

Nasal allergies in the Middle Eastern population: Results from the “Allergies in Middle East Survey”

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ABSTRACT

Background: Chronic respiratory diseases such as asthma and allergic rhinitis (AR) are a major public health problem in developing countries including those in the Middle East. However, to date, there is a paucity of information related to physician-diagnosed AR in this region. The Allergies in Middle East Survey was undertaken to help clarify and broaden the understanding of physician-diagnosed AR across Egypt, Iran, Lebanon, Saudi Arabia, and the United Arab Emirates. The survey explores the frequency of physician-diagnosed AR, prevalence and types of associated symptoms, the impact on quality of life (QOL), current treatment practices, and therapy expectations.

Methods: In total, 7411 households in five countries (Egypt, Lebanon, Saudi Arabia, Iran and the United Arab Emirates) were screened to identify individuals that were ≥ 4 years old with a physician diagnosis of AR and either symptoms and/or treatment in the past 12 months. A total of 501 respondents from the five countries completed the survey. Standardized questionnaires were used to make comparisons across the regions; however, the data collection procedures were tailored for each country. The sample was probability based to ensure valid statistical inference to the population.

Results: Ten percent of the Middle East population surveyed had a physician diagnosis of AR, with 65% of respondents stating that their allergies were intermittent in nature. An otolaryngologist or allergist diagnosed the majority of the individuals surveyed. Runny nose, nasal and throat itching, postnasal drip, and nasal congestion or stuffed up nose were the most common and bothersome symptoms of AR. The majority of survey participants (58% of the overall survey population) with AR reported that the condition had an impact on their daily private and professional life. Seventy-two percent of adults reported that their AR symptoms limited their work/school activities and 35% reported that their AR interfered with and caused them to miss work or school within the past 12 months. One factor, in addition to the outward AR symptoms, that could have contributed to these function impairments may have been sleep disturbances. Although a secondary symptom to AR, sleep disturbances (difficulty getting to sleep, waking up during the night or lack of a good night's sleep) were shown in this survey to be extremely troubling in $\sim 15\%$ of AR sufferers. In the past year $>90\%$ of patients reported taking a medication of any type for their AR, with nearly a 4:1 ratio of patients taking a prescription medication versus an over-the-counter (OTC) medication in the past 4 weeks. Over 75% of survey respondents reported taking an intranasal corticosteroid (INCS) in the last 4 weeks and the satisfaction rate of INCS medications was similar to that reported for OTC medications. The most common reasons cited for dissatisfaction with INCS medications were inadequate effectiveness, bothersome side effects (e.g., unpleasant taste and retrograde drainage into the pharynx), decreased effectiveness with chronic use, and failure to provide 24-hour relief.

Conclusion: These data show that AR is common in the Middle East region as elsewhere in the world. Many patients with AR in Middle East region suffer from their symptoms (e.g., runny nose, nasal itching, nasal congestion, postnasal drip, and other symptoms) on all or most days during the times of the year that their allergies are worst. These symptoms have been shown to reduce QOL and performance at work/school to a significant degree. Additionally, the survey data underscore a considerable treatment gap with current therapies for AR and that many AR patients still have not found adequate effectiveness with currently available medications. Thus, through identification of disease impact on the Middle East population and highlighting treatment gaps, clinicians in the Middle East may better understand and treat AR, leading to improvements in overall patient satisfaction and QOL.

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The prevalence of allergic diseases has been steadily increasing worldwide to a point where the World Allergy Organization estimates that 30–40% of the world population is now affected by one or more allergic conditions.¹ In fact, respiratory symptoms including

acute infections and long-term conditions such as asthma, rhinitis, and chronic obstructive pulmonary disease are currently, worldwide, the most common reason for patient presentation to a primary care provider requiring intervention.^{1,2}

Although the exact cause for the worldwide increase in allergic disorders has not been elucidated, it is clear that allergies are becoming more complex and sufferers frequently experience more than one symptom.³ Allergic rhinitis (AR), defined as an inflammatory condition of the nasal mucosa primarily mediated by an IgE-associated response to ubiquitous indoor and/or outdoor environmental allergens and characterized by nasal pruritus, sneezing, rhinorrhea, and nasal congestion, in particular, is a very common chronic respiratory disorder that affects between 10 and 30% (~ 700 million people) of the world population.¹ The prevalence of AR has also been increasing and now has become the most common chronic medical condition worldwide requiring active intervention.² What makes this statistic so concerning is that AR is a known risk factor for asthma and has other associated comorbidities that include sinusitis, nasal polyposis, conjunctivitis, otitis media with effusion, upper respiratory infections, and sleep disorders.^{4,5} In addition to the associated comorbidities, AR has been shown to have a direct and significant impact on an individual's quality of life (QOL) and have significant direct and indirect costs.⁶

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Poorly controlled AR can result in significant discomfort that can impair productivity at work, performance in school, social interactions, and sleep.⁷⁻¹¹

Despite the epidemiological evidence showing a worldwide increase in allergic disorders, a link to other comorbid conditions, and significant impact on QOL, AR often goes undiagnosed or marginalized as merely a nuisance by physicians and patients alike. In fact, Valovirta and colleagues reported more work productivity loss associated with AR than with several other chronic disorders including depression, arthritis, migraines, and asthma.¹² This point is underscored by a recent survey in Spain. The results showed that one-third of survey participants were not aware that they had AR. In addition, a physician diagnosis of AR was not made in nearly one-half of the AR sufferers who participated in the survey. The survey concluded that the lack of effective communication between health care providers and patients led to poor treatment adherence and increased patient reliance on multiple agents as well as over-the-counter (OTC) products.¹³

In adults, once AR has been correctly diagnosed, effective treatment has been shown to improve QOL and even lower the risk of developing asthma.¹⁴ However, to effectively manage AR and associated QOL sequelae, long-term use of medications that address the underlying inflammation will often be required. For this reason, current international diagnostic and treatment guidelines recommend intranasal corticosteroids (INCSs) as one of the most effective first-line, long-term, treatment options for mild-to-moderate AR.¹⁵⁻¹⁷ INCS treatments have been shown to ameliorate all symptoms associated with AR and are particularly effective in improving nasal congestion in the chronic AR sufferer.^{18,19} Second-line therapies may be recommended in patients with moderate-to-severe disease and who are either partially or unresponsive to INCS therapy. These include antihistamines, decongestants, cromolyn, leukotriene receptor antagonists, immunotherapy, and nonpharmacologic therapies.¹⁵

Despite the numerous initiatives that are currently being undertaken by various allergy organizations, a complete picture of the size of the global allergy epidemic does not exist. Recently, several large-scale surveys (e.g., Allergies in American Survey, Allergies in Latin America, and Allergies in Asia Pacific) have attempted to further clarify the prevalence of diagnosed AR, its impact on QOL, and current treatment gaps in several regions of the world.^{8,20-23} Unfortunately, no such studies or surveys have addressed the true burden of AR in the Middle East. Therefore, the Allergies in Middle East Survey (AIMES) was undertaken in an attempt to further clarify the prevalence of AR, its impact on QOL, existing treatment paradigms and treatment gaps associated with AR, and the medications currently used to treat this disease.

METHODS

Allergies in Middle East Survey

Included in this survey were adults, children, and adolescents ≥ 4 years old residing in Egypt, Iran, Lebanon, Saudi Arabia, and the United Arab Emirates. Survey entry criteria included individuals with a physician diagnosis of AR who were currently experiencing or being treated for AR. Because AR may not have been a common term understood or communicated to patients in the countries where the interviews took place, other terms were also used in this survey to describe AR. Therefore, a list of synonymous terms was provided to screened individuals to ensure that the survey captured everyone with the targeted condition. However, for the purposes of clarity, the term AR will be used in this article to identify patients included in this survey. A total of 5098 households from Egypt, Lebanon, Saudi Arabia, and the United Arab Emirates were screened either by phone or at in-person interviews, depending on the most appropriate mode of screening and interviewing in a particular country. Individual in-person screens were conducted with 2313 individuals in Iran in

Table 1 Survey population and study sampling frame

Population		
Individuals ≥ 4 yr old diagnosed with AR, symptomatic, or being treated for allergic rhinitis in the past 12 mo		
Sampling frame		
Telephone and in-person screening of national or major city sample		
Interview length		
Range, 20–75 min; mean, 36.2 min		
Region	No. of Households Screened	Completed Sample
Egypt*	1274	100
Iran*§	2313	100
Lebanon*	790	100
Saudi Arabia#	1639	100
United Arab Emirates#	1395	101
Total	7411	501

*Participants screened via in-person interview.

#Participants screened via telephone.

§Iran is a nonprobability sample and interviews were not conducted in a similar fashion to other countries.

AR = allergic rhinitis.

place of the household screen used elsewhere. A total of 7411 screenings were conducted that yielded 501 completed surveys across all countries (Table 1). It is important to note that the population surveyed and presented in this table were those individuals actually diagnosed with AR by a physician.

Fieldwork was conducted between July and October of 2011. Telephone and in-person interviewing were used. Most of the interviews were conducted in urban areas because of the low telephone penetration and lack of interviewing infrastructure in rural areas of the Middle East. The average length of interviews was 36.2 minutes.

The survey was developed and conducted by Abt SRBI (New York, NY), an international survey research organization. The survey sponsor was Takeda Pharmaceutical Company Limited (Osaka, Japan).

The maximum expected sampling error for a simple random sample of 501 cases (e.g., all respondents in the Middle East region) would be ± 4.38 percentage points at the 95% confidence level. The maximum expected sampling error for a simple random sample of 409 cases (e.g., the adult Middle East sample) would be ± 4.85 percentage points at the 95% confidence level. The maximum expected sampling error for a simple random sample for country-specific samples from the Middle East survey would be ± 9.8 percentage points for sample sizes of 100 at the 95% confidence level. It should be noted that household sampling for in-person interviews was conducted with a more complex design that used cluster sampling, so design effects may increase actual sampling variance compared with simple random sampling.

Development of Survey Questionnaires

Validated and standardized questionnaires specific to ascertaining the prevalence, impact, and treatment gaps associated with AR, unfortunately, do not currently exist. Thus, through the use of survey analysts from the research firm Abt SRBI, Inc., along with expert physicians in the AR field from the Middle East, patient and health care provider questionnaires were developed to accurately collect relevant information on AR within the surveyed countries in the Middle East. Questions included in this survey have been standardized to survey questions previously used in previous surveys on AR,^{20,23-25} which include thousands of survey participants across North America, South America, and Asia. A complete list of survey questions can be found in Appendix A.

