard" treatment for allergic rhinitis. This may be because of side effects, lack of efficacy, or reduced effectiveness over time. A higher proportion of patients in the Middle East reported bothersome side effects of their prescription nasal sprays, and a higher proportion of these patients strongly agreed that there were no truly effective treatments for allergic rhinitis. This suggests that health care practitioners in the Middle East should be encouraged to explain the use of INCSs in greater depth to their patients.

Conclusion: There remains an unmet need in the treatment of nasal allergies worldwide. The allergy surveys highlight the key factors in choosing an INCS: fast, complete, and long-lasting symptom relief. There is opportunity for novel INCS treatments that address these needs while reducing troublesome side effects. Patient education must play a central role in treatment decision making, particularly in the Middle East, to achieve higher patient satisfaction.

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Allergic rhinitis is a chronic inflammatory disorder of the nasal mucosa, caused by the inhalation of allergens such as pollen or dust, which can affect both children and adults. It is characterized by nasal pruritus, sneezing, rhinorrhea, and nasal obstruction.^{1,2} Many patients also experience eye symptoms such as ocular pruritus, tearing and puffy eyes, or allergic conjunctivitis.^{1,2} Allergic rhinitis can be caused by pollens, molds, dust mites, and animal dander and is defined as intermittent or persistent according to symptom duration and mild or moderate–severe according to severity.¹ Approximately 30–40% of the world population is now affected by one or more allergic conditions.³ The worldwide prevalence of physician-diagnosed allergic rhinitis is 7–14%,⁴ making it a considerable global health problem. Allergic rhinitis is associated with illness, disability, health care costs, and comorbidities, most notably asthma.^{5–8} Nasal allergies can have a significant impact on a patient's quality of life and may impair their day-to-day activities and work productivity.⁸ Although there are differences between countries, the prevalence of allergic rhinitis is increasing worldwide.³ In general, the impact of allergic rhinitis on health and quality of life is underrecognized. Studies to assess prevalence and care delivery also show that there is a large variation between countries in the delivery of care to those experiencing allergic rhinitis.³

Intranasal corticosteroids (INCSs) are regarded as the most effective treatment for allergic rhinitis and are recommended as first-line therapy by guidelines.¹ Second-line therapies include antihistamines, decongestants, chromones, dust mites, and leukotriene receptor antagonists.¹ Treatments that effectively control allergic rhinitis, such as INCSs, have been shown to relieve symptoms, improve patients' quality of life, and reduce the risk of developing new-onset asthma.^{7,9} However,

despite the availability of many treatments and the global prevalence of allergic rhinitis, the impact of the disease on patients' health often goes unnoticed by physicians and health care providers, resulting in inadequate symptom control.^{10,11}

Between 2006 and 2011, a series of landmark allergy surveys were conducted to obtain data on the impact and treatment of allergic rhinitis in the United States, Asia-Pacific, Latin America, and the Middle East. The surveys asked patients with allergic rhinitis a range of questions on the impact of their condition on quality of life, work productivity, and activity, as well as on the effectiveness and side effects of treatments.^{3,12–16} The surveys provided the first worldwide comparative data on the prevalence and burden of allergic rhinitis, showing that it is a common chronic condition with considerable impact on patients' quality of life.⁴ Furthermore, the surveys revealed that many patients do not experience adequate symptom relief with currently available medications.⁴ The most recent of the allergy surveys, Allergies in Middle East (AIME), showed similar findings in patients from Middle Eastern countries.¹⁶ The purpose of this article was to compare the results of the AIME survey with those from the other landmark allergy surveys worldwide and to discuss differences and similarities with regard to the burden of allergic rhinitis, treatment outcomes, and expectations.

METHODS

The Allergies in America (AIA),¹² Allergies in Asia-Pacific (AIAP),¹⁴ Allergies in Latin America (AILA),¹⁵ and AIME¹⁶ surveys were conducted between 2006 and 2011 by Schulman, Ronca, and Bucuvalas, Inc., an international research survey organization. The AIME survey is the most recent of the allergy surveys (2011). Patients included in this survey resided in Egypt, Iran, Lebanon, Saudi Arabia, and the United Arab Emirates.

