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Global Displacement Patterns and Healthcare Access Among Ukrainian Refugees: A Mixed-Methods Analysis

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Global Displacement Patterns and Healthcare Access Among Ukrainian Refugees: A Mixed-Methods Analysis

Abstract

Background: The 2022 Russian invasion of Ukraine triggered one of the largest and most rapid displacement crises in recent history, creating sustained challenges for refugee protection, data coordination, and healthcare delivery.

Methods: We conducted a mixed-methods study integrating longitudinal displacement data from international, governmental, and secondary sources with a systematic analysis of 51 healthcare policy documents and reports from ten major host countries. Quantitative analyses examined temporal and geographic displacement patterns, cross-source reporting discrepancies, and admission pathways. Large language model (LLM)-assisted extraction with independent human validation identified and assessed frequent domains in healthcare access across host countries.

Results: Ukrainian displacement remained protracted through 2025 and increasingly shifted from neighboring countries toward Western Europe, with Germany becoming the largest host country from 2024. Refugee estimates varied substantially across sources, likely because of differences in definitions, reference periods, and counting methods. The U.S. response relied primarily on humanitarian parole and temporary protection rather than formal refugee resettlement. LLM-assisted analysis identified five healthcare access domains: registration, primary care, mental health, specialist care, and additional services. Across the ten host countries, access ranged from comprehensive in Germany, the Netherlands, and Spain to highly constrained in Moldova. Major barriers included language difficulties, administrative complexity, financial constraints, geographic disparities, and limited healthcare navigation. Mental health and psychosocial services remained insufficient.

Conclusions: Formal protection and healthcare eligibility did not ensure equitable access. Harmonized refugee-data standards, durable legal pathways, professional interpretation, multilingual navigation, and expanded mental health, telehealth, and mobile services are needed to strengthen current and future humanitarian responses.

Keywords: Ukrainian refugees, forced displacement, healthcare access, mixed-methods analysis, temporary protection, mental health

1 Introduction

Forced displacement of refugees worldwide has reached unprecedented levels in the twenty-first century, posing profound humanitarian, social, and public health challenges worldwide [1–3]. While immediate responses to displacement often prioritize food, shelter, and safety, access to healthcare remains a critical yet unevenly addressed determinant of refugee well-being, influencing both short- and long-term health outcomes for displaced populations and host communities [4, 5]. Persistent barriers, such as legal, linguistic, financial, and structural constraints, continue to limit equitable healthcare access across diverse refugee settings.

The Russian invasion of Ukraine in February 2022 triggered one of the largest and fastest refugee movements in recent history, fundamentally reshaping the European refugee landscape. Within months, millions of Ukrainians fled to neighboring countries and across Europe, with a demographic profile dominated by women and children [3, 6]. The crisis disproportionately impacted neighboring countries, with Poland, Germany, and other border nations absorbing the greatest initial burden [3, 7, 8]. The demographic composition of this refugee population creates distinctive healthcare needs, including protection from gender-based violence, maternal health services, and age-appropriate pediatric care [6, 9].

The European Union's activation of the Temporary Protection Directive (TPD) marked an unprecedented policy response, granting immediate legal status and access to essential

services, including healthcare [10–13]. For example, in Poland, hospitals saw a sharp rise in Ukrainian patients requiring care for childbirth, infections, ongoing chronic conditions, and war-related injuries [2, 7, 14]. A qualitative study in Lithuania identified language barriers, long wait times, and uneven service quality as persistent obstacles, particularly pronounced in small towns and rural areas [15]. Research from Germany highlights structural and information-related hurdles within healthcare systems [16]. Studies in the United States found that Ukrainian refugees experienced strained relationships with healthcare providers, reflecting the intersection of cultural identity and healthcare navigation challenges [17].

As of early 2026, approximately 5.9 million Ukrainian refugees are recorded globally, with 90% residing in European countries [18]. As of January 2026, approximately 4.38 million Ukrainians held temporary protection status across the European Union, according to Eurostat [19]. Germany remains the largest host country with 1.26 million beneficiaries (28.8% of the EU total), followed by Poland with approximately 966,000 (22.1%) and Czechia with 397,000 (9.1%) [19]. Women and children continue to constitute the majority; adult women account for approximately 43.5% of EU temporary protection beneficiaries, with minors comprising a further 30.3%, consistent with the ongoing prohibition on men aged 18–60 leaving Ukraine under martial law [19]. The EU's temporary protection has been extended through March 2028, reflecting the continued scale of need and the absence of conditions for safe, voluntary return [20].

As the crisis enters its fourth year, new dimensions have emerged. IOM surveys conducted throughout 2024 with nearly 16,000 refugees found that 38% lacked access to healthcare, 56% required financial support, and 49% could not cover a €100 emergency expense [21]. A 2025 UNHCR report covering ten refugee-hosting countries found that mental health and psychosocial problems affect 23% of individuals and 36% of households rising from 19% and 30% respectively in 2023 [22]. These figures underscore that humanitarian needs have not diminished with time; rather, they have evolved from acute crisis response toward long-term chronic care and psychological support.

