

Epidemiology of Urticaria among Adults in Saudi Arabia – Survey based results

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ABSTRACT

Background: Urticaria is considered a common skin disease that is characterized by red, itchy wheals. It can be associated with angioedema which is deeper swelling of the mucous membrane and skin. It divided into acute and chronic urticaria. In general, urticaria is prevalent throughout life is approximately 20%. It is more common in males than females. **Objective:** To describe the pattern of urticaria and angioedema among adults in Saudi Arabia, especially in Hail region. **Methodology:** In this cross-sectional study, a questionnaire was administered to adults in Saudi Arabia, especially in Hail region from November 2021 to March 2022. **Results:** Up to 838 participants fulfilling the inclusion criteria completed the study questionnaire. A total of 166 (19.8%) of the participants experienced any of the urticaria clinical presentations while 672 (80.2%) never experienced any. Urticaria experience was significantly more reported among 25.3% of female participants compared to 14.9% of males. 33 (19.9%) patients with history of urticaria complained of angioedema. The most reported triggers/risk factors of initiating urticaria symptoms were skin itching (68%), followed by spontaneously or no reason (57%). **Conclusion:** Overall, in this study we found that the urticaria was more frequent in the females than in the males. About two thirds of the patients had urticaria symptoms only once, and less than three-quarters experience the symptoms monthly.

Keywords: acute urticaria, angioedema, epidemiology of urticaria, chronic urticaria

1. INTRODUCTION

Urticaria (hives) is a skin condition characterized by local transient skin or mucosal edema (wheal) and an area of redness (erythema) that typically there is an accompanying itching sensation that diminishes within a day or two. It may be associated with angioedema which is a local, transient skin or mucosal edema that extends into the deep dermis or subcutaneous and submucosal layers. Pain or burning sensations may accompany itching. Both angioedema and wheals may happen together in one patient, but any one of them may happen exclusively in individual patients. The lifetime prevalence of urticaria in the general population is approximately 20% (Zuberbier et al., 2018;

Alotaibi et al., 2021). We intend to present the epidemiology of urticaria and angioedema on a questionnaire-based survey in Saudi Arabia, especially in Hail region since there are no data available describing the prevalence of the disease in the general population of Hail region, in addition to measuring the impact of urticaria among the population.

According to the urticaria international consensus meeting, urticaria is divided into acute which is < 6 weeks and chronic > 6 weeks from the onset. Chronic urticaria is further classified into spontaneous or idiopathic urticaria and inducible urticaria. The latter includes physical urticaria, cholinergic urticaria, and contact urticaria (Zuberbier et al., 2018). Most patients suffer from chronic spontaneous or idiopathic urticaria (CSU). Spontaneous urticaria can be defined as urticaria that occurs spontaneously almost every day without any apparent cause or trigger (Zuberbier et al., 2018). The major skin manifestation is wheals, and they may be accompanied by angioedema in up to half of patients. In some cases, only angioedema may appear (Maurer et al., 2011). Urticaria is characterized by sudden onset and disappearance within 24 hours, and recurring indefinitely (Zuberbier et al., 2018). Angioedema occurs less frequently, such as every few days, weeks, or months, and the symptoms of angioedema last longer than a day, usually for a few days (Maurer et al., 2011). Angioedema commonly affects the face, especially the eyelids and lips. It may be painful but not pruritic. Statistical analysis of patients who diagnosed with chronic urticaria suggests that 66% to 93% have CSU, 4% to 33% a physical urticaria, and 1% to 7% have cholinergic urticaria (Humphreys & Hunter, 1998; Kozel et al., 2001; Kulthanan et al., 2007; van der Valk et al., 2002).

Regarding sex, the majority of studies show that women have urticaria nearly double as often as men do (Bakke et al., 1990; Gaig et al., 2004; Hellgren, 1972; Humphreys & Hunter, 1998; Juhlin, 1981; Kulthanan et al., 2007; Maurer et al., 2011; Quaranta et al., 1989; Sabroe et al., 1999; Steinhardt, 1954; van der Valk et al., 2002; Zuberbier et al., 2010). Several studies reveals that the peak age of CSU is ranging between 20 and 40 years (Champion et al., 1969; Kozel et al., 2001; Kulthanan et al., 2007; Quaranta et al., 1989; Steinhardt, 1954).