Table 2 Survey participants demographics

Parameter	
Sex (unweighted)	
Male	44.7%
Female	55.3%
Age (unweighted)	
Children (4–17 yr)	Mean, 10.7 yr; <i>n</i> =92
Adults (18–88 yr)	Mean, 35.0 yr; <i>n</i> =409
Education level of all respondents and caregivers of children (unweighted)	
No school	3.4%
Primary education	8.2%
Secondary education university	87%
Do not know	0.4%
Refused to answer	1.2%
Health insurance types (weighted)	
Private	36%
Public	34%
Both	5%
None	22%
Do not know/refused	2%
First diagnosed with AR (weighted)	
Age	Mean, 20.5 yr
Smoking status (weighted)	
Yes	40%
No	59%
Refused to answer	1%
Pets in household (weighted)	
Yes	24%
No	74%
Refused to answer	2%
Diagnosed with asthma (weighted)	
Yes	14%
No	86%
Do not know/refused to answer	0%
Asthma exacerbation within the past year (weighted)	
Yes	68%
No	26%
Do not know/refused to answer	6%

Survey questions were developed through analysis of relevant literature and the identification of questions used in other health surveys. The developed questionnaires focused on general health; AR triggers and symptoms; effects of AR on QOL including sleep, impact on daily life, mood, absenteeism, and presenteeism. Perceived effectiveness, expectations of treatment outcome and side effects of OTC (all medications available without a prescription), and prescription AR medications were also assessed.

Sample weights were developed to correct for sampling bias and differences between eligible patients screened and eligible patients actually interviewed. An age and gender correction ensured that the interviewed population was similar to the screened population of allergy sufferers. Cross-tabulation and frequency weighting was used in all analyses to determine critical survey outcomes.

RESULTS

Demographics

A complete overview of survey participant demographics is provided in Table 2. There were 409 adult participants (18–88 years of age; mean, 35.0 ± 11.6 years) and 92 children/adolescents (4–17 years of age; mean, 10.7 ± 4.0 years). Of the 501 total survey participants, roughly, 55% were female subjects. The majority of

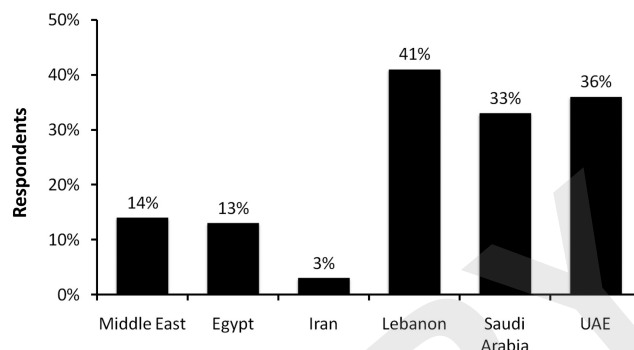


Figure 1. Percent of allergic rhinitis (AR) respondents with physician-diagnosed asthma overall and by specific Middle East countries

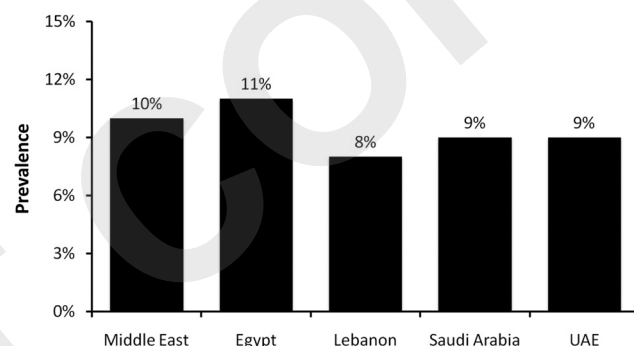


Figure 2. Prevalence of physician-diagnosed allergic rhinitis (AR).

respondents reported having secondary education at a university. Nearly 75% of survey respondents indicated that they had private, public, or both forms of health insurance to cover medical care costs. The average age at which a physician diagnosed AR was 20.5 ± 12.3 years.

Forty percent of participants were smokers and 24% owned a pet, both known risk factors for respiratory diseases such as asthma and AR. Fourteen percent of survey participants reported having been diagnosed with asthma/chest allergy in addition to AR. The country with the lowest reported proportion of adults with asthma/chest allergy and AR was Iran (3%) whereas Lebanon had the highest proportion (41%). A complete Middle East and country-specific breakdown of AR respondents with physician-diagnosed asthma is shown in Fig. 1. In respondents reporting asthma, 68% reported having asthma symptoms or an asthma exacerbation within the past year.

Prevalence and Patterns of Diagnosed AR in the Middle East

The AIMES found that 10% of respondents had a physician diagnosis of AR or equivalent (Fig. 2). The prevalence of diagnosed AR ranged from 8% in Lebanon to 11% in Egypt. Overall, 73% of survey participants reported being diagnosed with AR (Table 3).

The majority (54%) of adult survey respondents reported being diagnosed with AR by an otolaryngologist whereas primary care providers (e.g., internal medicine and general practitioner/family practice physicians) played a lesser role in the initial diagnosis of AR (Table 3). After diagnosis, otolaryngologists were the most commonly consulted health care provider for continued treatment of diagnosed AR (Table 3). Overall, 46% of survey participants reported never having had a diagnostic skin-prick test or blood test to confirm the diagnosis of AR (Table 3).

Two-thirds (65%) of those surveyed indicated that they suffer intermittently from AR and approximately one-third (30%) reported

Table 3 Prevalence and patterns of diagnosed AR in the Middle East

Parameter	Middle East	Egypt	Iran	Lebanon	Saudi Arabia	United Arab Emirates
Respondents with physician diagnosis of (%)						
Nasal allergies	57	75	39	63	52	66
Sinusitis	26	17	27	34	43	36
AR	16	8	30	14	3	4
Sinus disease	5	5	4	18	2	5
Asthma	14	13	3	41	33	36
Medical specialty of physician making first diagnosis (most frequently seen for AR) (%)						
Otolaryngologist	54 (59)	60 (65)	44 (53)	33 (34)	63 (61)	58 (50)
Allergist	12 (19)	23 (21)	4 (23)	14 (29)	6 (7)	4 (5)
Internal medicine	15 (8)	2 (0)	36 (17)	2 (1)	0 (6)	0 (3)
General practitioner/family practice	12 (8)	10 (9)	13 (4)	22 (13)	13 (13)	13 (19)
Respiratory specialist	3 (3)	4 (5)	2 (3)	10 (10)	0 (0)	0 (0)
Pediatrician	2 (2)	1 (0)	0 (0)	19 (13)	4 (11)	8 (15)
Respondents reporting allergy testing being done (%)						
Skin test only	10	18	1	5	13	7
Blood test only	13	5	20	11	13	21
Both	31	13	60	35	9	16
Neither	46	64	19	49	65	56
Respondent perceived frequency of AR (%)						
Intermittent	65	68	57	55	79	57
Persistent	30	19	43	44	21	42
Not sure	5	13	0	1	0	1
Respondent reported triggers for AR (%)						
Dust	71	63	79	79	74	59
Pollution	47	49	61	36	8	21
Perfume	46	24	75	46	36	20
Tobacco smoke	46	27	83	40	9	11
Hot or spicy food	40	28	72	10	4	7
Weather	38	44	32	65	31	37
Chemicals	38	28	56	42	22	20
Air conditioning	34	52	21	17	15	51
Viruses or colds	26	25	35	42	4	7
Exercise	20	14	37	12	0	2
Grass	19	3	43	23	3	1
Stress	14	29	5	6	0	5
Animals	13	11	18	15	7	4
Emotions	11	18	10	6	0	1
Alcohol	10	3	23	2	0	0

AR = allergic rhinitis.

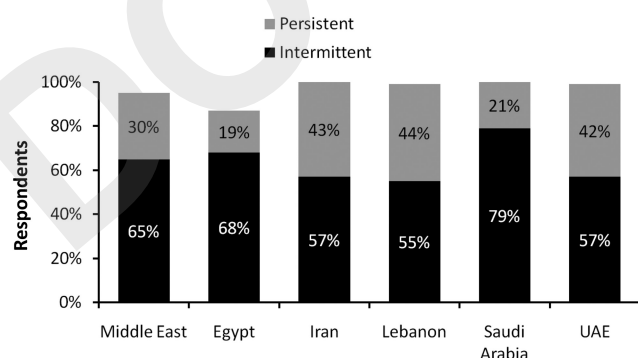


Figure 3. Breakdown of intermittent versus persistent allergic rhinitis (AR).

suffering on a persistent basis (Fig. 3). Intermittent allergies were most prevalent in Saudi Arabia (79%) and Egypt (68%). Persistent AR was most common among respondents from Lebanon (44%), Iran (43%) and the United Arab Emirates (42%; Fig. 3).

One noteworthy observation is that while nearly two-thirds (65%) of respondents stated that their AR was intermittent in

nature, dust was the most commonly reported nonallergic trigger for AR by 71% of respondents (Table 3). Other nonallergic triggers commonly reported (>45% of respondents) were pollution, perfume, and tobacco smoke. When participants were asked during what particular months of the year their AR was worst, spring and fall months were commonly cited as being most troublesome (data not shown).

Symptoms Associated with AR in Middle East Patients

Individuals included in the AIMES were asked whether they still suffer from AR or if their AR symptoms have diminished over time. The overwhelming majority of respondents (98%) reported that they were still troubled by their AR symptoms despite the fact that nearly all of them (92%) reported taking a medication in the past 12 months to treat their allergies (Table 4). When asked about the type of AR symptoms most commonly experienced, respondents cited runny nose (57%), nasal itching (56%), nasal congestion (55%), throat itching (52%), reduced sense of smell (51%), and postnasal drip (50%). A full breakdown of the most commonly experienced AR symptoms during the worst 1-month period for the overall survey population can be found in Fig. 4.