Emerging evidence across host nations highlights a complex and fragmented healthcare access environment [6, 23]. While some countries have implemented relatively integrated and responsive systems, others face administrative inefficiencies and resource constraints that hinder timely and equitable care. Across contexts, refugees encounter common challenges such as language barriers, limited health system literacy, delays in service delivery, and inadequate coverage for specialized care. Particularly, mental health and psychosocial support remain insufficiently addressed despite widespread need.

At the same time, understanding the full scope of the Ukrainian refugee crisis is complicated by inconsistencies in displacement data across international and national reporting systems. Variability in data definitions, reporting standards, and update frequencies introduces significant discrepancies, limiting the reliability of cross-country comparisons and hindering coordinated policy responses [3, 8].

This study addresses these gaps through an integrated, mixed-methods analysis of global displacement patterns and healthcare access among Ukrainian refugees from 2022 through 2025. Specifically, we combine longitudinal quantitative data from multiple authoritative sources with qualitative analyses of healthcare policies and access frameworks across the top refugee-hosting countries. Geospatial visualization and temporal trend analysis are used to map displacement trajectories, while thematic analysis identifies key facilitators and barriers to healthcare access across ten major host nations. The aims of the study were to (1) characterize the magnitude, geography, and evolution of Ukrainian displacement across host countries from 2022 to 2025; (2) quantify discrepancies among international and secondary refugee data sources; (3) describe the legal pathways used by the United States to admit or protect Ukrainians; and (4) compare healthcare access, and the barriers that limit it, across ten major host countries.

By situating healthcare access within the broader context of large-scale, rapid displacement, this study contributes to a deeper understanding of how emergency responses translate into sustained health system integration. The contributions of this paper are threefold: (1) it provides a comprehensive, data-driven characterization of global displacement dynamics following the Ukrainian crisis, (2) it systematically compares healthcare access models across major host nations, highlighting both best practices and systemic shortcomings, and (3) it identifies critical gaps in data infrastructure and service provision, offering actionable insights for policymakers and humanitarian organizations. The findings aim to inform more coordinated, equitable, and resilient approaches to refugee healthcare in ongoing and future humanitarian crises.

2 Methodology

This study employed a mixed-methods approach that integrates longitudinal quantitative analysis of refugee displacement with a systematic qualitative assessment of healthcare access policies. This approach enables examination of both large-scale displacement patterns and the structural and policy-driven factors shaping healthcare access, which could not be adequately captured through a single methodological approach.

2.1 Data collection and integration

Data was collected from multiple governmental, international, and secondary sources to ensure comprehensive coverage and cross-source validation. Primary quantitative datasets were obtained from: (1) the United Nations High Commissioner for Refugees (UNHCR) operational databases; (2) the U.S. Department of State's Bureau of Population, Refugees, and Migration (PRM); (3) Eurostat; (4) Statista demographic databases; (5) Visual Capitalist; and (6) the International Organization for Migration Displacement Tracking Matrix (IOM DTM). These data were supplemented with materials from official government portals, non-governmental organizations (NGOs), national health ministries, and international humanitarian agencies. Table 1 summarizes the principal data sources, coverage periods, data elements, and original collection methods.

All datasets underwent a standardized preprocessing and integration procedure. Country names were harmonized using a custom mapping dictionary to resolve naming inconsistencies, such as "USA" versus "United States" and "UK" versus "United Kingdom." Temporal variables were converted to the ISO 8601 (YYYY-MM-DD) format. Other variables with comparable meanings were aligned across datasets as well.

A composite identifier was created for each record by combining country name, country of origin, reporting date, and data source to detect duplicate or overlapping records. Identified duplicate records were further assessed and removed when they represented exact replications. When collected refugee estimates differed across sources, a hierarchical source-prioritization protocol was applied to generate a single estimate. UNHCR data were prioritized, followed by official national government data, and then aggregated secondary sources. In addition, conflicting information was summarized and retained in a separate comparison dataset to allow additional analysis of cross-source reporting inconsistencies rather than treating all discrepancies as data errors.

Table 1 Data sources, coverage periods, data elements, and original collection methods used in the analysis of Ukrainian refugee displacement

Source	Timeframe	Data Elements	Source Data Collection Method
UNHCR [2, 8, 18]	2022–2025	Country names, refugee counts, reporting dates, data sources	Official government reports, border registration, field office monitoring

Eurostat [19]	2022–2026	Temporary protection beneficiaries by country and demographics	EU member state reporting, administrative records
U.S. Dept. of State [3, 10, 24]	2021–2024	Refugee admissions by country and month	U.S. immigration systems, visa records, resettlement program data
Statista [25]	2022–2025	Refugee population by host country	Aggregated from UNHCR, national ministries, and Eurostat
Visual Capitalist [26, 27]	2022–2023	Refugee destination maps and statistics	Secondary data compiled from UNHCR, Statista, and international agencies
IOM DTM [6, 9, 28]	2022–2025	Healthcare access surveys, displacement tracking	Field surveys, border monitoring, household interviews

2.2 Quantitative analysis

Quantitative analyses were conducted in Python, the free open-source programming language, using data-management, statistical, visualization, and geospatial libraries. The Pandas library was used for data cleaning, transformation, aggregation, and descriptive analysis. *Matplotlib* and *Plotly Express*, two of the most popular data visualization libraries in Python, were used for static high-quality plots and interactive charts, respectively. Folium was used for interactive geographic mapping. Figure 1 summarizes the principal Python libraries and their analytical functions.