2. METHODOLOGY

The study on Epidemiology of Urticaria among Adults in Saudi Arabia was cross-sectional study design. The basic research tool was a questionnaire-based survey focused on epidemiological pattern of urticaria / angioedema, triggering and risk factors besides consequences and medical consultation in the studied 838 individuals. Questions were based on existing knowledge about the symptoms and signs of urticaria and experience from other similar epidemiological studies. The questionnaire included definitions of urticaria and angioedema. Hail region was not covered by similar community-based studies and the study aimed to assess the pattern of the disease among adults living in Saudi Arabia, especially in Hail region with an age range of 19-60 years old. The study time frame was from November 2021 to March 2022. Written ethical consent will be taken and confidentiality of results will be maintained.

After extracting the data, it was revised and entered to statistical software IBM SPSS version 22. All the statistical analysis was done by using two tailed tests. P value less than 0.05 was statistically significant. The overall prevalence of urticaria was graphed. Bivariate analyses were first done displaying the characteristics of study participants by their urticaria complaint history. Descriptive analysis using frequency and percent distribution was used to display epidemiological pattern of urticaria / angioedema, triggering and risk factors besides consequences, medical consultation and management. All relations were tested by using Person chi-square test and exact probability test for small frequency distribution.

3. RESULTS

The study questionnaire was completed by 838 participants. A total of 674 (80.4%) participants were from Hail region, 164 (19.6%) from other regions. Participant's ages ranged from 18 to 60 years with mean age of 31.5 11.9 years old. Exact of 442 (52.7%) participants were males and 309 (36.9%) were married and 513 (61.2%) were single. As for educational level, 649 (77.4%) respondents were university graduated and 154 (18.4%) had secondary level of education. Figure 1 shows the prevalence of urticaria disorder among study population, Saudi Arabia. A total of 166 (19.8%) of the study participants experienced any of the urticaria clinical presentations while 672 (80.2%) never experienced any.

In Table 1 prevalence of urticaria disorder by participants' personal data and region, Saudi Arabia was shown. Urticaria experience was significantly more reported among 25.3% of female participants compared to 14.9% of males ($P=.001$). Also, urticaria was reported among 31.3% of Divorced / widow participants versus 17.3% of single group ($P=.049$). Urticaria symptoms were experienced also among 21.6% of university graduated participants in comparison to 2.9% of those who had below secondary level of education ($P=.012$).

Table 1 Prevalence of urticaria disorder by participants' personal data and region, Saudi Arabia

Personal data	Total		Previously complained of urticaria signs and symptoms				p-value
			Yes		No		
	No	%	No	%	No	%	
Region							
Hail region	674	80.4%	128	19.0%	546	81.0%	.228
Other regions	164	19.6%	38	23.2%	126	76.8%	
Age in years							
< 20	111	13.2%	16	14.4%	95	85.6%	.301
20-40	529	63.1%	108	20.4%	421	79.6%	
41-60	198	23.6%	42	21.2%	156	78.8%	
Gender							
Male	442	52.7%	66	14.9%	376	85.1%	.001*
Female	396	47.3%	100	25.3%	296	74.7%	
Marital status							
Single	513	61.2%	89	17.3%	424	82.7%	.049*
Married	309	36.9%	72	23.3%	237	76.7%	
Divorced / widow	16	1.9%	5	31.3%	11	68.8%	
Educational level							
Below secondary	35	4.2%	1	2.9%	34	97.1%	.012*\$
Secondary	154	18.4%	25	16.2%	129	83.8%	
University / above	649	77.4%	140	21.6%	509	78.4%	
P: Pearson X ² test		\$: Exact probability test					
* P < 0.05 (significant)							

