

**CLINICAL AND EPIDEMIOLOGICAL FEATURES OF SCABIES DURING
INCREASED EXTERNAL AND INTERNAL MIGRATION AND IMPROVING
DIAGNOSTICS**

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ABSTRACT: Scabies remains a significant public health concern worldwide, particularly in regions facing elevated levels of external (international) and internal (domestic) migration. This article examines the clinical and epidemiological characteristics of scabies under conditions of population mobility and highlights strategies to enhance diagnostic accuracy. Key aspects include the role of socioeconomic factors, household crowding, and barriers to healthcare access. Advances in diagnostic methods—ranging from classic microscopic examination of skin scrapings to modern technologies like dermoscopy and confocal laser scanning microscopy—are also discussed. By integrating clinical findings with improved epidemiological surveillance and diagnostic capacities, health systems can better address the spread of scabies in high-risk, mobile populations.

Keywords: Scabies, Migration, *Sarcoptes scabiei*, Clinical features, Epidemiology, Dermoscopy, Confocal laser scanning microscopy, Public health, Mobile clinics, Diagnostics

INTRODUCTION

Scabies, caused by the mite *Sarcoptes scabiei* var. *hominis*, is a contagious parasitic skin infestation characterized by intense itching (especially at night), visible burrows on the skin, and potential for secondary infections [5]. While it affects individuals of all ages and socioeconomic backgrounds, scabies is often associated with overcrowded living conditions, poor hygiene, and limited access to healthcare services [1].

In recent years, global patterns of migration—both external (international) and internal (rural-to-urban or inter-regional)—have intensified due to various economic, political, and environmental factors [2]. This heightened mobility increases the likelihood of scabies transmission as migrant populations commonly experience overcrowded or temporary housing, limited healthcare, and restricted health education services [5]. This article provides an overview of the clinical and epidemiological features of scabies amid increased migration and explores strategies to strengthen diagnostic practices to limit disease transmission.

Epidemiological Characteristics

Impact of Migration on Scabies Transmission - Overcrowded Living Conditions: Migrant populations often reside in shared housing, shelters, or temporary accommodations, creating ideal conditions for parasite transmission. **Socioeconomic Constraints:** Low income, poor nutrition, and limited access to sanitation infrastructure exacerbate infestation rates in high-mobility communities. **Healthcare Accessibility:** Language barriers, lack of legal status (in the case of undocumented migrants), and logistical challenges hinder timely diagnosis and treatment.

Global Distribution and Migration Trends - According to the WHO (2017), scabies prevalence varies widely across geographic regions, with higher burdens reported in resource-limited settings. However, increased migration flows can introduce scabies into new regions or reintroduce it into areas where case numbers were previously low. **External (International) Migration:** People moving from high-prevalence countries can seed outbreaks in destinations with previously low scabies transmission rates. **Internal (Domestic) Migration:** Rapid urbanization and rural-to-urban migration lead to the formation of informal settlements with inadequate sanitation, thus facilitating scabies transmission.

RISK FACTORS

Close Contact: The mite is primarily spread through prolonged skin-to-skin contact. Therefore, families, shelters, dormitories, and refugee camps are at heightened risk (Heukelbach & Feldmeier, 2006).

Socioeconomic Disparities: Limited financial resources and poor housing conditions increase susceptibility to infestation and reduce capacity for prompt treatment.

Delayed Treatment: Migrant populations may not seek medical assistance due to distrust of healthcare systems, cost, or lack of documentation, prolonging the infectious period.

Classic Scabies - Classic scabies is characterized by: **Nocturnal Pruritus (Itching):** Typically worse at night due to heightened activity of the mites. **Skin Burrows:** Short, serpiginous tracks that indicate mite burrowing, frequently found between the fingers, on wrists, elbows, waistline, and genital areas. **Erythematous Papules:** Small red papules may appear on affected areas, sometimes with excoriations due to scratching.

Crusted (Norwegian) Scabies - Crusted scabies is a severe form observed primarily in immunocompromised individuals, including those with chronic illnesses or malnutrition (WHO, 2017). It presents with: **Thick Crusting and Scaling** on the skin, which harbors thousands of mites. **Highly Infectious** nature, even with minimal skin contact.