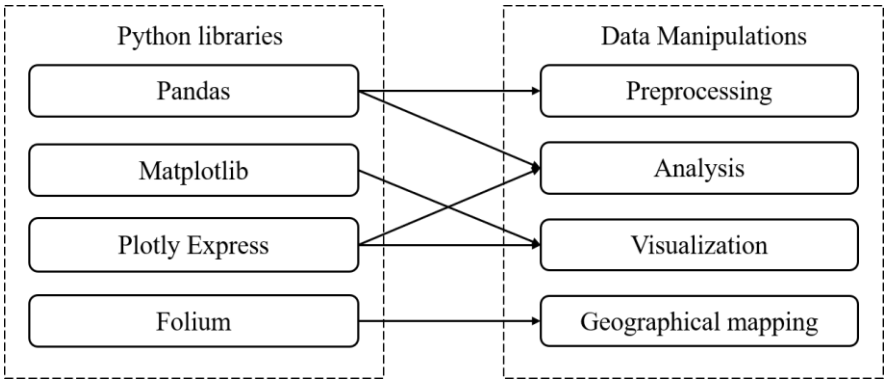


Fig. 1 Python libraries and their primary functions in quantitative data processing, visualization, and geospatial analysis

The preprocessing workflow in Figure 1 included variable standardization, harmonization of 47 country-name variants, alignment of 15 core variables, conversion of temporal fields, duplicate detection, and assessment of data missingness. Short temporal gaps on refugee estimates of fewer than 30 days were interpolated using time-based interpolation when observations before and after the missing period were available. Imputed observations were flagged and excluded from analyses of source discrepancies. Longer gaps were retained as missing in analyses of refugee counts to avoid introducing unsupported population estimates. For noncritical descriptive variables, country-level aggregated values were used when required for visualization or data normalization.

Descriptive analyses were used to characterize total refugee populations, annual and monthly changes, geographic distributions, and the concentration of refugees across host countries. Year-over-year growth was calculated as:

$$\text{Annual growth (\%)} = \frac{N_t - N_{t-1}}{N_{t-1}} * 100,$$

where N_t represents the reported refugee population in year t. Monthly inflow variability was examined using changes between consecutive reporting periods. Cross-country comparisons were conducted using grouped aggregations and pivot-table analyses.

Cross-source consistency was assessed by calculating the percentage difference between two estimates for the same host country and reporting period:

where N_A and N_B denote estimates from two different sources. Absolute percentage differences were also examined when the direction of disagreement was not analytically relevant. Discrepancies exceeding 1,000% were flagged for manual review to determine whether they reflected differences in definitions, geographic coverage, registration practices, reporting dates, or other source-specific factors. These observations were retained as evidence of systemic reporting inconsistency rather than automatically excluded as statistical outliers.

Data visualization combined static, interactive, and geospatial approaches. Publication-ready time-series plots, grouped bar charts, and other comparative figures were generated using Matplotlib. Plotly Express was used to create interactive graphics with hover-enabled metadata for exploratory analysis. Folium was used to produce choropleth maps based on GeoJSON country boundaries; the final multi-year choropleth (Figure 2) was rendered with the D3.js library using Natural Earth boundaries and a single-color scale shared across years. Refugee counts were displayed either as absolute values or normalized by host-country population, depending on the analytical objective. When city-level data were available, point-based maps were used to display the geographic distribution of refugee settlements.

2.3 LLM-assisted qualitative analysis of healthcare access policy

A systematic policy-document analysis was conducted to evaluate healthcare access for Ukrainian refugees in ten major host countries: Germany, Poland, Czechia, United Kingdom, Spain, Italy, Netherlands, Slovakia, Moldova, and the United States. The document corpus comprised 51 policy documents and reports published between February 2022 and December 2025. Document sources included official government portals, national health authorities, UNHCR, European Union agencies, international organizations, and recognized humanitarian organizations.

Policy documents were selected following a structured review process informed by the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) framework. Documents were eligible if they (1) addressed Ukrainian refugees or beneficiaries of temporary protection; (2) described healthcare access procedures, service availability, or barriers to care; (3) pertained to at least one of the ten selected host countries; (4) were published between February 2022 and December 2025; and (5) were available in a language the research team could read directly or through reliable translation. Duplicate publications, documents without substantive healthcare content, and sources lacking identifiable authorship or institutional provenance were excluded.

A two-stage hybrid qualitative approach combining large language model-assisted information extraction and text analysis with rigorous human validation, with details below.

2.3.1 LLM-assisted information extraction

In stage I, each document was processed using GPT-3.5 through the OpenAI API. A standardized role-based prompt guided the model to function as a qualitative public health

researcher specializing in refugee healthcare policy and to extract information only from the supplied text. For each document, the model addressed three standardized questions:

(1) "What healthcare services were available to Ukrainian refugees in this country?",

(2) "What administrative steps or registration procedures did refugees need to complete to access those services?", and

(3) "What obstacles, challenges, or barriers to healthcare access were identified?"

