

Communicable and Non-Communicable Disease Burden among Afghan Returnees from Pakistan: A Cross-Sectional Study

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Abstract

Background

Forced repatriation of Afghan refugees from Pakistan constitutes a significant public health challenge, unfolding within a fragile health system. Returnees face a dual burden of communicable and non-communicable diseases, yet evidence on how health risks evolve across the migration trajectory is limited.

Methods

A cross-sectional prospective study was conducted at the Omari Camp in eastern Afghanistan. Face-to-face interviews and basic clinical assessments were conducted among 144 recently returned Afghan returnees at the Omari Camp. Data on disease prevalence and healthcare access were analyzed across three temporal phases: pre-migration, during migration, and post-migration. Data were analyzed using descriptive statistics, and disease prevalence was summarized as proportions.

Results

The sample was predominantly female (58%), with most returns (85%) being forced. A significant proportion (39%) had resided in Pakistan for over 40 years. The pre-migration phase revealed a high burden of both communicable (e.g., tuberculosis, hepatitis B) and non-communicable diseases (e.g., diabetes, hypertension), alongside mental health disorders. Vaccination coverage in Pakistan was suboptimal, with 10% of women and 8% of men reporting no vaccinations. The migration phase was marked by acute morbidity, with participants reporting symptoms such as fatigue, cough, and diarrhea. Post-migration, environmental stressors contributed to new respiratory infections (6% males, 5% females) and diarrheal infections (4% males, 3% females), while pre-existing chronic conditions persisted.

Conclusion

The health status of Afghan returnees is characterized by cumulative risks across the migration continuum. Findings highlight the critical need for integrated, phase-specific health interventions that address chronic non-communicable diseases and mental health alongside acute infectious risks.

Background

Over the past several decades, Afghanistan has experienced prolonged political and economic instability, contributing to a complex burden of communicable and non-communicable diseases (NCD). These conditions have contributed to large-scale population displacement and complex migration patterns.

According to recent estimates, around 85% of Afghan nationals have migrated to neighboring countries, such as Pakistan and Iran ^{1 2}. Since 2002, the United Nations High Commissioner for Refugees (UNHCR) has facilitated the return of more than 5.2 million Afghans by 2024 ³. This includes a remarkable surge of 2.1 million returns documented in 2024 alone, making it one of the largest annual repatriation activities recorded globally ⁴. These dynamics unfold against a backdrop of severe fiscal limitations, with Afghanistan's health sector heavily reliant on international aid, which accounts for more than 75% of total public health expenditure ^{5 6}. Simultaneously, the coexistence of returning refugees and internally displaced persons, estimated at 3.5 million in the UNHCR census ⁷, creates intense pressure on housing, essential services, and an already overstretched healthcare system. Afghan populations experience a dual disease burden marked by high prevalence of communicable diseases alongside a rapidly increasing load of non-communicable diseases. Seroprevalence studies conducted among Afghan refugee populations reveal concerning levels of infection: Human Immunodeficiency Virus (HIV), hepatitis B virus, and hepatitis C virus ^{8 9}. These elevated risks are associated with a range of structural and behavioral determinants ^{10 11}. Vaccination coverage in migrant populations remains markedly below WHO-recommended thresholds, prolonging the spread of vaccine-preventable diseases such as polio and measles ¹²⁻¹⁵. Simultaneously, the National surveillance reports and UNAIDS-WHO modeling estimates indicate substantial under-detection and potential ongoing transmission of HIV, including vertical pathways ^{16 17}. In parallel, Afghanistan faces a rapidly evolving NCD profile, consistent with global epidemiological transitions. NCDs now account for approximately 68% of total national mortality and contribute to the global economic burden projected to reach USD 47 trillion between 2011 and 2030 ¹⁸⁻²¹. Cardiovascular diseases, cancer, chronic respiratory diseases, diabetes mellitus, and mental health disorders constitute major contributors to premature morbidity and mortality among the Afghan populations. These conditions are closely associated with modifiable lifestyle factors, including tobacco use, unhealthy diets, physical inactivity, and harmful alcohol consumption ²². Vulnerable groups- especially repatriated refugees and internally displaced persons-experience disproportionate NCD burdens ^{23 24}. Prolonged displacement is also associated with elevated mental health morbidity, with recent epidemiological data indicating a prevalence of post-traumatic stress disorder between 38-42% and major depressive disorder between 32-35% among returnees ²⁵⁻²⁷. Despite the magnitude of these needs, Afghanistan's mental healthcare system remains critically under-resourced ²⁸. Multiple structural barriers continue to restrict healthcare access, including limited system capacity, geographical inequalities in service availability, substantial financial constraints, and cultural barriers shaping health-seeking behavior obstacles ²⁹⁻³¹. These issues are particularly acute among returnees with chronic conditions, whose treatment continuity and medication adherence are often severely disrupted during migration ³²⁻³⁶. Low health literacy (28%) and weak social protection further exacerbate these barriers ³⁹⁻⁴¹.