Table 4 Symptoms associated with AR in Middle East patients

Parameter	Middle East	Egypt	Iran	Lebanon	Saudi Arabia	United Arab Emirates
Respondents reporting they still suffer from AR (%)						
Still suffering from NA (%)	98	96	100	100	96	95
Respondents reporting use of medications for AR within past 12 mo (%)						
Any medication	92	93	100	96	69	77
Oral allergy medications	53	59	56	49	22	27
Desensitization or immunotherapies	42	51	41	57	19	25
Nasal steroids	84	83	98	67	59	51
Respondents with symptom occurring every day or most days during worst allergy month in past year (%)						
Runny nose	57	62	69	36	20	24
Nasal itching	56	57	67	32	31	30
Nasal congestion or stuffed up nose	55	46	76	69	29	40
Throat itching	52	56	64	22	23	18
Reduced sense of smell	51	67	53	32	12	16
Postnasal drip	50	60	54	45	17	20
Headache	44	64	34	38	22	13
Repeated sneezing	44	24	70	52	31	38
Watery or teary eyes	41	40	55	26	13	27
Cough	40	64	26	33	15	20
Red or itching eyes	39	32	59	14	11	21
Respondents experiencing moderately to extremely bothersome symptoms during AR attacks (%)						
Runny nose	83	74	93	92	76	74
Nasal itching	79	72	92	84	76	81
Throat itching	78	75	91	82	71	84
Postnasal drip	76	77	76	90	84	84
Nasal congestion or stuffed up nose	74	62	85	93	78	83
Reduced sense of smell	73	76	85	78	71	74
Repeated sneezing	66	46	86	82	79	69
Headache	64	76	83	90	66	82
Cough	63	79	78	90	74	75
Red or itching eyes	62	49	89	80	64	75
Watery or teary eyes	61	47	88	81	56	83
Most bothersome symptom during AR attacks (respondent %)						
Repeated sneezing	28	12	45	16	19	19
Headache	15	8	22	12	14	10
Cough	9	18	2	12	9	10
Nasal congestion	9	5	7	28	17	22
Runny nose	8	8	10	5	5	8
Level of symptom discomfort during allergy attack (respondent %)						
Can not tolerate without relief	49	57	43	69	38	46

AR = allergic rhinitis.

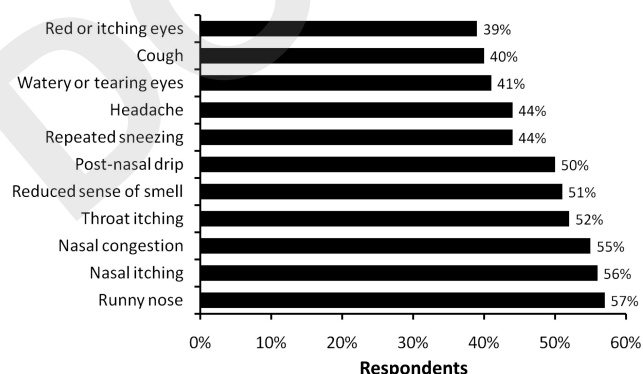


Figure 4. Most commonly experienced allergic rhinitis (AR) symptoms during worst 1-month period in past year.

With few exceptions, well over 50% of respondents from all countries experienced a full range of moderately to extremely bothersome symptoms during AR attacks (Table 4). Repeated sneezing and head-

ache were reported overall as the two most bothersome symptoms during AR attacks (Table 4).

Respondents with AR also reported a significant amount of discomfort during attacks. Forty-nine percent said that the discomfort during an allergy attack was such that they could not tolerate it without relief. AR sufferers in Lebanon had the highest (69%) reported level of discomfort and sufferers in Saudi Arabia had the lowest (38%; Table 4).

Impact of Nasal Allergies on QOL in Middle East Patients

The impact of AR symptoms on QOL was also assessed. Respondents were asked specifically how AR affected their life. Additionally, the survey also included an assessment of AR symptoms on mood, daily activities, productivity at work, absenteeism from work or school, and sleep quality. Overall, 58% of respondents reported that during the worst 1-month period of allergy symptoms, their daily life was impacted at least moderately. This reported impact varied from a high of 73% of respondents in Egypt to a low of 38% in Lebanon (Table 5).

Table 5 Impact of AR on QOL in Middle East patients

Parameter	Middle East	Egypt	Iran	Lebanon	Saudi Arabia	United Arab Emirates
Impact of AR on daily life (respondent %)						
A moderate amount	40	57	31	24	22	26
A lot	18	16	20	14	17	20
Patients feelings during allergy season (symptoms experienced frequently) (respondent %)						
Depressed	26	26	23	38	29	30
Tired	40	51	27	54	39	39
Miserable	11	15	6	32	12	11
Activity limitation (at least some) (respondent %)						
Doing well at work/school	72	83	69	51	55	50
Outdoor activities	65	80	59	35	48	40
Indoor activities	59	78	49	16	44	38
Allergy interference with work/school (respondent %)						
Missed work/school only	13	11	14	10	15	13
Interfered with work/school only	8	6	5	17	17	18
Missed and interfered	35	50	30	27	13	18
Work productivity (respondent %)						
No allergy symptoms	83	79	83	87	89	84
Allergy symptoms at worst	56	61	54	52	49	59
AR sleep interference (getting to sleep) (respondent %)						
Quite a bit troubled	14	9	19	16	14	13
Extremely troubled	15	14	12	19	23	28
AR sleep interference (waking up during night) (respondent %)						
Quite a bit troubled	16	20	14	15	9	16
Extremely troubled	14	12	13	14	19	19
AR sleep interference (lack of a good night's sleep) (respondent %)						
Quite a bit troubled	15	13	16	18	13	22
Extremely troubled	14	14	14	15	15	20

AR = allergic rhinitis; QOL = quality of life.

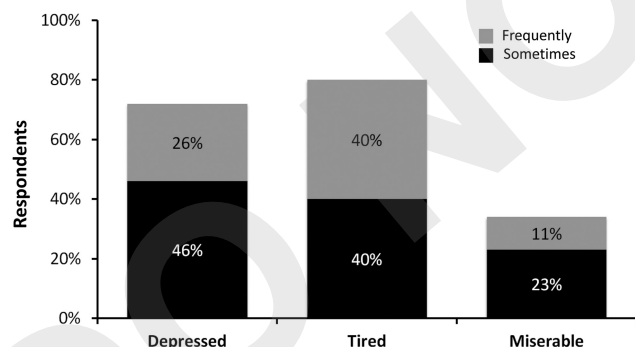


Figure 5. Allergic rhinitis effects on mood in the Middle East.

When asked how AR symptoms affected their mood when their AR symptoms were most severe, survey respondents reported feeling depressed (72%), tired (80%), or miserable (34%; Fig. 5). There was also variability among the countries surveyed with considerable differences noted particularly for Iran and Lebanon compared with the overall survey population (Table 5).

Activity limitations in daily life were reportedly affected significantly by AR symptoms within the Middle East region. Collectively, 72% of respondents reported work/school performance was impaired at least somewhat by their AR symptoms (Table 5). When specifically asked how their AR symptoms affected their daily school/work activities, over one-third (35%) reported that their AR interfered and prevented them from performing their daily work/school activities and caused them to miss work/school because of their disease (Table 5). As a corollary question, survey participants were asked to actually rate their work/school productivity/output on a percentage basis in the presence and absence of severe AR symptoms. These data showed

that there was an overall mean work productivity decrease of 27% when their AR symptoms were most severe. Results were fairly consistent across all individual countries (Table 5).

Roughly, 80% of the respondents reported that their sleep was interfered with as a result of their AR symptoms. When the impact of AR on these specific sleep indicators (getting to sleep, waking up during night, and lack of a good night's sleep) was assessed, it was surprisingly consistent across these three sleep measures for those being quite a bit or extremely troubled (Table 5).

Current Status of AR Control and Treatment in the Middle East

Eighty percent of the overall Middle East survey population reported seeing a physician for their AR symptoms within the past year with 55% of respondents reporting having seen a specialist at least once (Table 6). On the average, there were five physician visits per year as a result of AR symptoms. Additionally, 22% reportedly visited a pharmacy at least two times for advice about their AR symptoms in the past 12 months (Table 6).

When asked how well their AR symptoms have been controlled over the previous 4 weeks, less than one-half (40%) of respondents assessed their AR symptoms as completely or well controlled (Table 6). Furthermore, 15% of respondents assessed their AR symptoms as poorly or completely uncontrolled (data not shown).

The vast majority of these individuals (86%) took some kind of prescription medication to treat their AR symptoms. The most common form of medication used by 76% to control AR symptoms was a prescription nasal corticosteroid spray. Use of nasal corticosteroid sprays ranged from a high of 95% in Iran to a low of 30% in Saudi Arabia.

When the use of desensitization methods (e.g., sublingual or subcutaneous immunotherapy) was assessed, 42% of respondents said

Table 6 Current status of AR control and treatment in the Middle East

Parameter	Middle East	Egypt	Iran	Lebanon	Saudi Arabia	United Arab Emirates
Respondents that have seen a doctor or healthcare provider in the past year (%)						
AR	80	81	98	58	38	61
No. of visits (mean)	5	11	4	6	5	3
Frequency of visits to allergist for AR in the past 12 mo (%)						
Monthly or more often	22	48	2	4	4	6
Several times a year	31	14	58	28	9	14
Once a year	2	1	2	13	2	4
Respondents who have been to a pharmacy to get advice about AR (%)						
Past 12 mo	22	20	24	26	22	19
No. of visits (mean)	2	2	2	3	3	2
Respondent-perceived AR control in past 4 wk (%)						
Completely or well controlled	40	24	51	55	48	56
Respondents reporting use of medications for AR within past 4 wk (%)						
No medication	14	9	2	25	51	53
Any medication	86	91	98	75	49	47
Any prescription medication	83	88	98	75	38	40
Other prescription medication	46	23	83	61	14	22
Steroid spray	76	80	95	44	30	33
OTC medication	20	16	24	9	26	16
Respondents reporting use of medications for AR within past 12 mo (%)						
Any medication	92	93	100	96	69	77
Oral allergy medications	53	64	56	49	22	27
Desensitization or immunotherapies	42	51	41	57	19	25
Nasal steroids	84	83	98	67	59	51

AR = allergic rhinitis; OTC = over the counter.

they had used these types of therapies in the past year. Although this incidence may seem high, it is likely a function of survey participants having to have had a physician diagnosis of AR to be included in the survey. Use of this type of therapy ranged from a high of 57% in Lebanon to a low of 19% in Saudi Arabia. A complete list of classes of medications used to treat AR by Middle East survey respondents are displayed in Table 6.