A temperature setting of 0.3 was used to reduce output variability and improve consistency across document submissions.

Model outputs were returned in a structured format that included the host country, document type, available services, administrative requirements, reported barriers, and thematic classifications. The extracted information was organized into five predefined domains:

(i). ***Registration requirements***, such as the administrative procedures required to enter or use the healthcare system;

(ii). ***Primary care access***, such as the availability of general practitioners and basic healthcare services;

(iii). ***Mental health support***, such as the availability of psychological, trauma-informed, and psychosocial services;

(iv). ***Specialist care***, such as access to medical specialists, diagnostic services, and hospital-based care; and

(v). ***Additional services***, such as access to dental, vision, reproductive, maternal, and pediatric care.

Documents exceeding the model's context limit were divided into overlapping segments of approximately 3,000 tokens, with a 200-token overlap to preserve continuity across segments. Segment-level outputs were subsequently merged and de-duplicated programmatically. The model was not used to generate new interpretations, infer unstated policies, or independently determine final thematic conclusions.

2.3.2 Human validation and thematic coding

In the second stage, LLM-generated extractions underwent systematic human validation. Two trained reviewers independently assessed a randomly selected 30% sample of model outputs against the original documents. Reviewers evaluated model extraction accuracy, completeness, country attribution, and assignment to the five thematic domains.

Inter-rater reliability was calculated using Cohen's kappa. Discrepancies between reviewers were resolved through consensus discussion. Incomplete, ambiguous, or incorrectly attributed model outputs were manually corrected before inclusion in the final dataset for thematic coding. The validated coding framework was then applied across the complete document corpus, with additional manual review of uncertain cases.

The thematic analysis focused on recurring barriers related to language and interpretation, documentation and registration, financial constraints, geographic accessibility, health-system information, waiting times, and availability of specialized services. Prevalence of each barrier category was calculated as the proportion of included documents that explicitly mentioned each barrier category:

$$\text{Barrier prevalence (\%)} = \frac{\text{Number of documents mentioning the barrier}}{\text{Total number of inlcuded documents}} * 100.$$

This two-stage hybrid procedure combined the efficiency of LLM-assisted extraction with the interpretive rigor and quality control provided by human oversight.

3 Results and analysis

3.1 Global displacement patterns

Analysis of displacement data from 2021 through 2025 reveals substantial variation in both the magnitude and geographic distribution of Ukrainian populations. Table 2 summarizes the reported populations in the top five countries hosting the largest numbers of Ukrainian refugees during the study period based on UNHCR end-of-year statistics for refugees from Ukraine, which include beneficiaries of temporary protection and exclude asylum seekers [2].

Reported Ukrainian refugee populations were comparatively small before the Russian invasion of Ukraine. Following February 2022, the number of displaced Ukrainians increased sharply, particularly in countries geographically close to Ukraine and in major Western European destination countries as illustrated in Figure 2. The displacement trajectory can be characterized by three broad phases: limited pre-invasion displacement in 2021; rapid, large-scale movement following the invasion in 2022; and stabilization and secondary redistribution across host countries from 2023 through 2025.

As shown in Table 2, the Russian Federation reported the largest Ukrainian refugee population in 2022 and 2023. However, these estimates should be interpreted cautiously because they may encompass voluntary migration, organized evacuation, movement from Russian-occupied territories, and potentially forced transfers. The continued presence of a large Ukrainian population in Russian Federation, despite its role as the aggressor state, likely reflects a complex combination of historical and cultural ties, linguistic familiarity, geographic proximity, and displacement from occupied areas. The UNHCR figure for the Russian Federation fell to 6,894 in 2024 and 5,488 in 2025, a discontinuity that most likely reflects a change in reporting rather than a corresponding outflow of refugees. Germany's reported Ukrainian refugee population increased steadily from approximately 1.00 million in 2022 to 1.21 million in 2024 and was 1.17 million in 2025, making it the largest host country from 2024 onward. Poland remained the second-largest host country, accommodating approximately 0.96–0.99 million refugees annually between 2022 and 2025. Czechia hosted roughly 374,000–434,000 refugees each year during the same period, while the United Kingdom experienced sustained growth, from approximately 182,000 refugees in 2022 to 270,000 in 2025.

Table 2 Reported Ukrainian refugee populations in the five largest host countries, 2021–2025

Country	2021 (pre-invasion baseline)	2022	2023	2024	2025	Sub-total
Russian Federation[a]	8,921	1,275,315	1,227,554	6,894	5,488	2,524,172
Germany	918	1,002,999	1,097,503	1,205,729	1,173,192	4,480,341
Poland	422	958,147	955,891	991,223	972,287	3,877,970
Czechia	225	433,501	374,247	388,388	392,955	1,589,316
United Kingdom	225	182,423	225,497	255,141	270,489	933,775

Source: UNHCR Refugee Data Finder, country of origin Ukraine, population type "refugees" (includes beneficiaries of temporary protection; excludes asylum seekers) [2]. The sub-total is the sum of year-end counts and does not represent unique individuals.