The surveys featured a core set of ~70 questions, initially developed in English and standardized to allow for comparisons, although data collection procedures were tailored for each country (Table 1). More details on the survey methodology and as a list of relevant questions have been published elsewhere.^{12–16} The surveys initially identified adults who had been diagnosed with allergic rhinitis, nasal allergies, or hay fever by a health care provider. Individual screening of these subjects subsequently yielded a group of respondents who had experienced symptoms or had taken medication to treat their

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Table 1 Data collection in the four adult allergy surveys

Survey	Participating Countries	No. of Households Screened	Completed Interviews	Length of Interview (min)	Year Conducted
AIA	United States	31,470	2500	35	2006
AIAP	Australia, China, Hong Kong, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Vietnam	33,986	1292	35	2010
AILA	Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Venezuela	22,012	1088	41	2008
AIME	Egypt, Iran, Lebanon, Saudi Arabia, and United Arab Emirates	7411	501*	36	2011

*Adults and children.

AIA = Allergies in America; AIAP = Allergies in Asia-Pacific; AILA = Allergies in Latin America; AIME = Allergies in Middle East.

nasal allergy symptoms during the previous 12 months. The AIME survey included children as well as adults,¹⁶ and a Pediatric Allergies in America survey was conducted between March and April 2007.¹³ In total, 5381 patients were interviewed. This article focuses on results from the adult populations.

Depending on the most appropriate screening and interviewing technique for each country, telephone or face-to-face interviews were performed for all surveys. The majority of interviews were conducted in urban areas because of limited telephone connectivity and infrastructure in the rural areas. The average interview length was ~37 minutes. For the AIME survey, a total of 7411 screenings were conducted, yielding 501 completed surveys across all countries.¹⁶ The yield of completed surveys in the other studies was AIA, $n = 2500$;¹² AIAP, $n = 1292$;¹⁴ AILA, $n = 1088$.¹⁵

RESULTS

Diagnosis

The majority (54%) of Middle Eastern survey respondents reported being diagnosed with allergic rhinitis by an otolaryngologist and 12% by an allergy specialist. Although one-third of participants indicated they had received both a skin-prick test and a blood test to confirm the diagnosis, 44% reported never having received either.¹⁶ In both the United States and Latin America, diagnoses were generally made by a primary care or family physician (47% in AIA and 39% in AILA), whereas in Asia-Pacific they tended to be made by an ear, nose, and throat specialist or otolaryngologist (49%). Similar to AIME, the other surveys found that diagnoses were mainly based on observation of symptoms and medical history, with limited use of blood or skin tests.⁴ Therefore, it is feasible that some of the respondents across the surveys could have had nonallergic rhinitis. Although there are differences between nonallergic and allergic rhinitis in terms of symptom type and severity,^{17,18} studies have found that patients experience similar degrees of impairment of their quality of life.^{18,19}

Seasonality of Allergic Rhinitis

When AIME survey participants were asked about the seasonality of their allergic rhinitis, 65% responded that they suffered seasonally or intermittently and 30% reported experiencing symptoms on a persistent basis. These data are similar to those from the AIA, AILA, and AIAP surveys, which show a range of 43–66% for seasonal/intermittent allergic rhinitis and 34–56% for persistent allergic rhinitis.⁴ Seasonal/intermittent allergies in the AIME survey were most prevalent in Saudi Arabia (79%) and Egypt (68%). Persistent allergic rhinitis was most common among respondents from Lebanon (44%), Iran (43%), and the United Arab Emirates (42%; Fig. 1).