AR Treatment Expectations

When survey participants were asked whether there were truly effective treatments currently available to control their disease, only 44% of respondents with AR agreed with this statement (Table 7). Fifty-five percent agreed that the frequency of AR symptoms could be prevented in most cases (Table 7).

When asked to specifically define what they would perceive as a successful outcome after treatment with an INCS, an overwhelming 91% thought that an INCS should provide relief of AR symptoms within 3 hours after administration (Table 7). Surprisingly, 86% thought that INCS products were supposed to provide relief for ≤ 11 hours whereas only 3% of respondents thought that nasal steroid sprays should last ≥ 18 hours (Table 7). Respondents defined a successful treatment outcome with an INCS product that provides at least 82% symptom relief, has an onset of action of 2 hours, and provides symptom relief for up to 4 hours. When participants were asked about safety, 60% thought that INCS products are safe (Table 7).

Prescription Nasal Steroid Spray Use and Treatment Satisfaction in the Middle East

The majority (83%) of survey participants cited using an INCS product at some point over the past year to control their AR symptoms (Table 8). The major reasons cited for lack of use were related to lack of severe symptoms, dislike of nasal sprays, and concern over dependence. Side effects were provided as a reason by 7% of this group (Fig. 6).

When respondents reporting that they had used an INCS product within the past year were asked for the most important reason for choosing an INCS, 40% responded that they were looking for fast symptom relief and 21% were looking for long-lasting or complete symptom relief (Table 7). When actual efficacy was assessed, 80% of respondents stated INCS products gave them relief from most or all AR symptoms (Table 8). When these same individuals were asked about INCS efficacy over time, a significant portion (41%) stated that their INCS lost effectiveness over the course of the day or night (data not shown). In fact, most (49%) felt that the duration of effectiveness was < 4 hours. Moreover, 41% of respondents who had taken nasal steroid sprays reported that the effectiveness tended to wear off after initiating therapy (Table 8).

Nearly two-thirds (64%) rarely, if ever, changed their nasal steroid spray once they started taking the medication; however, the range across the individual countries was quite large. For example, 88% of respondents from Iran reported that they rarely, if ever, changed their INCS product, whereas only 37% of respondents from Egypt cited that they rarely, if ever, changed their INCS product. A nearly equal number of respondents (38%) from Egypt also said they change their nasal steroid spray several times a year, which is much higher than respondents reported from other countries (Table 8).

When individuals who reported changing their INCS within the last year were asked to provide a reason for changing, the majority (47%) stated that the doctor changed their therapy. This was especially prevalent in Egypt where 69% of those respondents who changed their INCS did so at the suggestion of the physician. Smaller percentages of respondents reported their INCS change being driven by lack of efficacy (27%) or waning of efficacy over time (24%). Nearly one in three respondents (29%) stated that their reason for switching INCS was because they wanted to try something else with the most common reason related to lack of effectiveness. Other prominent reasons cited included bothersome side

Table 7 AR treatment expectations from Middle East patients

Parameter	Middle East	Egypt	Iran	Lebanon	Saudi Arabia	United Arab Emirates
Respondent reported satisfaction with prescription AR medication (%)						
Very satisfied	23	17	23	54	0	46
Somewhat satisfied	67	74	66	32	100	23
Somewhat dissatisfied	10	4	11	12	0	15
Very dissatisfied	0	0	0	0	0	8
Respondent perception of relief from other prescription medication taken in past 4 wk (%)						
All symptoms relieved	9	4	8	58	0	39
Most symptoms relieved	66	61	70	29	0	15
Some symptoms relieved	25	35	22	14	100	46
Respondent reported frequency of using nonprescription medications in the last 4 wk for nasal allergies (%)						
Several times a day	7	0	4	29	11	42
Once a day	29	14	21	57	68	42
Several times a week	40	0	63	0	16	11
Once a week	7	0	13	0	0	0
Less than once a week	1	0	0	14	5	0
Respondent reported satisfaction with nonprescription medication taken for nasal allergies (%)						
Very satisfied	38	29	46	14	26	32
Somewhat satisfied	54	71	46	71	63	58
Somewhat dissatisfied	5	0	4	0	11	11
Very dissatisfied	0	0	0	14	0	0
Respondent attitude towards treatment of AR (% somewhat to strongly agreeing)						
There are no truly effective treatments	44	67	10	50	62	66
Frequent symptoms can be prevented in most cases	55	57	46	76	64	65
Nasal steroid sprays are safe	60	35	93	56	50	36
Respondent perception of how quickly nasal steroids are supposed to provide AR symptom relief (%)						
Within 1 hr	53	63	46	96	40	43
1–3 hr	38	31	47	3	36	22
4–6 hr	5	1	6	0	9	14
7–9 hr	0	0	0	0	0	0
10–12 hr	1	1	0	0	2	0
13–24 hr	0	0	0	2	0	2
≥25 hr	0	0	0	0	0	2
Not sure	3	3	1	0	13	16
Respondent perception of how long nasal steroids are supposed to provide AR symptom relief (%)						
<6 hr	62	31	90	20	60	37
6–11 hr	24	56	2	18	11	20
12–17 hr	5	10	0	14	4	6
18–23 hr	1	1	0	8	0	0
≥24 hr	2	0	0	41	7	10
Not sure	7	1	7	0	18	27
Respondent perception of most important reason when choosing a nasal steroid (%)						
Fast symptom relief	40	46	36	44	29	25
Long-lasting symptom relief	21	7	31	31	26	28
Complete symptom relief	21	32	12	18	26	31
Few side effects	10	10	11	3	3	6
Easy to take	3	0	5	0	6	0
Low cost	2	0	4	2	0	0
I do not use	1	2	0	0	0	3
Not sure	2	3	1	0	9	6
Respondent perception of length of time (hr) until relief of symptoms from a successful nasal steroid (%)						
Mean	2	2	1	2	10	14
Respondent perception of duration of symptom relief from a successful nasal steroid (%)						
<4 hr	59	19	94	10	49	41
4–7 hr	14	25	5	7	14	25
8–11 hr	12	27	0	7	14	13
12–15 hr	4	9	0	20	0	13
16–23 hr	6	16	0	3	0	0
≥24 hr	1	0	0	54	3	3
Do not use	1	0	0	0	6	6
Not sure	3	3	0	0	3	0
Respondent perception of percent symptom relief expected from a successful nasal steroid (%)						
Mean	82	90	77	90	71	81

AR = allergic rhinitis.

Table 8 Nasal steroid spray use and satisfaction in the Middle East

Parameter	Middle East	Egypt	Iran	Lebanon	Saudi Arabia	United Arab Emirates
Respondent reported most recent use of nasal steroids for AR symptom relief (%)						
Within past 4 wk	76	80	95	44	30	33
Within past 6 mo	5	2	3	19	17	12
Within past year	2	1	0	4	12	6
1–2 yr ago	2	3	0	7	5	5
≥3 yr	1	0	0	5	8	3
Never	4	3	1	20	0	39
Not sure	9	11	1	1	28	3
Respondent reported mean number of weeks they have taken nasal steroid in the past year (%)						
Weeks of therapy	20	2	32	6	26	8
Respondent (not used nasal steroid in past year; n =129)-reported reason for not using nasal steroid spray in the past 4 wk (%)						
Symptoms are not bad enough	27	29	NA	36	32	18
Did not like sprays	17	14	NA	21	26	0
Worried about dependence	13	43	NA	3	5	0
Side effects	7	29	NA	3	0	0
No symptoms	7	0	NA	18	0	31
Not effective	4	14	NA	3	0	2
Did not tolerate well	0	0	NA	3	0	0
Hard to use	0	0	NA	0	0	0
Not sure	9	0	NA	3	0	29
Respondent-reported degree AR symptom relief obtained with nasal steroids (%)						
All symptoms	22	19	21	51	39	27
Most symptoms	58	66	54	37	22	41
Some symptoms	17	12	20	12	39	27
No symptoms	0	0	0	0	0	3
Respondents reporting nasal steroid has lost efficacy from when it was first taken (%)						
Less effective than when first took it	41	75	8	61	50	53
Respondent-reported duration of nasal steroid effectiveness (%)						
<4 hr	49	56	0	37	44	28
4–7 hr	15	14	0	34	33	44
8–11 hr	16	19	0	10	0	11
12–15 hr	9	8	25	7	0	0
16–23 hr	5	2	25	2	22	0
≥24 hr	5	0	50	10	0	11
Not sure	1	2	0	0	0	6
Respondents reporting changing nasal steroid spray (%)						
Several times a year	18	38	0	7	13	9
Once a year	6	7	1	4	12	14
Every few years	4	1	9	3	2	3
Only rarely	16	8	25	9	19	9
Never	48	29	63	77	51	61
Respondent-reported reason for switching nasal steroid (%)						
Doctor wanted to try something else	47	69	20	17	33	40
Patient wanted to try something else	29	30	43	13	4	3
Did not treat some symptoms	27	41	17	26	2	3
Not lasting long enough	24	22	37	0	7	3
Asked doctor to change	24	21	32	19	12	14
Respondent-reported reason for being dissatisfied with nasal steroid (%)						
Did not find it effective	43	19	56	37	67	71
Bothersome side effects	29	43	22	16	17	7
Effectiveness began wearing off	26	48	13	21	17	7
Did not provide 24-hr relief	13	24	6	42	0	7
Safety concerns	10	14	9	0	0	0
Hard to administer	3	5	3	0	0	0
Not covered by insurance	2	0	3	5	8	0
Other	2	5	0	5	0	7
Respondent-reported extremely or moderately bothersomeness of side effects with nasal steroids (%)						
	Extremely	Moderately				
Nosebleeds	26	47				
Bad taste	38	37				
Burning	20	56				
Dripping down throat	35	40				
Dry feeling	39	37				

Table 8 Continued

Parameter	Middle East	Egypt	Iran	Lebanon	Saudi Arabia	United Arab Emirates
Headaches	43	37				
Drowsiness	24	39				
Spray amount uncomfortable	25	39				
Crusting	23	49				
Respondent-reported comparison of side effects from other treatments compared with nasal steroids (%)						
More bothersome	36	25	49	31	9	0
Same	35	52	23	30	31	28
Less bothersome	18	9	19	33	46	50
Respondent-reported side effects occurring with some or all of nasal steroids (%)						
	All	Some				
Nosebleeds	0	15				
Headaches	29	31				
Drowsiness	17	45				
Crusting	16	54				
Uncomfortable	19	51				
Burning	19	58				
Drying feeling	36	43				
Bad taste	39	44				
Dripping down throat	38	52				
Respondent-reported satisfaction with nasal steroid used within the past 4 wk (%)						
Very satisfied	39	38	38	54	61	32
Somewhat satisfied	55	61	53	31	22	53
Respondent-reported satisfaction with prescription AR medication (%)						
Very satisfied	23	17	23	54	0	46
Somewhat satisfied	67	74	66	32	100	23
Somewhat dissatisfied	10	4	11	12	0	15
Very dissatisfied	0	0	0	0	0	8
Respondent-reported satisfaction with nonprescription medication taken for AR (%)						
Very satisfied	38	29	46	14	26	32
Somewhat satisfied	54	71	46	71	63	58

AR = allergic rhinitis.