The current study addresses a critical evidence gap by examining disease prevalence among Afghan returnees from Pakistan across three temporal phases: pre-migration, during migration, and post-migration. By employing a temporal analytical framework, this study advances the literature beyond

cross-sectional characterizations. It provides insight into when health problems emerge along the migration trajectory and how they evolve. Findings from this research will inform the development of integrated health interventions to support the sustainable reintegration of Afghan returnees.

Methods

A cross-sectional study utilizing prospectively collected self-reported data was conducted at the Omari Camp in eastern Afghanistan on 25 June 2025. The ethical guidelines for this study were reviewed and approved by the Institutional Review Board (IRB) of Mili University, Kabul, Afghanistan, in accordance with institutional requirements and national regulations. No experimental procedures were performed (Reference no. : FMS/IRB/01/2025), and formal oral informed consent was obtained from all participants. Data collection was conducted over three days and included Afghan returnees who had recently repatriated from Pakistan. Trained bilingual doctors, along with two undergraduate medical students, administered a pretested, structured questionnaire through face-to-face interviews, complemented by standardized physical examinations. The questionnaire collected information on sociodemographic characteristics, health behaviors, and self-reported disease history. Communicable diseases during the pre-migration phase were primarily assessed through self-reported medical history, whereas post-migration conditions were identified through a basic clinical examination during the medical camp. The data were structured across three distinct temporal phases: self-reported information before migration, self-reported information during migration, and medical examination data following migration. In this study, descriptive analysis was performed using percentage calculations.

Inclusion and Exclusion Criteria

All returnees residing in the camp were initially mobilized to attend the medical camp for a free health examination. Individuals who participated in the medical camp and provided formal oral consent were included in the study, whereas those who declined participation were excluded.

Results

The three-day medical camp conducted among Afghan returnees from Pakistan revealed several critical dimensions of the migration and repatriation process. The sociodemographic profile of the 144 participants shows a higher proportion of women (58%) compared with men (42%) (Table 1). Forced repatriation accounted for most returns (85%), illustrating the predominantly coercive nature of recent population movements and reflecting increasingly restrictive migration policies in Pakistan. Returnees originated from diverse regions of Pakistan, with the largest share coming from Islamabad Capital Territory (47%), Punjab (43%), and Khyber Pakhtunkhwa (10%). Upon return to Afghanistan, participants reported resettling across multiple provinces, with the highest concentrations in Kunduz (22%) and Nangarhar (21%), Kabul (11%), Baghlan (11%), Laghman (7%), Kunar (6%), Paktya (4%), Balkh (3%), Ghazni (2%), Takhar (1%), Badakhshan (1%), Jawzjan (1%), Khost (1%) and 8% with unknown destination in Afghanistan.

Table 1
Sociodemographic characteristics of the participants.

