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Letter to the Editor – Study Letter

The prevalence and clinical presentation of scabies in Syria: A cross-sectional study in five governorates

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Dear Editor,

Scabies is a neglected tropical disease that is caused by the mite *Sarcoptes scabiei* var. hominis and has a global impact and long-term health consequences.[1] It is prevalent in tropical and low/middle-income nations.[1] However, scabies infestations can also occur in developed countries, in the form of small epidemics or institutional outbreaks in times of conflict or natural disasters.[1] Epidemiologically, the worldwide incidence of scabies is estimated at 200 – 300 million people annually, although there are major differences between certain geographical regions.[1,2] Scabies cases have been reported in a rising number of countries, particularly in the past two decades.[2] Based on data from various world regions, it was found that East Asia, Southeast Asia, Oceania, tropical Latin America, and South Asia have the high scabies rates.[2] Although the incidence of scabies in Europe was not very high, a trend toward an increasing number of scabies cases was reported.[2]

The war that took place in Syria in 2011 has led to epidemics of infections, such as scabies, that have spread among vulnerable populations in Syria and in refugee camps in neighboring countries, which triggered a health crisis.[3] According to the World Health Organization, 7600 cases of scabies have been recorded between 2012 and 2015 among populations in war-affected regions in Syria.[4] Published studies have described scabies among Syrian asylum seekers in neighboring countries such as Turkey and Lebanon.[5] However, there is no published research concerning scabies patients in Syria.

A cross-sectional study was conducted in six hospitals/healthcare centers of the Syrian Ministry of Health and the Ministry of Higher Education in the following five governorates: Damascus, Aleppo, Latakia, Homs, and Al Qunaitra. The distribution, number, and percentage of patients according to health facilities in each governorate are described in Figure 1.

The patients' data were collected and analyzed in the dermatology departments from July 3, 2023, to October 5, 2023. Other cases that were suspected or diagnosed in other departments were excluded from the study. In addition, patients with recurrent presentations due to treatment failure or re-infestation were considered as single case.

In total, 1044 cases of scabies were documented. The socioeconomic status and the clinical characteristics of the patients are described in [Tables 1 and 2]. The number of documented cases was slightly higher in males (52.77%) than in females (47.22%). The average age of the patients was 28.31 years. Young adults (20 – 39 years) were the most affected age group (32.66%),