[a]The decline from 2024 reflects a reporting discontinuity in the UNHCR series for the Russian Federation.

By May 2025, approximately 5.1 million Ukrainian refugees were registered across Europe and 5.6 million worldwide. The persistence of large refugee populations several

years after the initial invasion indicates that displacement had evolved from an acute emergency into a prolonged humanitarian and integration challenge. Figure 2 illustrates the global displacement of Ukrainian refugees recorded by UNHCR at the end of each year from 2022 to 2025 [2]. The maps show a strong concentration in Europe, particularly in countries neighboring Ukraine and in Germany, while also demonstrating broader movement to North America, Central Asia, and other regions. Although the overall geographic pattern remained relatively stable, changes over time suggested continued secondary migration and redistribution among host countries.

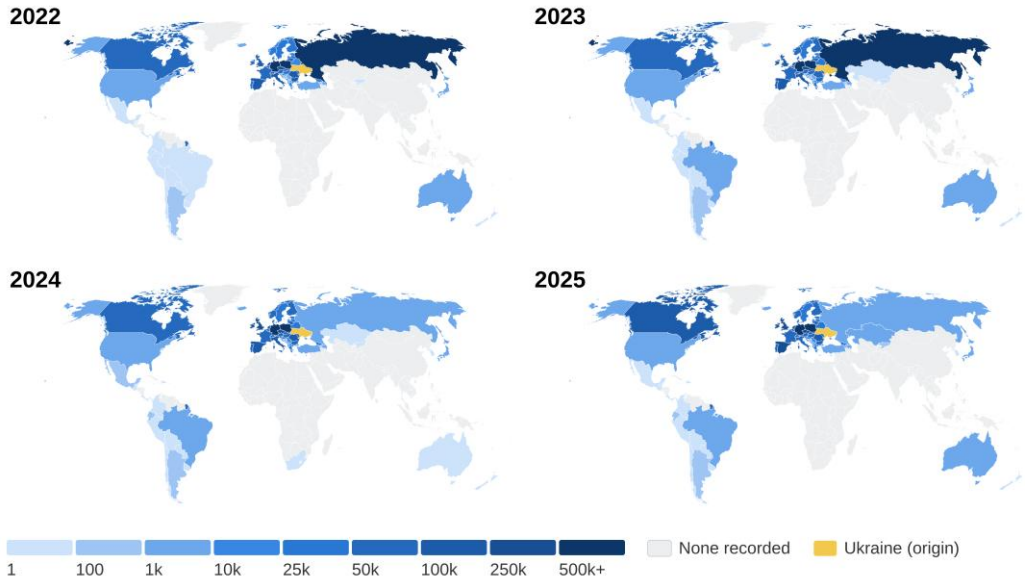


Fig. 2 Choropleth visualization of global Ukrainian refugee displacement, 2022–2025. Each panel shows refugees from Ukraine recorded by UNHCR at the end of the year indicated, on a common scale (darker shading indicates larger populations); light gray indicates countries with no refugees from Ukraine recorded.

3.1.1 Cross-source data discrepancies

Substantial variation was observed among refugee estimates reported by UNHCR, Statista, and Visual Capitalist. Using Statista as the reference source, Visual Capitalist reported substantially higher estimates for Portugal, North Macedonia, the Russian Federation, and Turkey. In several cases, the differences exceeded 100%; the largest discrepancy was observed for Portugal, for which the Visual Capitalist estimate was more than 25 times the Statista estimate. Conversely, Visual Capitalist reported substantially lower estimates for Poland, Norway, and the Netherlands. Table 3 presents the countries with the greatest cross-source variation. The magnitude and direction of these discrepancies suggest that the sources may have relied on different population definitions, reporting periods, or data-collection methods. Estimates were compared as published; they refer to different reference dates (Statista, 2024; Visual Capitalist, 2022–2023) and were not standardized to a common reference date, population definition, or host-country population [25–27].

Table 3 Percentage differences between data sources (Statista vs. Visual Capitalist)

Country	Statista	Visual Capitalist (VC)	Absolute Difference (VC-Statista)	% Difference (VC-Statista)/Statista %
Portugal	59,350	1,564,711	1,505,361	+2,530.41%
North Macedonia	740	3,640	2,900	+393.16%

Russian Federation	1,212,585	2,852,395	1,639,810	+135.23%
Turkey	35,100	80,750	45,650	+130.11%
Poland	953,895	41,549	-912,346	−95.66%
Norway	43,055	4,122	-38,933	−90.43%
Netherlands	81,930	18,805	-63,125	−77.07%

Several methodological factors may explain these discrepancies. First, sources used different population definitions, including cumulative border crossings, currently registered refugees, temporary protection beneficiaries, asylum applicants, humanitarian entrants, and broader categories of displaced persons. Second, reporting periods and update frequencies varied, with some datasets updated frequently and others representing a single historical reference date. Third, secondary migration between host countries may have resulted in repeated registration or continued inclusion in multiple national datasets.