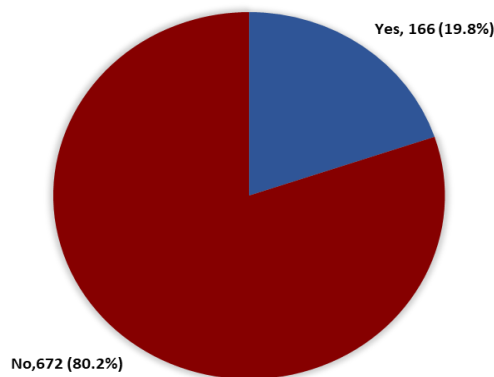

Figure 1 Prevalence of urticaria disorder among study population, Saudi Arabia

Figure 2 shows the prevalence of angioedema and its site among study participants with history of urticaria symptoms. 33 (19.9%) patients with history of urticaria complained of angioedema. Of those patients, angioedema was at lips among 19 (57.6%), followed by hand / fingers 14 (42.4%), oral cavity 14 (42.4%), eyelids 11 (33.3%), and foot 11 (33.3%). Table 2 shows the

epidemiological pattern of urticaria among study participants, Saudi Arabia. A total of 100 (60.2%) of the sufferers reported having urticaria symptoms for one time only, sufferers reported that symptoms were monthly among 71.7% of them and weekly among 12.7%. Also, symptoms lasted longer than 6 weeks among 42 (25.3%) and 29 (17.5%) told that urticaria symptoms last for minutes before they go away but last for hours among 30.1% and for days among 42.2%. urticaria symptoms lasts for more than 24 hours until their disappearance among 86 (51.8%) cases. A total of 34 (20.5%) had rash all over their body, 113 (68.1%) had rash over their arm / leg, while 95 (57.2%) have symptoms spontaneously for no reason.

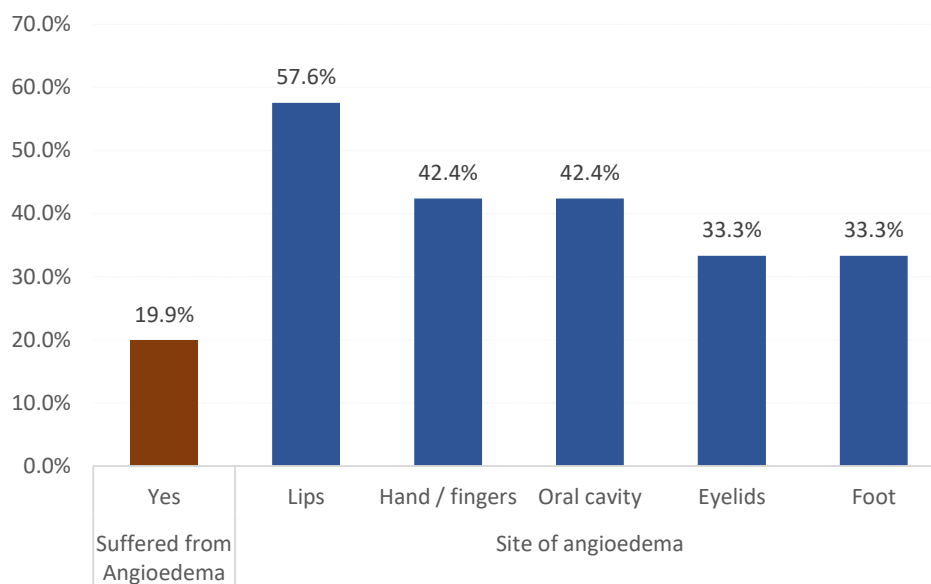


Figure 2 Prevalence of angioedema and its site among study participants with history of urticaria symptoms

Table 2 Epidemiological pattern of urticaria among study participants, Saudi Arabia