Nearly two-thirds (65%) of respondents had intermittent allergic rhinitis, and dust was the most commonly reported allergy trigger (71% of respondents). When participants were asked during which particular months of the year their allergic rhinitis was worst, spring and autumn months were commonly stated.¹⁶ This trend is similar to

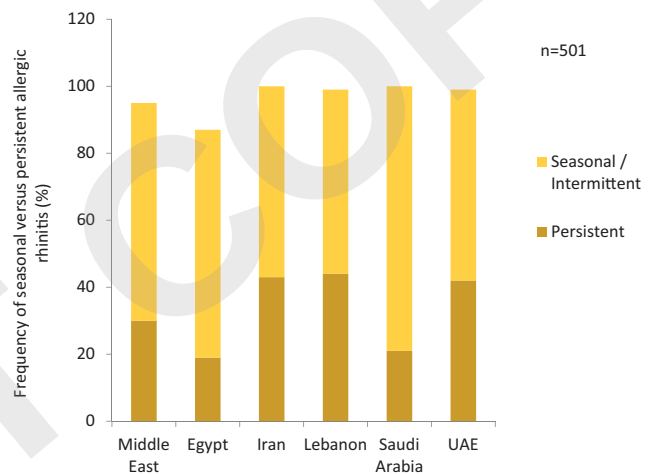


Figure 1. Patient-reported frequency of allergic rhinitis in the Allergies in Middle East (AIME) survey: seasonal/ intermittent versus persistent symptoms.

that reported in the AIA and AIAP surveys, although individual responses regarding the seasonality of peak symptoms varied because of the broad geographic distribution and diverse climatic regions (specific questions relating to worst month/season were not asked in a comparable form in the Latin American survey).⁴

Impact on Quality of Life

Results from all of the worldwide allergy surveys indicate that allergic rhinitis has a significant impact on patients' daily lives. In three of the surveys (AIAP, AILA, and AIME), many patients reported feeling limited in their ability to participate in indoor and outdoor activities or to have pets (Fig. 2). In the AIA survey, only 14% of patients reported that allergic rhinitis did not really impact on their daily life.¹²

Overall, 58% of respondents in the AIME survey reported that during the worst 1-month period of allergy symptoms, their daily life was impacted at least moderately. This varied from a high of 73% of respondents in Egypt to a low of 38% in Lebanon. When asked how allergic rhinitis symptoms affected their mood when their symptoms were most severe, the AIME survey respondents reported feeling frequently or sometimes depressed (72%), tired (80%), and miserable (34%). One-third of respondents reported lack of a restful night's sleep and difficulty in falling asleep or awakening during the night. Feeling depressed was reported by 36, 40, and 35% in the AIA, AIAP, and AILA surveys, respectively, and between 35 and 44% of all surveyed patients reported fatigue.^{12,14–16}

In the four allergy surveys, many patients reported either missing work, being less productive at work, or both as a result of their

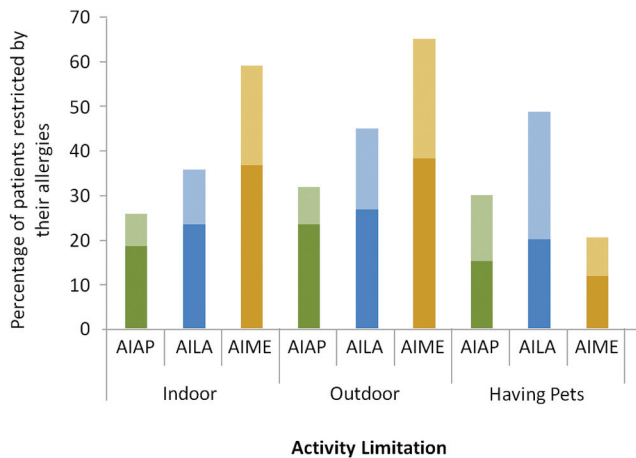


Figure 2. Respondent assessment of the extent to which allergic rhinitis limits their daily activities; lighter color represents “a lot” and darker color represents “some” (Allergies in Asia-Pacific [AIAP], n = 1292; Allergies in Latin America [AILA], n = 1088; Allergies in Middle East [AIME], n = 501; question not asked in Allergies in America [AIA]).