These inconsistencies have practical implications. Differences in refugee counts affect estimates of healthcare demand, housing needs, education capacity, humanitarian financing, and responsibility-sharing among host countries. Cross-source variation should therefore be considered a substantive finding related to the fragmentation of international displacement-data infrastructure rather than only a technical data-quality problem.

3.2 Ukrainian refugee admissions and temporary protection in the United States

The United States responded to Ukrainian displacement through several legally distinct pathways, including formal refugee resettlement, humanitarian parole, and Temporary Protected Status (TPS). The results indicate that temporary mechanisms were used at a substantially greater scale than the traditional U.S. Refugee Admissions Program (USRAP). Table 4 summarizes fiscal-year data for USRAP admissions, Uniting for Ukraine (U4U) approvals and arrivals, and TPS beneficiaries [24, 29, 30]. These categories represent different legal processes and should not be interpreted as directly interchangeable measures of refugee admission.

3.2.1 Temporary protection vs. formal resettlement pathways

The U.S. response involved three principal mechanisms. First, *USRAP provides formal refugee resettlement* following overseas processing and security screening. Based on the annual values shown in Table 4, nearly 3,000 Ukrainian refugees were admitted through USRAP from fiscal years 2022 through 2025 [24, 31]. Although this pathway provides a route toward permanent residence, it accounted for only a small proportion of the overall U.S. response.

Second, U4U, a sponsor-based humanitarian parole program, started in April 2022 [29]. Humanitarian parole provides temporary permission to enter and remain in the country but does not itself confer refugee status or permanent residence. A total of 382,700 applications were approved from 2022 to 2024, with approximately 163,000 actual arrivals, about 42.6% of approvals. The distinction between approvals and arrivals is important because an approved travel authorization does not necessarily indicate that an individual entered the United States.

Third, *TPS applied primarily to eligible Ukrainians already present in the United States.* Approximately 82,000 beneficiary events were reported [30, 32]. Because TPS is a protection from removal rather than an admissions program, these values should not be combined directly with arrival or refugee-admission counts to estimate the number of Ukrainians entering the country.

Figure 3 presents the monthly pattern of Ukrainian admissions or arrivals between October 2021 and December 2024. The series indicates a pronounced increase following the invasion, with the largest monthly peak occurring in late 2022 and additional increases during 2023 and 2024. Together, the findings demonstrate that the U.S. response relied primarily on temporary and administratively flexible mechanisms rather than conventional refugee resettlement. This approach facilitated more rapid protection but created important differences in legal status, access to benefits, duration of protection, and pathways to permanent residence. The limited role of USRAP relative to U4U illustrates the difficulty of using conventional resettlement infrastructure to respond rapidly to large-scale displacement.

Table 4 U.S. refugee admissions, U4U activity, and TPS for Ukrainian nationals, FY 2022–2025

Fiscal Year	USRAP Admissions (Ukraine)	U4U Parole Approvals (USCIS)	U4U Actual Arrivals (CBP)	TPS Beneficiaries
FY 2022	514	166,100	6,000	59,600
FY 2023	1,244	149,200	102,000	17,300
FY 2024	932	67,400	55,000	5,100
FY 2025	257	0	0	0
TOTAL	2,947	382,700	163,000	82,000

Note: Categories are not mutually exclusive and represent different administrative events. Values should not be summed to estimate unique individuals.

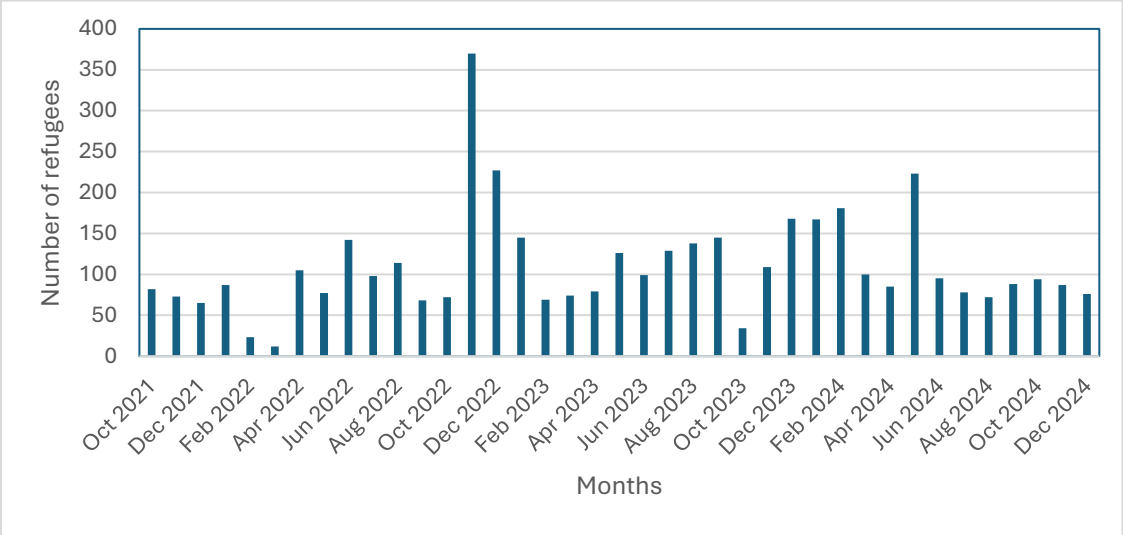


Fig. 3 Monthly U.S. arrivals of Ukrainian nationals through selected humanitarian pathways, October 2021–December 2024