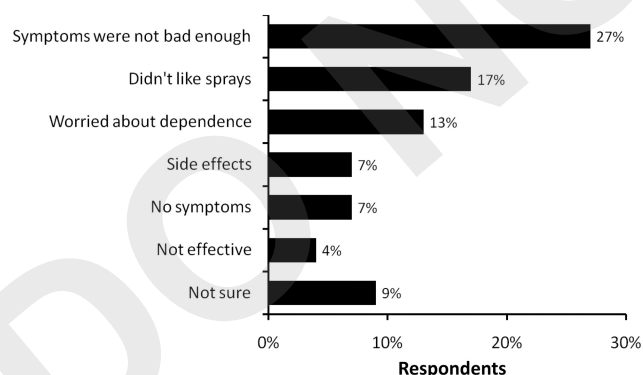


Figure 6. Most common reasons why respondents did not use intranasal corticosteroid (INCS) nasal sprays in the past 4 weeks.

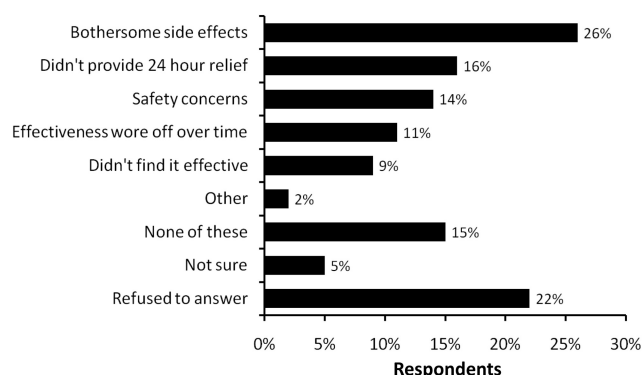


Figure 7. Most common reasons why respondents did not use intranasal corticosteroid (INCS) nasal sprays in the past 4 weeks.

effects (29%) and waning of effectiveness (26%). A complete breakdown of reasons provided can be found in Table 8.

When respondents were asked why they discontinued INCS treatment, the most common reason cited was bothersome side effects. A full analysis of the reasons for discontinuation for the overall data set as well as by country is displayed in Fig. 7.

Given the fact that side effects played an important role in discontinuation, this survey attempted to elucidate the severity and types of side effects experienced with INCS treatment. For those experiencing side effects from nasal steroid sprays, $\geq 60\%$ reported them as moderately or extremely bothersome (Table 8). Side effects such as dripping down throat, bad taste, drying feeling, burning, uncomfortable

spray volume, crusting, drowsiness, and headaches were commonly reported and occurred with $\geq 60\%$ of the INCS products they had used (Table 8). Interestingly, when asked specifically about side effects and if they occurred with some or all INCS products it appears that survey participants perceived a difference among the products they had used. Figure 8 provides an overview of these results in the surveyed Middle Eastern population.

When asked about overall satisfaction with INCS products, 39% of INCS users cited being very satisfied and 55% cited being at least somewhat satisfied with their INCS product. When this satisfaction rate was compared with other prescription and nonprescription products to treat AR, it was shown to be significantly greater than the 23%

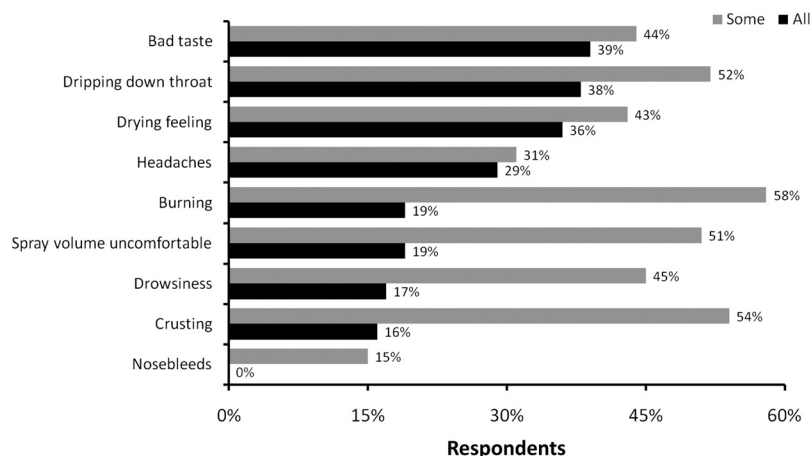


Figure 8. Reported side effects occurring after use of some or all intranasal corticosteroids (INCSs) in Middle Eastern respondents.

who reported being very satisfied with other prescription medications they were taking but surprisingly equivalent to the 38% who were very satisfied with nonprescription medications they were taking (Table 8).

DISCUSSION

The data presented from AMES show that nearly 7% of the surveyed population had physician-diagnosed AR. Although other publications have higher estimated incidences,³ it is important to keep in mind that this study was not a true prevalence study, but rather assessed the proportion of the population who were diagnosed with AR. Reassuringly, the data presented here are consistent with previously published estimates of diagnosed AR in the United States, Canada, Latin America, and the Asia Pacific regions when a physician diagnosis of AR and active symptoms or treatment for AR in the past year were used as a clinical validation of the self-reported health condition.^{20,23,25,26}

In addition to obtaining an understanding of incidence of AR diagnosis, the data presented here also assessed the type, frequency, and impact of the symptoms on patients. These data showed that the vast majority of respondents reported that their allergies and associated symptoms were intermittent in nature and that otolaryngologists or allergists were instrumental in the diagnosis of AR. Moreover, the type of symptoms experienced by AR suffers as well as the impact on their daily lives was highly concordant with other studies.^{8,10,25–27}

It is well established that AR has a profound and far-reaching impact on the sufferer's QOL, resulting in significant limitations in daily activities, social functioning, and work performance.^{20,28–33} The data presented provide additional support to this concept in that almost all patients with diagnosed AR reported that their condition had some impact on their daily private and professional lives. These data support findings from Valovirta and colleagues who reported greater work productivity loss associated with AR than with many other chronic disorders including depression, arthritis, migraine, and asthma.³⁴

Sleep impairment is another significant problem for patients with inflammatory disorders of the upper respiratory tract such as AR.²⁸ However, the impact of AR on sleep quality remains an underrecognized component of AR morbidity.^{35–40} Nasal congestion, the most bothersome AR symptom identified in this survey, has been associated with sleep-disordered breathing and sleep impairment.^{9,27} This is highly concordant across all countries surveyed giving the authors confidence that these overall findings were not spurious but representative of a concomitant condition associated with AR. Moreover, these data are in line with other published articles pertaining to the relationship between impaired sleep quality and uncontrolled AR^{10,29,41,42} and will add to the growing data set of literature regarding the profound impact that AR has on sleep.

The frequent and often times burdensome symptoms of AR along with impaired sleep can also have a significant effect on allergy sufferers' lives and work productivity evident in the form of absenteeism and presenteeism.^{33,43–45} According to the data presented here, when AR symptoms are most severe, there is an appreciable decrease in productivity. These presenteeism data were highly concordant with data from the Allergies in America Survey as well as recently published data from Latin America.^{20,24,25} As with the sleep data presented here, data on work productivity in the Middle East significantly contributes to the body of evidence showing the far-reaching consequences of AR.

Another important aspect of AIMES was the data obtained related to treatment patterns and the role of AR medications in treatment of AR. Surprisingly, these data showed that the majority of participants had seen a physician, in most instances a specialist, within the past year for their AR, suggesting that AR sufferers will actively seek therapeutic solutions to their symptoms, especially when access is not limited by out-of-pocket payment. Not surprisingly, given the amount of physician intervention, nearly all individuals in the survey reported having taken some type of prescription medication to treat their disease with the majority taking an INCS product. This makes sense considering that the majority of respondent's AR was being managed by specialists including otolaryngologists and allergists who are likely to follow published AR guidelines recommending INCS products as first-line therapy.

The data have shown that over 75% of survey respondents reported taking an INCS within the last 4 weeks before the survey. Although this incidence of use may seem high, it is important to recognize that this survey population were those that had a physician diagnosis of AR and, by extension, were likely to be treated for their disease. Responses from survey participants confirm expectations that INCS products will provide a high level of amelioration of their nasal symptoms. Overall, when asked the expected overall percentage symptom relief after taking an INCS product, respondents expected this medication to alleviate the vast majority of their AR symptoms in order for them to consider a treatment to be successful. Considering the efficacy of INCS products, nearly all individuals who had taken an INCS product in the past reported being somewhat to completely satisfied with their INCS treatment. Because INCS products are considered the gold standard for AR treatment, it is critical to maximize compliance and persistence to maximize the chance of treatment success. In this regard, the current study identified specific reasons why participants discontinued their INCS product. Major reasons cited included lack of 24-hour symptom control, diminution of effect with chronic use, and side effects related to unpleasant sensory attributes associated with some INCS products (e.g., unpleasant smell, large volume of spray, and throat run down).

Although the AIMES provides important information, it is inherently limited because information on allergy testing is lacking for 46% of participants included in the survey (Table 3). Additionally, the majority of participants were college educated and lived in urban areas, which bias the survey results and therefore results can not be generalized to the entire Middle East region. Furthermore, symptoms reported by participants may easily be seen in individuals with chronic rhinosinusitis or recurrent rhinosinusitis or upper respiratory tract infections. This could potentially lead to misdiagnosis of AR when, in fact, the individual has rhinosinusitis. This is especially likely because the majority of patients were evaluated by an ear, nose, and throat specialist and not an allergist (Table 3).