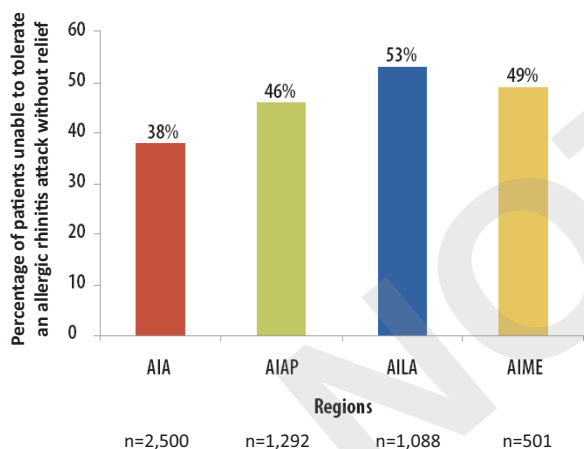


Figure 3. Reported level of discomfort during an allergy attack; percentage of respondents unable to tolerate an allergic rhinitis attack without relief in the allergy surveys.

allergic rhinitis. The percentage ranged from 56% of patients in the AIME survey to 37% in the AILA survey.

Participants in the AIME survey also reported a significant degree of discomfort during allergic rhinitis attacks; respondents from Lebanon reported a particularly high (69%) level of discomfort, whereas those from Saudi Arabia reported less discomfort (38%).¹⁶ Approximately one-half of AIAP, AILA, and AIME patients with allergic rhinitis felt the discomfort experienced during an allergy attack was so severe that they could not tolerate it without relief (Fig. 3).

Treatment Patterns and Reported Patient Satisfaction

A total of 86% of respondents in the AIME survey reported using treatment for their condition, with INCSs being the most common form of medication (76%). Use of INCSs ranged from a high of 95% in Iran to a low of 30% in Saudi Arabia. On average, 20% of the Middle Eastern patients surveyed used over-the-counter medications (only 9% in Lebanon). Across the four studies, an average of ~72% of patients used medication to control their symptoms; of these, other than in the AIME survey, less than one-half had used an INCS.

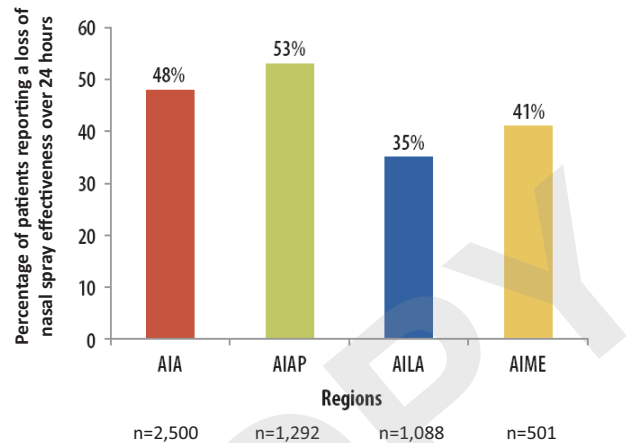


Figure 4. Percentage of patients reporting a loss of intranasal corticosteroid (INCS) effectiveness over 24 hours in the allergy surveys.