3.3 Healthcare access across host countries

The healthcare access analysis reveals substantial variation in accessibility, comprehensiveness, and equity of services available to Ukrainian refugees across the ten host countries. Five domains were consistently identified across the document corpus, which are registration requirements, primary care access, mental health support, specialist care, and additional services. As summarized in Table 5, the ten host countries were grouped into four categories based on the overall accessibility, availability, and consistency of healthcare services for Ukrainian refugees. The ranking order is Comprehensive > Moderate > Limited > Highly constrained. Ratings represent comparative assessments reported in the reviewed documents. “Comprehensive” does not

indicate barrier-free access. In addition, ratings reflect national-level patterns and may not capture regional or local variation. The validated thematic coding demonstrated strong agreement between the two reviewers, with a Cohen's κ of 0.80.

Germany, the Netherlands, and Spain were classified as "***comprehensive***" access. They provide relatively streamlined enrollment and broad coverage of primary, specialist, and mental health services. Poland, Czechia, the United Kingdom, and Italy were categorized as "***moderate***" access. They offer formal coverage that is constrained by waiting times, regional variation, provider shortages, or referral requirements. Slovakia and the United States were classified as "***limited***" access. Both have significant administrative, geographic, financial, or insurance-related barriers. Moldova was categorized as "highly constrained" as it has limited healthcare capacity, complex enrollment procedures, and substantial reliance on humanitarian organizations.

Table 5 Comparison of healthcare access for Ukrainian refugees across 10 major host countries

Host country	Registration & enrollment	Primary care	Mental health support	Specialist care	Additional services*	Overall access rating
Germany	Comprehensive	Comprehensive	Comprehensive	Comprehensive	Moderate	Comprehensive
Spain	Comp	Comprehensive	Comprehensive	Comprehensive	Moderate	Comprehensive
Netherlands	Comprehensive	Comprehensive	Comprehensive	Comprehensive	Moderate	Comprehensive
United Kingdom	Moderate	Comprehensive	Moderate	Moderate	Moderate	Moderate
Czechia	Moderate	Moderate	Moderate	Moderate	**HC****	Moderate
Italy	Moderate	Moderate	Moderate	Moderate	**HC**	Moderate
Poland	Comprehensive	Moderate	Limited	Moderate	**HC**	Moderate
Slovakia	**HC**	Limited	Limited	Limited	**HC**	Limited
United States	Limited	Limited	Limited	Limited	**HC**	Limited
Moldova	**HC**	Limited	Limited	HC	**HC**	HC

* Additional services include dental, vision, reproductive, maternal, and pediatric care. ** **HC** is for "Highly Constrained"

3.3.1 Registration requirements and primary care access

Primary care was formally available in most countries, but effective access depended on provider availability, geographic location, language support, and knowledge of referral pathways. Registration requirements varied considerably across host countries and were grouped into three broad levels of administrative complexity.

- **Complex multistep registration systems** were identified in Slovakia and Moldova. In Slovakia, refugees generally must register with police, obtain temporary protection or residence permit, enroll with a health insurer, and identify a general practitioner. In Moldova, access is contingent on the temporary protection registration through the Bureau for Migration and Asylum, followed by separate enrollment with the National Health Insurance Company. These multistage procedures may delay access to care, particularly for older adults, people with disabilities, and refugees with limited language proficiency or documentation.
- **Single-identifier access** systems were represented by Poland, where obtaining a PESEL-based identification number provides access to publicly funded healthcare. Although this approach reduces the number of administrative steps, practical access

remains limited by shortages of general practitioners, particularly in border regions and other areas that received large numbers of refugees.

- **More streamlined** access systems were observed in Germany, the Netherlands, and Spain**.** In Germany, access to health coverage is generally initiated through municipal registration and enrollment in the applicable insurance or social assistance system. In the Netherlands, displaced Ukrainians can receive covered care under the Regulation on Medical Care for Displaced Persons from Ukraine. Spain issues a temporary protection certificate and individual health-card through regional health services. Although these systems reduce administrative barriers, refugees may still encounter delays related to local implementation, provider capacity, and unfamiliarity with healthcare procedures.

As summarized in Table 5, Germany, the Netherlands, Spain, and the United Kingdom offered comparatively broad primary care access, whereas availability was less consistent in Czechia, Italy, and Poland and limited in Slovakia, Moldova, and the United States.

3.3.2 Mental health and psychosocial support

Mental health emerged as one of the most persistent and insufficiently addressed areas of healthcare access across all host countries. Longitudinal evidence suggests that psychological and psychosocial needs have increased as displacement has become prolonged. A 2025 UNHCR report found that mental health and psychosocial problems affected 23% of individual refugees and 36% of refugee households, compared with 19% and 30%, respectively, in 2023 [22]. Recent clinical studies have also reported elevated levels of post-traumatic stress, depression, and anxiety among Ukrainian refugees, although prevalence estimates vary substantially according to the study population and assessment instrument [33].