In conclusion, data from the AIMES have identified the impact of AR on individuals with this chronic disease and has identified a number of treatment paradigms and treatment gaps that currently exist in the Middle East. It is the authors' belief that these data will contribute to a better understanding of the true burden of AR and, in turn, provide the basis for physicians to provide better education to patients about their condition and treatment options, which could, in turn, ultimately lead to better treatment outcomes for patients with AR.

APPENDIX A

Household Screen for Persons with Allergic Rhinitis

Hello, I'm _____ from (Name of Survey Organization), a national research organization. We are conducting the largest survey of allergies ever undertaken in (country). I have a couple of questions, which will help us understand how many people in the country are affected by nasal allergies.

A. Including yourself, how many persons, adults and children, live in this household (even if not there right now)?

___ Number of persons
None
Refused

B. Have any of these persons been diagnosed as having nasal allergies, sinusitis/sinus disease, or allergic rhinitis?

Yes, diagnosed
No, never diagnosed
Refused
Screen out

C. How many persons in this household have been diagnosed with nasal allergies, sinusitis/sinus disease, or allergic rhinitis?

___ Number of persons diagnosed
None
Refused

D. (Has this person/Have any of these persons) had symptoms such as sneezing, itching, watery eyes, nasal congestion, or other nasal allergy symptoms in the past 12 mo?

Yes
No
Refused

E. (Does this person/Do any of these persons) take any medication for their nasal allergies, sinusitis/sinus disease, or allergic rhinitis?

Yes
No
Refused

H1. (What is the age/What are the ages) of the person(s) with nasal allergies, sinusitis/sinus disease, or allergic rhinitis? If unknown, ask for best guess.

H2. What (is/are) the gender of (that person/those persons)? Ask for each age in H1

If more than one eligible age in H, then select one designated respondent for the survey.

Enter designated respondent's

Age: ___ Gender: Male: ___1 Female: ___ 2

Person number from H1/H2 ___

If designated respondent is <18 yr old, ask to speak to adult most knowledgeable about the child's health.

I. I have some questions that I would like to ask persons who suffer from nasal allergies (sinusitis/sinus disease or allergic rhinitis) about the condition and its treatment. Could I speak to the (adult most knowledgeable about the health of the) (gender and age) with nasal allergies (sinusitis/sinus disease or allergic rhinitis)?

Respondent is the person

Respondent is not available

Refused

J. Introduction to patient

J1. Hello, I'm _____ from (Name of Survey Organization), the national research organization. We are conducting the largest survey of nasal allergies ever undertaken in (COUNTRY). We believe that the findings of the survey will be very important to persons with allergies, their families, and the doctors who treat them.

J2. These questions will take about 25 min. It is completely voluntary. You don't have to answer any questions that you don't want to answer. But your participation will help us to complete one of the largest and most important surveys about allergies in this country.

Could we begin now? Yes No Callback Refused

S1a. Has a doctor ever diagnosed (you/your child) as having?

Nasal allergies
Sinusitis
Sinus disease
Allergic rhinitis
None of these
(Vol) Not sure
(Vol) Refused

If Only Sinus Disease Mentioned In S1a, ask:

S1a1. Do you have nasal congestion, repeated sneezing, cough, runny nose, or red watery or itching eyes at least a few days a week?

Yes
No

S1b. (Do you/Does your child) still suffer from nasal allergies, sinusitis/sinus disease, or allergic rhinitis?

Yes
No
(Vol) Not sure
(Vol) Refused

S1c. When was the most recent time that (you/your child) experienced symptoms of nasal allergies for a month or longer?

___ Years ago
Within the past 12 mo
More than 10 yr ago
(Vol) Not sure
(Vol) Refused

S2. In the past 12 mo, (have you/has your child) taken medication to treat (your/his/her) nasal allergies, sinusitis/sinus disease, or allergic rhinitis?

Yes
No

(Vol) Not sure
(Vol) Refused

If yes in S1b, or within past 12 mo in S1c or yes IN S2, skip to Q1. If not ask S3.

S3. Is there any other person in the household who suffers from nasal allergies, sinusitis/sinus disease, or allergic rhinitis?

Yes
No
Refused

END OF SCREENER PORTION

1. In general, would you say (your/your child's) health is excellent, very good, good, fair, poor, or very poor?

Excellent 1
Very good 2
Good 3
Fair 4
Poor
Very poor
(Vol) Not sure
(Vol) Refused

6a. (Have you /Has your child) ever been diagnosed with asthma/chest allergy?

Yes
No
(Vol) Not sure
(Vol) Refused

6b. (Have you/has your child) had asthma/chest allergy symptoms or exacerbations in the past 12 mo?

Yes
No
(Vol) Not sure
(Vol) Refused

10. At what age (were you/was your child) first diagnosed with nasal allergies, sinusitis/sinus disease, or allergic rhinitis?

___Age at diagnosis
Less than 1 yr old
(Vol) Not sure
(Vol) Refused

11. What was the medical specialty of the doctor who FIRST diagnosed (you/him/her) with nasal allergies?

Allergist
Ear, nose, and throat (ENT)
Respiratory specialist
General practice/family practice/GP
Internal medicine
Pediatrician
Other, specify
(Vol) Not sure
(Vol) Refused

12. (Were you/was he/she) given a skin test to see what (you were/he/she was) allergic to?

Yes
No
(Vol) Not sure
(Vol) Refused

13. (Were you/Was your child) given a blood test to see what (you were/he/she was) allergic to?

Yes
No
(Vol) Not sure
(Vol) Refused

14. Would you describe (your/his/her) nasal allergies as seasonal or intermittent or do they occur throughout the year (persistent)?

Seasonal or Intermittent
Throughout the year or persistent
(Vol) Not sure
(Vol) Refused

15a. In the past 12 mo, have (your/his/her) nasal allergy symptoms been more frequent or worse during a particular season or time of year?

Yes
No
(Vol) Not sure
(Vol) Refused

If seasonal in Q14 or yes in Q15a, ask Q15b, else skip to Q16

15b. During what particular months of the year are (your/his/her) nasal allergies the worst? Do not read. Multiple record.

January
February
March
April
May
June
July
August
September
October
November
December
All of them
(Vol) Not sure
(Vol) Refused

16. Are (your/his/her) nasal allergy symptoms worse when (you are/he/she is) outdoors or inside, or is it about the same?

Worse outdoors
Worse inside
About the same
(Vol) Not sure
(Vol) Refused

17. During the worst 1-mo period in the past year, did (you/he/she) have (read each item)—every day, most days a week, a few days a week, a few days a month, less than that?

a. Repeated sneezing
b. Watery or tearing eyes
c. Red or itching eyes
d. Nasal congestion or stuffed up nose
e. Nasal itching
f. Throat itching
g. Headache
i. Reduced sense of smell
k. Runny nose
l. Postnasal drip
m. Cough

if no symptoms at least a few days a month, skip to Q20

18. When (you have/he/she has) nasal allergy attacks, how bothersome are the following symptoms usually. . . . read symptoms at least a few days a month or more from Q17. Was the (symptom) extremely

bothersome, moderately bothersome, slightly bothersome, not bothersome?

- a. Repeated sneezing 3 4 8 9
- b. Watery or tearing eyes
- c. Red or itching eyes
- d. Nasal congestion or stuffed up nose
- e. Nasal Itching
- f. Throat Itching
- g. Headache
- i. Reduced sense of smell
- k. Runny nose
- l. Postnasal drip
- m. Cough

19. Which of these symptoms was the MOST bothersome to (you/ him/her)? Was it . . . ?

Read all extremely or moderately bothersome from Q18 single record.

Repeated sneezing
Watery or tearing eyes
Red or itching eyes
Nasal congestion or stuffed up nose
Nasal itching
Throat itching
Headache
Reduced sense of smell
Runny nose
Postnasal drip
Cough
(Vol) Not sure
(Vol) Refused

Ask all

20. In general, when (you have/he/she has) a nasal allergy attack would you say that (your/his/her) discomfort is usually ?

Such that (you/he/she) can tolerate it
Such that (you/he/she) can't tolerate it without relief
(Vol) Not sure
(Vol) Refused

21. What things usually trigger or make (your/his/her) nasal allergy symptoms worse? Read list only if necessary. Multiple record.

Air conditioning
Alcohol (beer, wine, etc.)
Animals (cats, dogs, etc.)
Chemicals (strong fumes/odors)
Dust (mites)
Exercise/physical activity
Grass
Hot or spicy food
Perfume
Pollution
Stress
Tobacco smoke
Viruses or colds
Weather or humidity
Emotions (laughing/crying)
Other (specify)
Nothing
(Vol) Not sure
(Vol) Refused

24a. (Have you/Has your child) missed (work/school) in the past 12 mo because of (your/his/her) nasal allergies?

Yes
No skip to 25a
(Vol) Not sure skip to 25a
(Vol) Refused skip to 25a

24b. How many (work/school) days in the past year (have you/has he/she) missed?

__ Number days missed
(Vol) Not sure
(Vol) Refused

25a. Aside from actually missing (work/school) (have your/has his/her) allergy symptoms in the past 12 mo interfered with (your/his/her) performance at (work/school)?

Yes
No skip to Q26
(Vol) Not sure skip to Q26
(Vol) Refused skip to Q26

26. Thinking about (your/your child's) ability to do the things (you/he/she) want(s) to on a scale from 0 to 100, where 100 means 100% able, where would you rank (your/his/her) ability on days when (you don't/he/she doesn't) have nasal allergy symptoms?

__ 0-100
(Vol) Not sure
(Vol) Refused

27. Where would you rank (your/his/her) ability to do the things (you/he/she) want(s) to on the same scale of 0 to 100, where 100 means 100% able, when (your/his/her) nasal allergies are at their worst?

__ 0-100
(Vol) Not sure
(Vol) Refused

28. How much do you feel that (your/your child's) allergies limit what (you/he/she) can do in the following areas? Do you feel (your/his/her) allergies restrict (you/him/her) a lot, some, only a little, not at all in. ask A to kids ≥ 6 yr old and adults only. If child aged < 6 yr, skip to B.

- a. Doing well in work or school
- b. Having or playing with pets
- c. Outdoor activities or sports
- d. Indoor activities, such as reading or computer games

29. During the worst month of allergy symptoms, how often (do you/does he/she) feel (read item)—frequently, sometimes, rarely, never, not applicable, not sure (vol), refused (vol)?