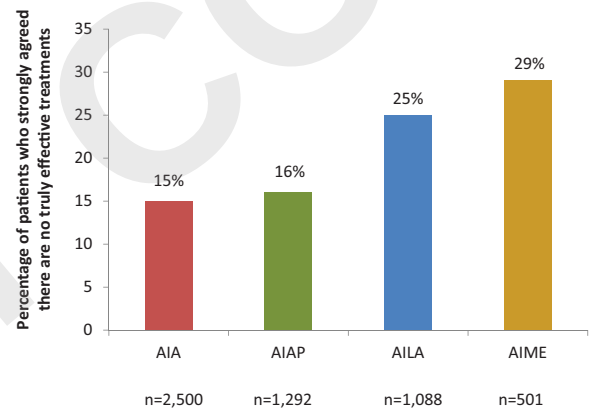


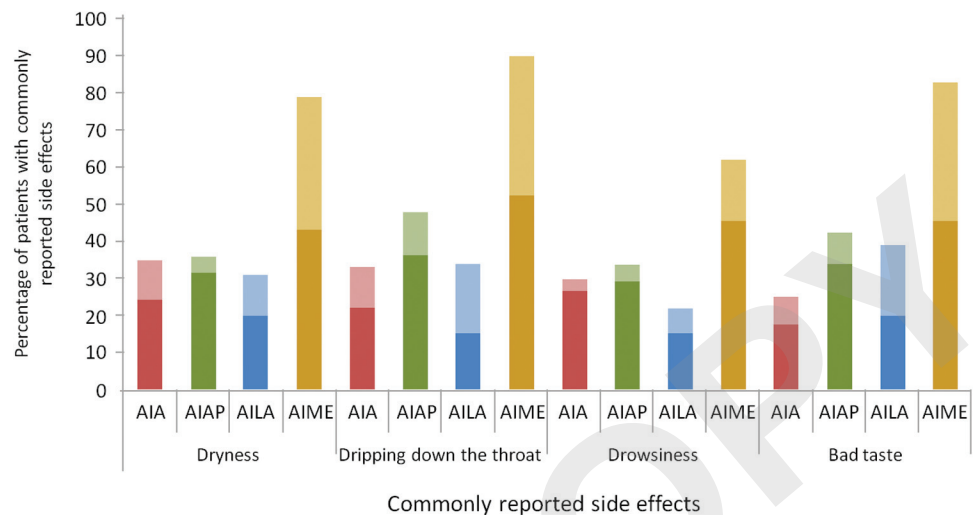
Figure 5. Percentage of patients who “strongly agreed” that there are no truly effective treatments for nasal allergies.

Across three of the allergy surveys, less than one-half of patients using INCSs reported being “very satisfied” with their medication—49% in AIA, 27% in AIAP, and 39% in AIME surveys (this question was not asked in the AILA survey). The most common reasons for dissatisfaction with INCSs were a lack of 24-hour relief (Fig. 4) and lack of effectiveness.

In all regions, many patients reported that most of their symptoms were relieved by INCSs; between 14 (AIAP survey) and 36% (AILA survey) of patients reported their prescription nasal spray relieved all of their symptoms. As few as 15% of patients in the AIA survey and up to 29% in the AIME survey strongly agreed that there were no truly effective treatments for allergic rhinitis (no data for AIA survey, Fig. 5).

When participants in the AIME survey were asked why they discontinued INCS treatment, the most common reason cited was bothersome side effects (26%). For those experiencing side effects from INCS, ≥60% reported them as moderately or extremely bothersome. The most commonly reported side effects of prescription nasal sprays were dripping down the throat, a feeling of dryness, and an unpleasant taste (except in the AIA survey, where drowsiness was more commonly reported than unpleasant taste; Fig. 6). Other side effects reported were headache, burning sensation, uncomfortable spray volume (except AIA survey), nose bleed (AIAP survey only), and crusting (AIME survey only). Around one-third of respondents from the United States and Asia-Pacific reported that a feeling of dryness, dripping down the throat, and drowsiness were moderately or extremely bothersome effects of allergic rhinitis medications. These

Figure 6. Commonly reported side effects of prescription nasal sprays in patients from all regions; lighter color represents “all” and darker color represents “some” (Allergies in America [AIA], n = 2500; Allergies in Asia-Pacific [AIAP], n = 1292; Allergies in Latin America [AILA], n = 1088; Allergies in Middle East [AIME], n = 501).



percentages were similar to those reported in the Latin American survey, although, unlike the AIA or AIAP surveys, the AILA survey specifically referred to bothersome side effects of INCS therapies.

Approximately one-third of patients surveyed in the AIME survey reported that bothersome side effects were the main reason for changing or stopping their current INCS, compared with 17% in the AIAP survey and 7% in the AILA survey. Side effects also proved to affect patients' acceptance of INCS therapies: 7% of patients in the AIME survey, 9% in AIAP survey, and 2% in AILA survey considered side effects as the main reason for not using a prescription nasal spray (question not asked in the AIA survey).