Demographic Information	n	%
Gender		
Male	60	42
Female	84	58
Provincial distribution of Afghan returnees from Pakistan		
Punjab	62	43
Khyber Pakhtunkhwa	14	10
Islamabad (Capital territory).	68	47
Provincial distribution of Afghan returnees in Afghanistan		
Unknown	12	8
Badakhshan	2	1
Baghlan	16	11
Balkh	4	3
Ghazni	3	2
Jawzjan	1	1
Kabul	16	11
Khost	1	1
Kunar	9	6
Kunduz	32	22
Laghman	10	7
Nangarhar	30	21
Paktia	6	4
Takhar	2	1
Classification of Refugee Returnees		
Voluntary	22	15
Forced	122	85
Temporal patterns of returnee residency in Pakistan		
< 10 years	31	22

Demographic Information	n	%
Gender		
> 10 years	9	6
> 20 years	19	13
> 30years	20	14
> 40 years	56	39
> 50 years	5	4
> 60 years	4	3
Household composition of returnee populations		
Single	3	2
Two to Five	39	27
Six to Ten	76	53
Eleven to Fifteen	21	15
Sixteen to Twenty	5	3

This geographic distribution may present challenges for reintegration, as different regions have varying socio-political and economic contexts. The substantial share of returnees from eastern and northeastern provinces indicates that proximity to the border and historical migration patterns continue to shape displacement dynamics. The length of stay in Pakistan was particularly notable, 39% reported living in Pakistan for more than 40 years, with a smaller subset, 3%, reporting residence for 50 or 60 years or more. This suggests that displacement may have extended across multiple generations.

Consequently, reintegration requires not only logistical planning but also careful negotiation of hybrid social and cultural identities. Household composition data further inform reintegration strategies. Household size was generally large; more than half of respondents (53%) reported living in households of six to ten members. Such large households reflect traditional Afghan family structures but pose challenges in resource distribution, increasing vulnerability to economic stress, food insecurity, and gaps in health service access, particularly under sudden displacement conditions. Collectively, these findings provide preliminary insights into the health profile of returnees attending the Omari camp during the study period. These sociodemographic characteristics have essential implications for reintegration planning, particularly regarding resource distribution and household vulnerability.

Table 2
Prevalence of communicable diseases among Afghan returnees before they migrated from Pakistan.

Sex	None n (%)	TB n (%)	RI n (%)	GI n (%)	Hep B n (%)	Hep C n (%)	Skin disease n (%)
Male	34 (24%)	5 (3%)	9 (6%)	9 (6%)	0 (0%)	0 (0%)	3 (2%)
Female	45 (31%)	5 (3%)	17 (12%)	13 (9%)	4 (3%)	0 (0%)	0 (0%)

TB = Tuberculosis; RI = Respiratory tract infections; GI = Gastrointestinal infections; Hep B = Hepatitis B; Hep C = Hepatitis C.

Basic clinical assessments revealed a substantial burden of communicable diseases during the stay of Afghan returnees in Pakistan, as shown in Table 2. Tuberculosis (TB) was reported in 10 participants, with equal gender distribution (3% male, 3% female). Respiratory infections were more prevalent among females (12%) than among males (6%). Gastrointestinal tract infections were more prevalent among females (9%) than males (6%). Hepatitis B was reported exclusively among female participants (3%), whereas dermatological conditions were confined to male participants (2%). NCDs were also prominent, including diabetes (3% in males, 4% in females), hypertension (1% in males, 6% in females), and chronic respiratory disease (1% in males, 1% in females), alongside isolated cases of cardiovascular disease (CVD) and cancer. Mental health disorders (MHD) were reported by 4% of males and 5% of females, reflecting near gender parity and highlighting the intersection between displacement-related stressors and pre-existing psychological morbidity (Table 3).

Table 3
Prevalence of non-communicable diseases among Afghan returnees before they migrated from Pakistan.