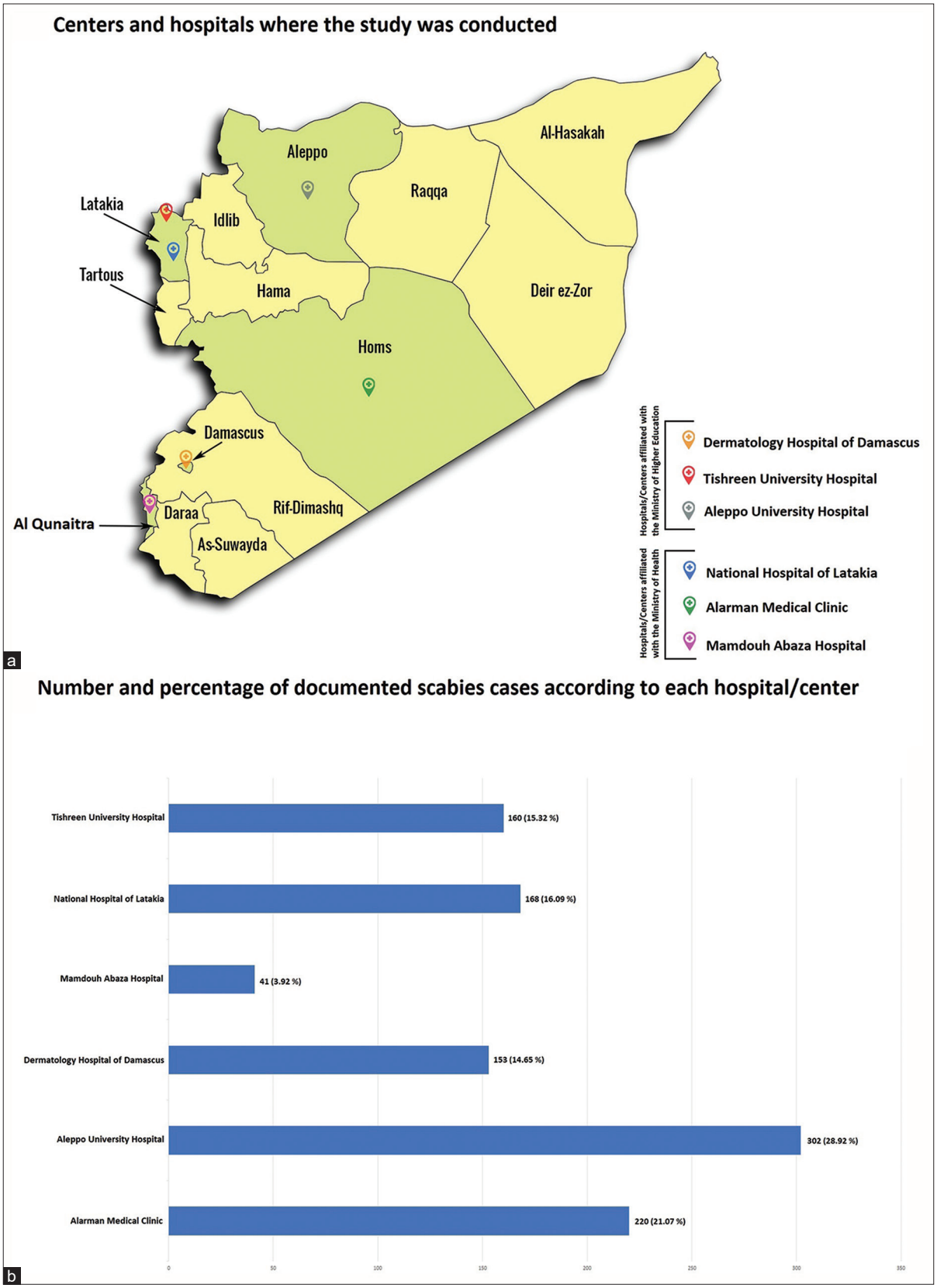

Figure 1: (a): The distribution of scabies cases per health facility in each governorate; (b): The number and percentage of patients per health facility.

Table 1: The socioeconomic status of the patients.

Variables	Categories	Total patients *n* (%)
Sex	Male	551 (52.77)
	Female	493 (47.22)
Age (years)	Infants, toddlers, and preschoolers (0–5)	163 (15.61)
	School-aged children (6–12)	108 (10.34)
	Adolescents (13–19)	120 (11.49)
	Young adults (20–39)	341 (32.66)
	Middle age adults (40–59)	215 (20.59)
	Elderly persons (60+)	97 (9.29)
Resident	Rural	443 (42.43)
	Urban	601 (57.56)
Household size	The patient lives alone	41 (3.92)
	<5	356 (34.09)
	5–10	562 (53.83)
	>10	85 (8.14)
Professional and educational status of the patient, or whether the patient is incarcerated	Unemployed	331 (31.70)
	Retired	43 (4.11)
	Under school age	163 (15.61)
	School students	172 (16.47)
	Dropping out of school	15 (1.43)
	Undergraduate students	35 (3.35)
	An office employee in a government institution	27 (2.58)
	Soldier	94 (9)
	Police	7 (0.67)
	Teacher	17 (1.62)
	Doctor	4 (0.38)
	Nurse	5 (0.47)
	Engineer	7 (0.67)
	Lawyer	1 (0.09)
	Salesperson	9 (0.86)
	Hawker	3 (0.28)
	Waste picker	1 (0.09)
	Upholsterer	1 (0.09)
	Construction worker	21 (2.01)
	Estate agent	1 (0.09)
	Accountant	2 (0.19)
	Chef	1 (0.09)
	Waiter	3 (0.28)
	Carpenter	9 (0.86)
	Smith	8 (0.76)
	Mechanic	6 (0.57)
	Electrician	3 (0.28)
	Plumber	2 (0.19)
	Barber	7 (0.67)
	Tailor	8 (0.76)
	Butcher	1 (0.09)
	Farmer	12 (1.14)
	Cleaning worker	3 (0.28)
	Taxi driver	12 (1.14)
	Prisoner	10 (0.95)