Pattern of urticaria	No	%
Times suffering of urticaria symptoms		
<i>Once</i>	100	60.2%
<i>Frequent</i>	66	39.8%
Frequency of urticaria symptoms		
<i>> 1 time daily</i>	12	7.2%
<i>Daily</i>	14	8.4%
<i>Weekly</i>	21	12.7%
<i>Monthly</i>	119	71.7%
Have your symptoms lasted longer than 6 weeks?		
<i>Yes</i>	42	25.3%
<i>No</i>	124	74.7%
How long do urticaria symptoms last before they go away?		
<i>Minutes</i>	29	17.5%
<i>Hours</i>	50	30.1%
<i>Days</i>	70	42.2%
<i>Weeks</i>	17	10.2%

What is the longest period from the onset of urticaria symptoms until their disappearance?		
< 24 hours	80	48.2%
> 24 hours	86	51.8%
I have a rash all over my body		
Yes	34	20.5%
No	132	79.5%
I have a rash all over my arm / leg		
Yes	113	68.1%
No	53	31.9%
I have a rash all over my pressure areas		
Yes	54	32.5%
No	112	67.5%
Do you usually have symptoms spontaneously for no reason?		
Yes	95	57.2%
No	71	42.8%

Figure 3 shows the triggers and risk factors of urticaria / angioedema symptoms among sufferers, Saudi Arabia. The most reported triggers / risk factors of initiating or increasing urticaria symptoms were skin itching (68%), followed by spontaneously or no reason (57%), wearing wool or other clothes (54%), having certain type of food (45%), cosmetics / perfume use (39%), exposure to hot weather (36%), touching skin with food (36%), touching skin with plants / animals (35%), stress/ nervousness (33%), after taking a hot shower (28%), and sun ray exposure (26%). The least reported triggers were vaccines (15%), after infection (8%), and X-ray with radiocontrast media exposure (5%).

Table 3 shows the medical consultation and management for urticaria / angioedema among study sufferers, Saudi Arabia. Exact of 32 (19.3%) of urticaria sufferers had difficulty breathing during a rash or angioedema. As for medical consultation, 63 (38%) reported that they ever been to a hospital emergency room or outpatient clinic because of symptoms, 86 (51.8%) consulted a doctor about the symptoms of skin urticaria, and 63 (38%) had drugs mainly antihistamines and anti-inflammatory drugs.

Table 3 Medical consultation and management for urticaria / angioedema among study sufferers, Saudi Arabia

Medical consultation and management	No	%
Have you ever had difficulty breathing during a rash or angioedema?		
Yes	32	19.3%
No	134	80.7%
Have you ever been to a hospital emergency room or outpatient clinic because of your symptoms?		
Yes	63	38.0%
No	103	62.0%
When was the last time you had your symptoms?		
Today	17	10.2%
Yesterday	10	6.0%
Last week	20	12.0%
Last month	119	71.7%
Have you consulted a doctor about the symptoms of skin urticaria?		

No	86	51.8%
Yes	80	48.2%
Do you use any medications for your symptoms?		
Yes	63	38.0%
No	103	62.0%