Sex	None n (%)	DM n (%)	HTN n (%)	CVD n (%)	CRD n (%)	Cancer n (%)	MHD n (%)
Male	48 (33%)	3 (2%)	2 (1%)	0 (0%)	1 (1%)	0 (0%)	6 (4%)
Female	60 (42%)	4 (3%)	9 (6%)	1 (1%)	2 (1%)	1 (1%)	7 (5%)
Note: DM = diabetes mellitus; HTN = hypertension; CVD = cardiovascular diseases; CRD = chronic respiratory diseases; MHD = mental health disorder.							

These findings underscore the chronic disease vulnerabilities characteristic of long-term migrant populations. Vaccination coverage among repatriated refugees during their stay in Pakistan was markedly heterogeneous. Among men, 34% reported having received at least one vaccine, most commonly against COVID-19, while 8% indicated never having been vaccinated. Among women, 48% reported having been vaccinated but were unable to specify the vaccine type, while 10% stated that they had not received any vaccination during their time in Pakistan (Table 4).

Table 4
Reported vaccination status among Afghan returnees before leaving Pakistan.

Sex	Vaccinated	Not Vaccinated
Male	49 (34%)	11 (8%)
Female	69 (48%)	15 (10%)

The slightly higher proportion of unvaccinated women (10%) suggests the persistent gender-related barriers to healthcare access and utilization. Health conditions during migration were common, with participants reporting acute symptoms, including fever (5%), cough/sore throat (6%), vomiting/nausea (5%), diarrhea (4%), skin-related issues (1%), fatigue/weakness 9%, chest pain/shortness of breath (1%), and 69% reported no acute symptoms (Table 5).

Table 5
Health conditions reported among Afghan returnees during repatriation from Pakistan.

Disease	n (%)
None	100 (69%)
Fever	7 (5%)
Cough / Sore throat	8 (6%)
Vomiting / Nausea	7 (5%)
Diarrhea	6 (4%)
Skin rashes / Irritations	1 (1%)
Fatigue / Weakness	13 (9%)
Chest pain / Shortness of breath	2 (1%)
Note: Data represent the number and percentage of Afghan returnees reporting each symptom during repatriation from Pakistan.	

These findings likely reflect the harsh conditions experienced in transit, including overcrowding, inadequate shelter, exposure to extreme temperatures, and limited access to medical care. The post-repatriation evaluation showed that respiratory tract infections were reported in 6% of male participants and 5% of female participants, whereas diarrheal infections affected 4% of male participants and 3% of female participants. One female returnee was reported with a skin infection (Table 6). On the other hand, diabetes was reported in one woman, and chronic respiratory problems were reported in 3% males and 2% females (Table 7). Environmental factors such as high temperatures, arid conditions, dust exposure, and overcrowding likely contributed to these patterns. These findings emphasize the importance of integrated healthcare approaches, including infection control, chronic disease management, psychosocial support, and environmental mitigation strategies.

Table 6

Prevalence of communicable diseases among Afghan returnees following migration from Pakistan.

Sex	None	RI	DD	Mal	Hep B	Hep C	SD
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Male	45 (31%)	9 (6%)	6 (4%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Female	71 (49%)	7 (5%)	5 (3%)	0 (0%)	0 (0%)	0 (0%)	1 (1%)
Note: RI = respiratory infections; DD = diarrheal diseases; Mal = malaria; Hep B = hepatitis B; Hep C = hepatitis C; SD = skin disease.							

Table 7

Prevalence of non-communicable diseases among Afghan returnees following migration from Pakistan.

Sex	None	DM	HTN	CVD	CRD	Cancer	MHD
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Male	56 (39%)	0 (0%)	0 (0%)	0 (0%)	4 (3%)	0 (0%)	0 (0%)
Female	80 (56%)	1 (1%)	0 (0%)	0 (0%)	3 (2%)	0 (0%)	0 (0%)
Note: DM = diabetes mellitus; HTN = hypertension; CVD = cardiovascular diseases; CRD = chronic respiratory diseases; MHD = mental health disorder.							