In migratory settings, delayed diagnosis or suboptimal access to healthcare can lead to missed

crusted scabies cases, which subsequently accelerate community-level transmission.

Atypical Presentations - Migrant populations frequently experience additional stressors (nutritional deficiencies, comorbid infections) that can lead to atypical scabies presentations, complicating diagnosis. Dermatological manifestations may overlap with other parasitic or bacterial skin conditions.

DIAGNOSTIC METHODS

Traditional Techniques

Microscopic Examination of Skin Scrapings - Method: Superficial scrapings of lesions (particularly burrows) are collected and examined under a light microscope to identify mites, eggs, or fecal matter. Limitations: False negatives can occur if the scraping site is not carefully chosen, if parasite density is low, or if the operator lacks experience.

Ink Test - Method: Application of ink or dye can highlight the serpiginous burrows on the skin surface. Drawbacks: Though simple, this method is less reliable for confirming mites' presence compared to direct microscopic visualization.

Advanced Diagnostic Approaches

Dermoscopy - Advantages: Non-invasive, quick, and can visualize mites, eggs, and burrows in vivo. Application in Migration Settings: Potentially useful in mobile clinics or refugee camps, provided trained personnel and portable dermoscopic devices are available [6].

Confocal Laser Scanning Microscopy (CLSM) - Advantages: Provides high-resolution, real-time images of mites without invasive procedures. Challenges: High equipment cost and the need for specialized training limit CLSM's use in low-resource, high-mobility areas.

PCR-Based Techniques - Potential: Molecular assays can detect parasite DNA. Limitations: Currently not widely applied in routine scabies diagnosis due to cost, technical complexity, and limited field applicability.

Improving Scabies Diagnostics in Migratory Populations

Training Primary Healthcare Workers - Equipping nurses, community health workers, and primary care physicians with dermoscopy skills or best practices in skin scraping techniques to ensure more accurate diagnoses [7]. Developing multilingual guidelines and symptom checklists for migrant communities.

Mobile Clinic Deployment - Use of traveling healthcare units to reach remote or densely populated informal settlements. Offering on-site microscopic and dermoscopic

examinations to overcome geographical barriers.

Integration with Other Disease Surveillance - Incorporating scabies screening into general health check-ups for migrants, including for other communicable diseases such as TB, HIV, or parasitic infestations. Coordinating data collection on scabies prevalence alongside routine immunization or nutritional programs.

Telemedicine and Digital Diagnostics - Utilizing smartphone-based dermoscopy or image-sharing platforms for expert consultation and rapid diagnosis. Encouraging cross-border collaborations among dermatologists and public health officials for timely outbreak detection [5].

DISCUSSION

In environments characterized by elevated internal and external migration, public health measures against scabies must be comprehensive. Although scabies is treatable with topical acaricides (e.g., permethrin) or systemic agents like ivermectin, timely diagnosis is critical to curb outbreaks [4]. Diagnostics face challenges such as inadequate health infrastructure, overcrowded living conditions, and socio-cultural barriers—especially in populations with uncertain legal or economic status.

The advent of improved diagnostic tools (dermoscopy, CLSM) has enhanced case detection. However, the practicality of these methods in low-resource settings remains a concern. Simplified approaches—such as well-performed skin scrapings combined with standard training for frontline healthcare providers—may be more sustainable in the short term. Over time, telemedicine and portable imaging devices could bridge diagnostic gaps, provided sufficient investment and targeted capacity-building programs are established.

CONCLUSION

Increased migration exacerbates the spread of scabies through crowded conditions, limited resources, and restricted healthcare access. A robust response strategy requires: Strengthened epidemiological surveillance to identify and track scabies outbreaks. Expanded diagnostic capabilities in mobile or underserved populations, leveraging both traditional and modern methods. Multidisciplinary collaboration among governments, international organizations (e.g., IOM, WHO), and local health agencies to address systemic challenges like overcrowded settlements and the lack of continuous healthcare.

By enhancing the accuracy and accessibility of scabies diagnostics—alongside targeted public health interventions—it is possible to significantly reduce the burden of scabies among mobile and vulnerable groups worldwide.

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