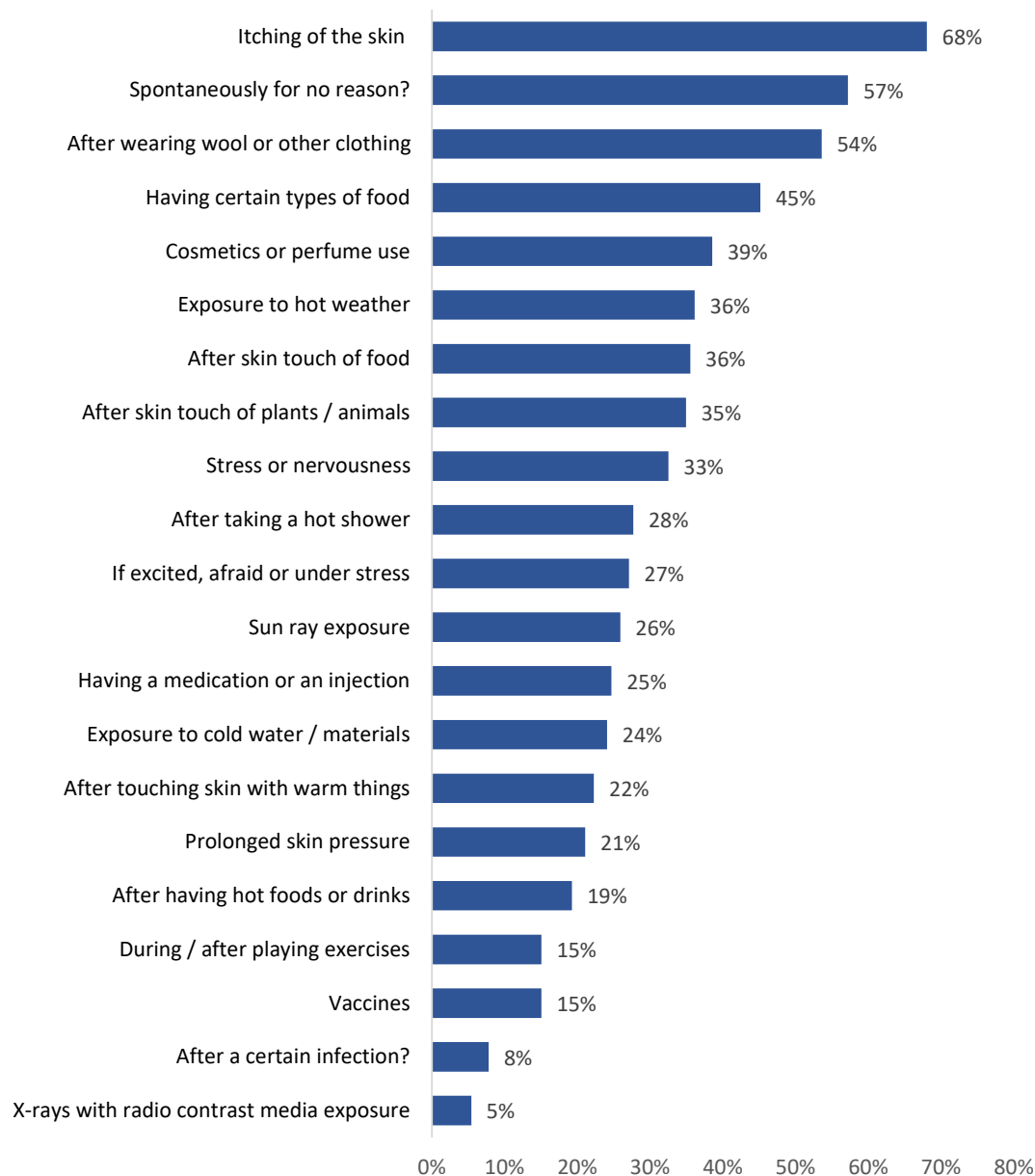


Figure 3 Triggers and risk factors of urticaria / angioedema symptoms among sufferers, Saudi Arabia

4. DISCUSSION

Chronic urticaria is featured by the incidence of extensive daily or almost daily wheals for at least 6 weeks, which may be followed by angioedema (Greaves, 1995). The urticaria wheals are transient but the resolve of angioedema is slower than wheals which may last up to 72 hours. Urticaria is considered a self-limiting disease, with infrequent relapses and spontaneous remissions (Kaplan, 2002). Chronic urticaria significantly affects quality of life with substantial impact on sleep, daily work, and social relations (Dias et

al., 2016; O'Donnell et al., 1997; Staubach et al., 2006). Additionally, patients who diagnosed with chronic urticaria frequently develop mental health disorders (Ozkan et al., 2007).