followed by middle-aged adults (40 – 59 years) with 20.59% infected individuals. More than half of the patients were living in urban areas (57.56%), while 42.43% were living in rural areas. In addition, more than half of the patients (53.83%) were living in a house/facility with between five and ten inhabitants.

Table 2: The medical history and clinical presentation of the patients.

Variables	Categories	Total patients *n* (%)
Was it the 1st time the patient had scabies?	Yes	908 (86.97)
	No	136 (13.02)
Scabies variants	Classic scabies	1002 (95.97)
	Crusted scabies	13 (1.24)
	Nodular scabies	26 (2.49)
	Bullous scabies	3 (0.28)
Lesions distribution	Diffuse	1000 (95.78)
	Localized	44 (4.21)
The location of the localized lesions	Umbilicus	25 (2.39)
	Genitalia	14 (1.34)
	Axillae	2 (0.19)
	Buttocks	1 (0.09)
	Forearm	1 (0.09)
	Waist	1 (0.09)
Did the patient have impetigo as a complication?	Yes	160 (15.32)
	No	884 (84.67)

The most common occupational status of the patients is unemployment (31.70%), which can be explained by the effects of the war in Syria, which triggered an economic crisis resulting in a significant number of unemployed people. Among people with a profession, soldiers were the most commonly diagnosed group with scabies (9%).

As a result of the clinical history and examination, most patients stated that this was the 1st time; they had been affected by scabies (86.97%). Classic scabies was the most commonly reported variant (95.97%), and lesions with diffuse distribution were also the most frequently reported (95.78%), in contrast to localized lesions, which occurred in only 4.21% of patients, with the umbilicus being the most commonly affected site (2.39%). Nevertheless, no significant association was noted between the age groups and the variant of scabies ($P = 0.272$).

Impetigo in Scabies is often caused by pruritus, especially in children and patients who live in crowded spaces.[6] Impetigo was identified as a complication in 15.32% of the patients. A significant correlation was found between the affected young age groups and impetigo as a complication ($P < 0.001$). The most common age group accompanied by impetigo is between birth and 5 years of age (Infants, toddlers, and preschoolers), followed by young adults (30.62% and 28.12%, respectively).

Syria is deemed to be one of the low-income countries and still suffers from wars, making it a favorable setting for the development of scabies. Lack of treatment options in middle- and low-income countries can lead to secondary complications associated with scabies, such as chronic kidney disease, as excoriations and the disruption of the epidermal barrier caused by itching can result in impetigo and subsequent dissemination of streptococci into the glomeruli.[7] Impetigo caused by *Streptococcus pyogenes* can also lead to toxin-mediated diseases such as scarlet fever, streptococcal toxic shock syndrome, post-streptococcal glomerulonephritis, and rheumatic fever.[6]

It is important to consider the secondary medical, psychosocial, and economic factors linked to the burden of disease when estimating the global burden of scabies.[6] Since the most affected age groups in the study are young adults, psychological complications need to be considered as well. Scabies can lead to psychosocial complications such as low work attendance, feelings of shame, and social stigmatization.[6] In addition, it can lead to fatigue, poor performance at school, absenteeism in school, and poor concentration and memory in infants.[6]

To prevent and control the spread of scabies in communities, each nation around the world should endeavor to have accurate national statistics and adequate disease reporting.[2] Therefore, it is important to have accurate official statistics in Syria for the number of scabies cases to provide patients with appropriate treatment and to manage the complications.

To the best of our knowledge, this is the first published study addressing scabies in Syria.

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Ethical approval

The research/study was approved by the Faculty of Medicine of Tartous University in accordance with the first clause of document No. 1449, S. T., dated June 13, 2023.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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