- a. Depressed or sad
- b. Tired
- c. Miserable

30. During the worst 1-mo period, would you say the condition impacted (your/his/her) daily life? Read list.

A lot
A moderate amount
Some
A little
Or, did not really impact daily life
(Vol) Not sure
(Vol) Refused

31. How troubled (have you/has he/she) been by each of these symptoms during the last week (as a result of your/his/her nasal symptoms)? (Were you/was he/she) not troubled at all, somewhat

troubled, moderately troubled, quite a bit, extremely troubled by, don't know (vol), refused to answer (vol)?

- a. Difficulty getting to sleep
- b. Waking up during the night
- c. Lack of a good night's sleep

33. Overall, how well would you say that (your/your child's) nasal allergies have been controlled in the last 4 wk? Would you say it was? Read list.

Completely controlled
Well controlled
Somewhat controlled
Poorly controlled
Not controlled at all
(Vol) Not sure
(Vol) Refused

34. Is the place (you/your child) usually (go/goes) for (your/his/her) overall health care, medical advice, or treatment a . . . read? Probe: The place (you go/he/she goes) most often. Single record.

Lebanon only:
Private doctor, private clinic, hospital outpatient
Public clinic
Some other place (specify: ____)
(Vol) Not SURE

All other countries:
Private doctor or private clinic
Hospital outpatient
Public clinic
Some other place (specify: ____)
(Vol) Not sure

35. What is the medical specialty of the doctor that (you see/ he/she sees) most often for (your/his/her) nasal allergies? Do not read list. Single record.

Allergist
Ear, nose, and throat (ENT)
Respiratory specialists
General practice/family practice/GP
Internal medicine
Pediatrician
Other (specify: ____)
(Vol) Not sure
(Vol) Refused

36a. (Have you/Has he/she) seen a doctor about (your/his/her) nasal allergies in the past 12 mo?

Yes
No skip to Q37a
(Vol) Not sure skip to Q37a
(Vol) Refused skip to Q37a

36b. How many times (have you/has he/she) seen a doctor primarily for (your/his/her) nasal allergies in the past 12 mo?

____ Number of times (1-97)
(Vol) Not sure
(Vol) Refused

37a. Has (your/your child's) doctor ever given (you/him/her) desensitization or immunotherapy, also known as allergy injection/vaccination?

Yes
No skip to Q38a
(Vol) Not sure skip to Q38a
(Vol) Refused skip to Q38a

37b. When was the most recent time (you/he/she) had desensitization or immunotherapy?

Within the past month
Within the past year
More than a year ago
(Vol) Not sure
(Vol) Refused

38a. Has (your/your child's) doctor ever given (you/him/her) allergy drops or extracts by mouth or under the tongue to treat (your/his/her) nasal allergies?

Yes
No skip to Q39a
(Vol) Not sure skip to Q39a
(Vol) Refused skip to Q39a

38b. When was the most recent time (you/he/she) had allergy drops or extracts by mouth or under the tongue?

Within the past month
Within the past year
More than a year ago
(Vol) Not sure
(Vol) Refused

39a. Has a doctor ever shown (you/your child) how to use a nasal spray for (your/his/her) nasal allergies?

Yes
No skip to Q42a
(Vol) Not sure skip to Q42a
(Vol) Refused skip to Q42a

39b. When was the most recent time a doctor showed (you/him/her) how to use a nasal spray for (your/his/her) nasal allergies?

Within the past month
Within the past year
More than a year ago
(Vol) Not sure
(Vol) Refused

42a. (Have you/Has your child) seen an allergist, ENT or respiratory specialist about (your/his/her) nasal allergies in the past 12 mo?

Yes
No skip to Q43a
(Vol) Not sure skip to Q43a
(Vol) Refused skip to Q43a

42b. How often (do you/does he/she) see a specialist about (your/his/her) nasal allergies?

Monthly or more often
Several times a year
Once a year
Only if problems develop
Never
(Vol) Not sure
(Vol) Refused

43a. (Have you/Has he/she) been to a pharmacy or drug store to get advice about (your/his/her) nasal allergies in the past 12 mo?

Yes
No skip to Q44a
(Vol) Not sure skip TO Q44a
(Vol) Refused skip to Q44a

43b. How many times (have you/has he/she) been to a pharmacy or drug store primarily for advice about (your/his/her) nasal allergies in the past 12 mo?

___ Number of times (1–97)
(Vol) Not sure
(Vol) Refused

44a. In the past 4 wk, (have you/has your child) used any steroid nasal spray for (your/his/her) nasal allergies? Steroid nasal sprays include (list country specific medications):

Yes skip to Q45a
No
(Vol) Not sure skip to Q45a
(Vol) Refused skip to Q45a

44b. When was the most recent time that (you/he/she) used a steroid nasal spray for (your/his/her) nasal allergies?

Within the past 4 wk
Within the past 6 mo
Within the past year
1–2 yr ago skip to Q46
3 or more yr ago skip to Q46
Never skip to Q46
(Vol) Not sure skip to Q46
(Vol) Refused skip to Q46

45a. What is the name of the most recent steroid nasal spray (you/he/she) take(s)/took for nasal allergies? Do not read. Multiple record—up to three medications. If more than three, ask for three most commonly used. Probe: Anything else?

Country list of medications
Other (specify)___
(Vol) Don't know skip to Q47a
(Vol) Refused skip to Q47a

45b. How often (do/did) (you/he/she) take (medication 1 from Q45a)?

Medication code from Q45a	Med. 1
Several times a day	1
Once a day.	2
Several times a week	3
Once a week	4
Less than once a week	5
(Vol) Not sure	8
(Vol) Refused	9

45c. Does (medication 1 from 45a) give (you/him/her) relief from all of (your/his/her) symptoms, most symptoms, some symptoms, no symptoms?

	Med. 1
All symptoms	1
Most symptoms	2
Some symptoms	3
No symptoms	4
(Vol) Not sure	8
(Vol) Refused	9

45d. How long does it take (medication 1 from Q45a) to begin giving (you/him/her) symptom relief? Ask for best estimate. first circle/enter unit and then enter amount.

	Med. 1
Unit	Hours 1
	Days 2

	Med. 1
Weeks	3
(Vol) Not sure	8
(Vol) Refused	9
Amount	— (00–23)

45e. Does (medication 1 IN Q45a) lose effectiveness over the course of the day or night, or does it remain as effective as when (you/he/she) first took it?

	Med. 1
Yes, loses effectiveness	1
No, does not lose effectiveness (skip to Q45g)	2
(Vol) Not sure (skip to Q45g)	8
(Vol) Refused (skip to Q45g)	9

45f. How long after taking (medication 1 in Q45a) does it begin losing effectiveness?

	Med. 1
<4 hr	1
4–7 hr	2
8–11 hr	3
12–15 hr	4
16–23 hr	5
≥24 hr	6
(Vol) Not sure	8
(Vol) Refused	9

45g. How many weeks (have you/has your child) taken (medication 1 in Q45a) for (your/you child's) nasal allergies in the past 12 mo?

	Med. 1
Weeks (Range 00–52)	—
(Vol) Not sure	98
(Vol) Refused	99

45h. How satisfied are you with (medication 1 in Q45a) for (your/his/her) nasal allergies in the past 4 weeks? Would you say that you are (read list)?

	Med. 1
Very satisfied (skip to Q47a)	1
Somewhat satisfied (skip to Q47a)	2
Somewhat dissatisfied (skip to Q47a)	3
Very dissatisfied (skip to Q47a)	4
(Vol) Not sure (skip to Q47a)	8
(Vol) Refused (skip to Q47a)	9

46. Why (haven't you/hasn't your child) used a steroid nasal spray for (your/his/her) nasal allergies in the past 4 wk? Do not read. Multiple record.

No symptoms
Symptoms aren't bad enough
Not effective
Side effects
Don't tolerate well
Worried about dependence
Hard to use
Don't like sprays
Other (specify: ___)

(Vol) Not sure
(Vol) Refused

47a. How often (do you/does your child) change steroid nasal sprays—several times each year, once a year, once every few years, only rarely, never?

Several times each year
Once a year
Every few years
Only rarely
Never skip to Q48a
(Vol) Not sure skip to Q48a
(Vol) Refused skip to Q48a

47b. Why (have you/has your child) changed steroid nasal sprays? Anything else?

Do not read list. Multiple record.
Not effective enough
Not fast enough
Not long lasting enough
Didn't treat some symptoms
Hard to administer
Bothersome side effects
Safety concerns
Cost/copay too high
Wanted to try something else
Doctor wanted to try something else
Not covered by health insurance
Other (specify: ____)
(Vol) Haven't changed allergy medicines
(Vol) Not sure
(Vol) Refused

48a. Have you ever asked the doctor to change (your/your child's) steroid nasal spray because (you were/he/she was) dissatisfied with it?

Yes
No skip to Q49
(Vol) Not sure skip to Q49
(Vol) Refused skip to Q49

48c. Why (were you/was he/she) dissatisfied with that medicine? Do not read. Multiple record.

You didn't find it effective
It didn't provide relief through the day and night
It's effectiveness began wearing off over time
It had bothersome side effects
It was hard to administer
Dosing schedule was difficult
It was not covered by your insurance
The copay was too high
Safety concerns
Other (specify: ____)
(Vol) Not sure
(Vol) Refused

49a. (Have you/Has your child) taken any other prescription medications for (your/his/her) nasal allergies in the past 4 wk?

Yes
No skip to Q50a
(Vol) Not sure skip to Q50a
(Vol) Refused skip to Q50a

49b. What is the name of the other prescription medicines (you take/he/she takes) for nasal allergies? Do not read. Multiple record.

Only ask follow-up questions for main medication. Probe: Anything else?

Country list of medications
Other (specify: ____)
(Vol) Don't know skip to Q50a
(Vol) Refused skip to Q50a

49c. How often (do you/does he/she) take (name from Q49b)? Main medication.

Med. 1	
Medication code from Q49b	
Several times a day	1
Once a day	2
Several times a week	3
Once a week	4
Less than once a week	5
(Vol) Not sure	8
(Vol) Refused	9

49d. (Do you/Does he/she) take that medicine as a pill, liquid or by nasal spray? Main medication.

Med. 1	
Pill/capsule	1
Liquid	2
Spray	3
(Vol) Not sure	8
(Vol) Refused	9

49e. Does (medication named in Q49b) give (you/him/her) relief from all of (your/his/her) symptoms, most symptoms, some symptoms, no symptoms? Main medication.