The current study aimed to assess and estimate the prevalence of urticaria and angioedema among adults in Saudi Arabia, especially in Hail region. Also, to describe the pattern of the disease and potential risk factors of urticaria and angioedema among adults in Saudi Arabia, especially in Hail region. The study showed that nearly one-fifth of the study participants complained of urticaria which was significantly higher among females, married population with high educational level. Also, nearly 1 out of each 5 participants complained of angioedema which was mainly at lips (more than half of the cases), hand / fingers, oral cavity, eyelids, and foot (about one third of the cases). Sabry (2011) assessed the prevalence of allergic diseases in Al-Taif city. Authors found that Symptoms of various forms of urticaria \pm angio-oedema were reported in 64.1% (490 with urticaria per se and 57 with both urticaria and angio-oedema). This is much higher than estimated rate in the current study. Also, Urticaria was encountered more frequently in the females (63.4%) than in the males (46.9%) in concordance to the current study findings. A much higher prevalence was estimated in Makkah, about 44.3% were diagnosed with CSU (Fatani et al., 2015).

Prevalence of acute spontaneous urticaria was 40.3%, whereas the prevalence of physical urticaria was 7.5%. Atopic diseases and food allergy were present in 30.1% and 25.4% of patients, respectively. Studies in Europe reported the lifetime prevalence of urticaria as around 8% to 10% (Bakke et al., 1990; Zuberbier et al., 2010). Hellgren (1972) found a point prevalence of around 0.1% in the total population of Sweden. Gaig et al., (2004) reported a point prevalence of 0.6% in the Spanish population. The variation in prevalence might be due to the variety in method of studies used, or geographical and cultural characteristics. Regarding epidemiological pattern of urticaria, the current study showed that two thirds of the patients had urticaria symptoms only once, and less than three-quarters experience the symptoms monthly. Also, less than one-fifth of the cases experienced urticaria symptoms for minutes but less than half of them (42%) experience the symptoms for days. More than half of the cases reported experiencing symptoms spontaneously for no reason.

Irani et al., (2017) assessed the epidemiological pattern of urticaria and found that majority of patients complained of CSU (96%), 19% of them also complain of inducible urticaria. About two-thirds (67.4%) aged <40 years with disease duration of less than 24 month (70.8%). Majority of the patients used antihistamines H1, but regrettably, 34.3% used systemic gluco-corticosteroids, 24.7% of them also used antihistamines H1. 79% of the patients are poorly controlled. Gender, age, diagnosis, triggers, duration, and/or history of atopy showed no influence. Other studies revealed that CSU is reported to continue for a period of between one and five years with an average of three to five years, which may last for a longer duration in more severe cases (concurrent inducible urticaria and concurrent angioedema) (Beltrani, 2002; Khan, 2008). A tiny proportion of patients can have CSU for >20 years (Demera et al., 2001).

Regarding triggering factors, the current study showed that The most reported triggers / risk factors of initiating or increasing urticaria symptoms were skin itching (68%), followed by spontaneously or no reason (57%), wearing wool or other clothes (54%), having specific type of food (45%), cosmetics / perfume use (39%), exposure to hot weather (36%), touching skin with food (36%), touching skin with plants / animals (35%), stress/ nervousness (33%), after taking a hot shower (28%), and sun ray exposure (26%). The least reported triggers were vaccines (15%), after infection (8%), and X-ray with radiocontrast media exposure (5%). Literature showed too many triggers of urticaria which may differ according to age, region, culture and dietary habits (Lee et al., 2017; Sánchez et al., 2017; Wedi et al., 2004).

5. CONCLUSION

Urticaria was encountered more frequently in the females than in the males in concordance to the current study findings. Regarding epidemiological pattern of urticaria, the current study showed that two thirds of the patients had urticaria symptoms only once, and less than three-quarters experience the symptoms monthly. People affected by urticaria most frequently report skin itching followed by spontaneously or no reason, wearing wool or other clothes, having specific type of food, cosmetics / perfume use.

Authors' Contributions

All authors share in analyzed and interpreted data, also they have critically reviewed and approved the final draft and are responsible for the content and similarity index of manuscript.

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We thank the patients who were all participated in and contributed samples to the study.

Informed consent

Written informed consent was obtained from all individual who participate in the study.

Ethical approval

The study was approved by the Medical Ethics Committee of Hail University (ethical approval number: H-2022-162).

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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