DISCUSSION

The landmark allergy surveys highlighted that, despite regional variations in the seasonality and triggers of allergic rhinitis symptoms, as well as in the diagnosis and treatment patterns, patients around the world experience a comparable and considerable burden of disease.⁴ This is reflected in the high proportion of patients reporting depression, fatigue, and a lack of a good night's sleep, which is in line with other published reports.^{20–22} The AIME survey revealed that in Middle Eastern patients, the reported impact of disease on quality of life is higher than in those from other regions.

Poor nighttime sleep may lead to daytime drowsiness and impairment in cognitive and learning function; daytime drowsiness may also be related to allergic rhinitis itself.²³ Absenteeism from work and a reduction in productivity may also result in substantial financial losses for employers.²⁴ In a review of National Health Interview Survey responses, productivity losses associated with a diagnosis of allergic rhinitis were estimated to be \$601 million (United States).²⁴ When additional survey information on the use of sedating over-the-counter allergy medications was considered, along with workers' self-assessments of at-work productivity reduction due to allergic rhinitis, the estimated loss was dramatically greater. At-work productivity losses were estimated to range from \$2.4 to 4.6 billion (United States).²⁴ These data support the findings of Valovirta and colleagues, who reported greater work productivity loss associated with allergic rhinitis than with many other chronic disorders, including depression, arthritis, migraine, and asthma.²⁵ This finding is particularly relevant when considering the high percentage of patients in the Middle East reporting that their allergic rhinitis symptoms interfered with work productivity.

In a study evaluating the burden of allergic rhinitis in the landmark allergy surveys, incomplete symptom relief, slow onset of action, and decreased efficacy with sustained use were commonly reported for

current medications, including INCSs, and were contributing factors to treatment change or discontinuation.⁴

When participants in the AIME study were asked to specifically define what they would consider a successful outcome after treatment with an INCS, 91% thought that an INCS should provide relief of allergic rhinitis symptoms within 1–3 hours after administration. Hypotonic formulations of INCSs, such as ciclesonide, have been shown to optimize intranasal absorption and to provide rapid (as early as 1 hour) symptom relief.²⁶ However, most current INCS treatments have an onset of action ranging from 7 to 24 hours.²⁷ The discrepancy between INCS pharmacology and patients' expectations suggests that physicians may need to do more to educate their patients about INCS therapies.

The perception that there is no truly effective treatment for allergic rhinitis, which was shared by a large percentage of the Middle Eastern respondents, may also indicate a lack of adequate patient education.

Many patients in all regions reported changing their INCS. Other than a perceived lack of effectiveness, reasons for change included the doctor or patient wanting to try another medicine, bothersome side effects, medication cost, safety concerns, or the exclusion of current medication from health insurance cover.

Given the impact of side effects on treatment compliance in patients with allergic rhinitis,²⁸ the high percentages of patients suffering side effects in AIME and the other allergy surveys is an important consideration for health care professionals. Physicians need to recognize the factors that affect patients' acceptance and adherence to treatment and to manage patients' expectations accordingly.

CONCLUSIONS

The landmark allergy surveys have provided the first set of global comparative data on the impact and treatment of allergic rhinitis. They have indicated that allergic rhinitis remains a significant health care and financial burden around the world, which restricts daily activities and impacts on mood and work productivity. Although the majority of patients suffering from nasal allergic rhinitis use some form of treatment, a relatively small proportion of patients use INCSs, despite them being considered the “gold standard” of treatment by the World Allergy Organization.³

Many patients are dissatisfied with their prescription INCS, primarily because of a perceived lack of effectiveness. This situation may in part be responsible for the underuse of such treatments in allergic rhinitis. In the Middle East, patient perceptions differ from those in other regions. There is less patient understanding of the treatments

prescribed, suggesting a greater need for comprehensive patient education. The impact of disease on quality of life is also generally higher in patients in the Middle East than in those from other regions.

The data from all four surveys suggest that there is still an unmet need in the treatment of nasal allergies worldwide. Dissatisfaction with current INCSs indicates that there is considerable scope for novel INCSs with improved efficacy and minimal side effects. Moreover, there is a need for further patient education on the effects and benefits of INCS treatment.

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