Med. 1	
All symptoms	1
Most symptoms	2
Some symptoms	3
No symptoms	4
(Vol) Not sure	8
(Vol) Refused	9

49f. How long does it take (medication from Q49b) to begin giving (you/him/her) symptom relief? Ask for best estimate. First, circle/enter unit and then enter amount. Main medication.

Medication 1	
Unit	Hours Days Weeks (Vol) Not sure (Vol) Refused
Amount	

49g. Does (medication in Q49b) lose effectiveness over the course of the day or night, or does it remain as effective as when (you/he/she) first took it? Main medication.

Med. 1	
Yes, loses effectiveness	1
No, does not lose effectiveness (skip to Q49i)	2
(Vol) Not sure (skip to Q49i)	8
(Vol) Refused (skip to Q49i)	9

49h. How long after taking (medication in Q49b) does it begin losing effectiveness? Main medication.

	Med. 1
<4 hr	1
4–7 hr	2
8–11 hr	3
12–15 hr	4
16–23 hr	5
≥24 hr	6
(Vol) Not sure	8
(Vol) Refused	9

49i. How satisfied are you with (medication in Q49b) for (your/his/her) nasal allergies in the past 4 wk? Would you say that you are (read list)? Main medication.

	Med. 1
Very satisfied	1
Somewhat satisfied	2
Somewhat dissatisfied	3
Very dissatisfied	4
(Vol) Not sure	8
(Vol) Refused	9

50a. In the past 4 wk, (have you/has your child) used any nonprescription medicine to give (you/him/her) relief from nasal allergy symptoms?

Yes skip to Q50c
No
(Vol) Not sure skip to Q50c
(Vol) Refused skip to Q50c

50b. When was the most recent time that (you/he/she) used a nonprescription medicine for relief from nasal allergy symptoms?

Within the past 4 wk
Within the past 6 mo skip to Q50g
Within the past year skip to Q50g
1–2 yr ago skip to Q52a
≥3 yr ago skip to Q52a
(Vol) Not sure . . . skip to Q52a
(Vol) Refused skip to Q52a

50c. What is the name of nonprescription medicine(s) (you take/took/he/she takes/took) for nasal allergies? Do not read. Multiple record. Only Follow-up information about main medication. Probe: Anything else?

Country list of medications ____
Other (specify: ____)
(Vol) Don't know skip to Q52a
(Vol) Refused skip to Q52a

50d. How often (do/did) you/he/she take (name from Q50c)? Main medication.

	Med. 1
Medication code from Q50c	
Several times a day	1
Once a day	2
Several times a week	3
Once a week	4
Less than once a week	5
(Vol) Not sure	8
(Vol) Refused	9

50e. (Do you/Does he/she) take (name from Q50c) as a pill, liquid, or by nasal spray? Main medication.

	Med. 1
Pill/capsule	1
Liquid	2
Spray	3
(Vol) Not sure	8
(Vol) Refused	9

50f. How satisfied are you with (name from Q50c) (you have/your child has) used for (your/his/her) nasal allergies in the past 4 wk? Would you say . . . (read list)? Main medication.

	Med. 1
Very satisfied	1
Somewhat satisfied	2
Somewhat dissatisfied	3
Very dissatisfied	4
(Vol) Not sure	8
(Vol) Refused	9

50g. How many weeks did (you/your child) take (medication in Q50c) for allergy symptoms in the past 12 mo? Main medication.

	Med. 1
Weeks (range, 00–52)	
(Vol) Not sure	98
(Vol) Refused	99

52a. In the past 4 wk (have you/has he/she) used any homeopathic, herbal, or alternative treatments for (your/his/her) nasal allergies?

Yes
No skip to Q53
(Vol) Not sure skip to Q53
(Vol) Refused skip to Q53

52b. What kinds of non-traditional, homeopathic, herbal, or alternative treatments (do you/does he/she) use? Do not read list. Multiple record.

Aromatherapy
Herbal
Acupuncture
Food supplements
Other (specify: ____)
(Vol) Not sure
(Vol) Refused

53. How much do you know or have heard about steroid nasal sprays for nasal allergies? Would you say . . . ? Read list.

A lot
Some
A little
Nothing skip to Q67
(Vol) Not sure skip to Q67
(Vol) Refused skip to Q67

Based on your experience or what you have heard

54. How quickly are steroid nasal spray's supposed to begin providing symptom relief for nasal allergies?

Within 1 hr
1–3 hr
4–6 hr
7–9 hr
10–12 hr
13–24 hr
≥25 hr

(Vol) Not sure
(Vol) Refused

55. How long are steroid nasal spray's supposed to provide symptom relief for nasal allergies?

<6 hr
6–11 hr
12–17 hr
18–23 hr
≥24 hr
(Vol) Not sure
(Vol) Refused 9

56a. (Have you/Has your child) ever found that the effectiveness of a steroid nasal spray that promised 24-hr relief for nasal allergies began wearing off earlier?

Yes
No skip to Q57a
Never taken steroid nasal sprays skip to Q67
(Vol) Not sure skip to Q57a
(Vol) Refused skip to Q57a

56c. About how long after (you/he/she) started taking it does a steroid nasal spray's allergy medicine's effectiveness begin wearing off?

__ hr
(Vol) Not sure
(Vol) Refused

57a. (Have you/Has your child) ever found that a steroid nasal spray's effectiveness in treating (your/your child's) nasal allergy symptoms wears off over weeks or months even when (you are/he/she is) taking the medicine as prescribed?

Yes
No skip to Q58a
(Vol) Not sure skip to Q58a
(Vol) Refused skip to Q58a

57c. About how long, in months, after (you have/he/she has) started taking it does a steroid nasal allergy spray's effectiveness begin wearing off even when taking the medicine as prescribed?

__ mo
(Vol) Not sure
(Vol) Refused

57d. (Have you/Has your child) ever stopped taking a steroid nasal spray for (your/his/her) nasal allergies because its effectiveness had worn off?

Yes
No
(Vol) Not sure
(Vol) Refused

58a. Have any of the steroid nasal sprays that (you have/your child has) taken for nasal allergies ever caused nosebleeds?

Yes
No skip to Q59
(Vol) Not sure skip to Q59
(Vol) Refused skip to Q59

58b. How bothersome were those nosebleeds?

Extremely bothersome
Moderately bothersome
Slightly bothersome
Not bothersome

(Vol) Not sure
(Vol) Refused

59. How many of the steroid nasal sprays that (you have/your child has) taken for nasal allergies had the following types of side effects—all, some, none?

Bad taste
Burning
Dripping down throat
Dry feeling
Headaches
Drowsiness
Spray amount uncomfortable
Crusting

60. How bothersome are the following side effects of steroid nasal sprays for nasal allergies—extremely, moderately, slightly, bothersome?

Bad taste
Burning
Dripping down throat
Dry feeling
Headaches
Drowsiness
Spray amount uncomfortable
Crusting

61. Compared with steroid nasal sprays, would you say that other treatments for (your/his/her) nasal allergy symptoms have more bothersome side effects, less bothersome side effects, or about the same?

More bothersome
Less bothersome
About the same
(Vol) Not sure
(Vol) Refused

62. (Have you/Has your child) ever stopped taking a steroid nasal allergy spray prescribed by (your/his/her) doctor because . . . read list and multiple record.

You didn't find it effective
It didn't provide relief through the day and night
It's effectiveness began wearing off over time
It had bothersome side effects
Concerns about safety
Any other reason
None of these
(Vol) Not sure
(Vol) Refused

63. In choosing a steroid nasal spray (for yourself/for your child), which would be most important?

Read all and single record
Fast symptom relief
Long-lasting symptom relief
Complete symptom relief
Easy to take
Few side effects
Low cost
(Vol) I don't use
(Vol) None of these
(Vol) Not sure
(Vol) Refused

64. On a scale of 0 to 100%, what percent symptom relief would you expect from a steroid nasal spray for it to be considered a successful treatment?

__% (0–100)
(Vol) Don't use
(Vol) Not Sure
(Vol) Refused

65. How quickly after taking would a steroid nasal spray have to begin relieving symptoms for you to consider it a successful treatment?

__ hours after taking
Within minutes/less than an hour
(Vol) Don't use
(Vol) Not Sure
(Vol) Refused

66. How long after (you take/your child takes) a dose of steroid nasal spray should symptom relief last for you to consider it a successful treatment?

<4 hr
4–7 hr
8–11 hr
12–15 hr
16–23 hr
≥24 hr
(Vol) Don't use
(Vol) Not Sure
(Vol) Refused

67. People with allergies sometimes fail to follow their physician's instructions about their medicines for their nasal allergies. (Have you/Has your child) ever failed to take a nasal allergy medicine (yes/no) as prescribed because of

Sure (vol) (vol)
Troublesome side effects
The cost of drugs
Lack of symptoms
Concern about long-term drug use
Worry about the side effects
Loss of effectiveness over time
Poor toleration

68. Now I'm going to read you a series of statements. As I read each statement, please tell me whether you agree strongly, agree somewhat, disagree somewhat or disagree strongly.

There are no truly effective treatments for nasal allergies
Frequent nasal allergy symptoms can be prevented in most cases
Steroid nasal sprays are safe

69a. Do you have pets living in your house?

Yes
No skip to Q70
(Vol) Not sure skip to Q70
(Vol) Refused skip to Q70

69b. What kind of pet or pets? Multiple response.

Dog
Cat
Bird
Chickens
Other (specify: __)
(Vol) Not sure
(Vol) Refused

70. Does anyone in your household smoke?

Yes
No
(Vol) Not sure
(Vol) Refused

Now, a few last questions for statistical purposes.

D1. How old are you? (adult patient or parent)

D2. What is the last year or grade of school you completed? (country specific)

No formal schooling
Primary school
Secondary school
University
(Vol) Not sure
(Vol) Refused

D3. Would you describe the place in which you live as being a large city, the suburb of a large city, a large town (25,000–100,000), a small town or a rural area?

Large city
Suburb of a large city
Large town
Small town
Rural area
(Vol) Not sure
(Vol) Refused

D4. Do you have coverage for your medical care costs through private health insurance or public health plans?

Yes, private health insurance
Yes, public health plan
Yes, both
No health insurance/public plan
(Vol) Not sure
(Vol) Refused

D5. That completes the interview. What you've told us is very important, and we'd like to thank you for helping us in this survey.

Time Survey Began: __: __: __
Time Survey Ended: __: __: __
Interview length in minutes: __

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