Afghan returnees exhibited a complex health profile shaped by prolonged displacement, forced migration, gender-specific vulnerabilities, intergenerational residence in Pakistan, and environmental stressors. Reintegration programs must adopt comprehensive, culturally sensitive, and gender-informed strategies to address both acute and chronic health needs, while ensuring equitable access to social and healthcare services.

DISCUSSION

This study employed a temporal framework to analyze the health profile of Afghan returnees from Pakistan across three distinct phases: pre-migration, during migration, and post-migration. Our findings suggest a complex pattern of disease burden across the migration continuum. The study identified a significant dual burden of communicable and NCDs that persisted across the migration continuum. In the pre-migration phase, high prevalences of mental health disorders, diabetes, hypertension, and tuberculosis were documented. The migration phase was characterized by acute illnesses, such as respiratory and gastrointestinal infections, linked to arduous transit conditions. Post-migration, acute infections persisted, likely exacerbated by Afghanistan's environmental and health system challenges, while chronic NCDs required ongoing management.

A striking 85% of returns were forced, and 39% of returnees had lived in Pakistan for over 40 years, highlighting the protracted and involuntary nature of this population movement. This finding reinforces the concept of transgenerational displacement, in which migration becomes a long-term structural

condition rather than a temporary crisis, reshaping identity, health behaviors, and access to care across generations. Our findings on communicable diseases align with prior seroprevalence studies in Afghan migrant populations, which report high rates of hepatitis B/C and vaccine-preventable diseases linked to structural risks such as injection drug use and poor healthcare access^{8 9–12}. The detected tuberculosis and respiratory infections are consistent with the known burdens in overcrowded settings. The presence of hepatitis B exclusively among women in the sample raises essential questions regarding gendered patterns of exposure, underdiagnosis in men, and potential barriers limiting men's disclosure or testing uptake.

The high prevalence of NCDs, diabetes, hypertension, and chronic respiratory disease mirrors the global epidemiological transition and regional reports of NCDs accounting for over two-thirds of mortality in Afghanistan^{18–19}. These results also illustrate the “NCD-displacement paradox”: although displaced populations are often framed through the lens of infectious disease risk, chronic illnesses frequently represent a larger long-term burden and are more likely to be underdiagnosed and undertreated. The substantial mental health burden (with near gender parity) is consistent with literature reporting very high rates of PTSD and depression among forcibly displaced Afghans^{25 26}, confirming that mental health is not a secondary consequence but a central determinant shaping overall health vulnerability during displacement and reintegration.

Pre-migration disease patterns reflect the cumulative effects of long-term residence in marginalized conditions in Pakistan, including irregular access to vaccination and NCD management. Vaccination gaps, particularly among women, likely stem from gender-specific mobility restrictions, social norms, and limited availability of female healthcare workers in some settings. This underscores the need for gender-transformative health strategies, going beyond simple gender-sensitive approaches to address structural inequities embedded in both host and origin countries. The migration phase was associated with increased reporting of acute symptoms, which may reflect environmental exposures during transit.

These findings align with the migration stress pathway model, which posits that cumulative physiological stress compounded by physical hardship exacerbates both infectious and chronic conditions. Post-migration, health challenges intensified due to harsh environmental conditions such as dust and heat, crowded temporary shelters, and limited health system capacity. Afghanistan's fragile health system, with high out-of-pocket costs, geographic inequities, and frequent supply-chain disruptions, struggles to manage both acute and chronic conditions effectively. The reintegration process itself functions as an additional social determinant of health: abrupt changes in living conditions, disrupted community networks, and uncertainty regarding livelihood options increase vulnerability, especially for those with chronic illness.

The predominance of forced repatriation exacerbates health risks by compounding trauma, disrupting treatment continuity, and forcing return into often precarious conditions without preparation. The protracted displacement, with many returnees having lived entire lives in Pakistan, has profound implications. These individuals may have hybrid identities, distinct health-seeking behaviors, and chronic

disease profiles shaped by the Pakistani context. They differ markedly from voluntary repatriated or recently displaced refugees, facing unique reintegration challenges as they encounter an Afghanistan that is, in many ways, a new country to them. Lower vaccination coverage among women likely stems from gender-specific barriers in both host and origin settings. The higher reported proportion of specific NCDs, such as hypertension and hepatitis B, among women may reflect biological risk, gendered stress exposure, or greater health-seeking behavior during the medical camp. Systemic inequities in healthcare access across both Pakistan and Afghanistan disproportionately affect women's health outcomes.

The peak in acute symptoms during and after migration is strongly linked to environmental stressors, such as dust, extreme temperatures, and poor sanitation during travel and in initial settlements. These exposures interact with structural weaknesses in Afghanistan's health system, including limited capacity, high out-of-pocket costs, and geographical inequities [29, 30]. Large household sizes, reported by more than half of participants, further contribute to economic pressure, facilitate intra-household transmission of infections, and complicate continuity of care. This is particularly relevant for NCD management, where medication sharing, inconsistent dosing, and reliance on informal care practices are common in resource-limited households.

Our findings identify clear priorities for integrated, phase-specific interventions. In both the pre-migration and post-migration phases, strengthening vaccination programs, particularly through gender-responsive outreach, should be emphasized, alongside the establishment of border health surveillance systems capable of enabling early detection of communicable diseases. Ensuring continuity of care for non-communicable diseases and mental health is equally critical, requiring reliable medication supply and well-defined referral pathways. During the reintegration phase, interventions must focus on culturally sensitive programming that supports chronic disease management, psychosocial well-being, and improved health literacy. Effective reintegration also depends on stronger coordination between national authorities and international partners to reduce duplication and ensure equitable distribution of resources. Furthermore, integrating social protection mechanisms such as cash assistance, livelihood support, and transportation subsidies is essential to mitigate structural barriers to healthcare access and to promote sustainable reintegration.

Limitations

This study has several limitations. The modest sample size ($n = 144$) and the single-site data collection at Omari Camp limit the generalizability of the findings to the broader population of Afghan returnees. Reliance on self-reported information for the pre-migration and migration phases introduces the possibility of recall bias. The cross-sectional design, despite incorporating retrospective temporal phases, does not allow for the establishment of causal relationships. In addition, although basic clinical assessments were conducted by trained personnel, diagnoses were made in a camp setting without consistent access to advanced laboratory confirmation.

Recommendations

Future research should employ longitudinal, multi-site designs to track health trajectories over extended periods and across different geographic contexts. Studies incorporating biological markers to verify disease would enhance diagnostic accuracy and strengthen epidemiological understanding. Comparative analyses of returnees from other host countries (e.g., Iran versus Pakistan) could illuminate how distinct migration environments shape health risks. There is also a critical need for research on the social determinants of reintegration, such as health literacy, economic stability, and social inclusion, and their influence on long-term health outcomes. Comparative studies examining forced versus voluntary returnees would provide valuable insight into how repatriation pathways affect health vulnerability.

Conclusion

Afghan returnees from Pakistan appear to experience multiple overlapping health challenges. These findings underscore the potential value of tailoring health interventions to different phases of the migration process. The findings advocate for the development of integrated, proactive, and equity-focused health programs that address both immediate needs and long-term chronic conditions, thereby supporting the sustainable and dignified reintegration of this vulnerable population.

Declarations

Conflict of Interest

The authors have no conflict of interest.

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Author Contribution

AKM: Conceptualization, Methodology, Formal Analysis, Project Administration, Software, WritingOriginal Draft, Writing - Review and Editing. A.P.d.O: Review and Editing

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Data Availability

The data that support the findings of this study are not openly available due to reasons of sensitivity and are available from the corresponding author upon reasonable request. The data are securely maintained within controlled-access storage facilities at the Research Department of Mili University.

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