Limited or predominantly NGO-supported services were identified in Slovakia, Poland, and Moldova. Although some publicly funded psychological services were formally available, shortages of trained professionals and Ukrainian- or Russian-speaking clinicians substantially constrained access. Fewer than 10% of refugees in these host countries access mental health services. In these settings, nongovernmental and humanitarian organizations often provided a large share of trauma-informed and psychosocial support.

Moderately available but capacity-constrained services were observed in Czechia, Italy, and the United Kingdom. Refugees could access some mental health services, but long waiting periods, referral requirements, limited culturally responsive care, and shortages of multilingual providers reduced timely access. In the United Kingdom, for example, access to specialized or trauma-focused therapy may be delayed by extended waiting lists, commonly exceeding six months.

More integrated mental health services were identified in Germany, the Netherlands, and Spain. These countries generally incorporated psychological and psychiatric care into broader healthcare coverage and supported specialized, refugee-focused, and multilingual programs. In Germany, statutory health insurance covers psychotherapy, and specialized directories help refugees identify Ukrainian- and Russian-speaking therapists [16]. In the Netherlands, covered services include psychological care as well as trauma-informed and multilingual support programs [35]. Nevertheless, demand frequently exceeded available capacity, and waiting periods of two to four months remained common even in these comparatively well-resourced systems.

It is worth noting that formal eligibility did not necessarily translate into timely or culturally appropriate care. Language barriers, limited knowledge of available services, stigma, provider shortages, and inconsistent referral processes remained common obstacles.

3.3.3 Specialist care and additional services

Access to specialist care varied markedly across host countries. Moldova and Slovakia exhibited the greatest challenges because of limited specialist capacity, uneven geographic distribution, and long waiting times. Poland and Czechia relied heavily on referral-based systems, where access was available in principle but frequently delayed. Italy also showed substantial regional variation, reflecting differences in local healthcare capacity and implementation.

Germany, the Netherlands, and Spain offered comparatively more integrated access to specialist services, although these systems also faced capacity constraints. In the United Kingdom, specialist care was available through the National Health Service but was frequently affected by referral bottlenecks and long waiting periods. In the United States, access depended strongly on state policies, insurance eligibility, humanitarian status, and the availability of safety-net or community-based services.

Coverage of additional services, such as dental, vision, reproductive, maternal, and pediatric care, was less consistent than primary care coverage. Dental services were particularly limited and often required co-payments or private payment. Reproductive and gynecological care was formally available in several countries, but language barriers, referral requirements, and regional shortages reduced practical accessibility. A 2025 cross-European survey found that approximately one quarter of refugees had temporarily returned to Ukraine to obtain services unavailable in host countries, most commonly for dental and gynecological care [36]. These findings underscore critical gaps between formal healthcare entitlement and the practical availability of specialized and supplementary services across host nations.

3.3.4 Common barriers to healthcare access

Despite substantial differences in healthcare systems, legal entitlements, and service capacity across host countries, several barriers emerged consistently throughout the reviewed documents. The most frequently reported barriers were language and communication challenges (98%), documentation and administrative complexity (87%), financial constraints (79%), geographical disparities (72%), and information gaps (68%). These barriers often operated in combination.

Language and communication barriers are the most frequently cited obstacle across the reviewed documents (98%). Professional medical interpretation remained limited even in well-resourced healthcare systems. In lower-resource or less integrated systems, the shortage of multilingual clinicians and interpreters was more fundamental. Many refugees, particularly older adults, relied on relatives or accompanying children to interpret during clinical encounters, raising concerns about privacy, informed consent, diagnostic accuracy, and continuity of care. Although some countries, including Germany, funded interpreter services, the availability of trained interpreters remained insufficient relative to demand.

Financial constraints persisted, at 79%, even in healthcare systems that formally provided free or subsidized services. Transportation expenses were rarely covered, and medication co-payments in countries such as Poland and Czechia, as well as dental charges in Germany and the United Kingdom, created substantial barriers for refugees with limited or no income. In the United States, access varied considerably by state, immigration status, eligibility for Medicaid, and availability of private or community-based assistance. IOM data from 2024 found that 49% of surveyed refugees could not cover an emergency expense of €100 [21].

Information gaps and administrative complexity were frequently reported (68–87%) regarding uncertainty about healthcare entitlements, how to find a provider, and how to navigate registration and referral procedures. A 2025 cross-European survey identified long waiting times as the most commonly reported barrier, affecting 64.2% of respondents,

followed by information-related barriers at 55.5% [36]. These challenges were particularly pronounced in countries with complex multistep registration systems including Slovakia and Moldova, where administrative complexity could delay care from the point of arrival.

Geographic disparities were reported at 72%, which further widened the gap between formal healthcare eligibility and effective access to timely care. Healthcare services, interpreters, and specialized refugee programs were concentrated primarily in major urban cities and large reception centers. Refugees placed in rural areas or smaller municipalities experienced more limited access to general practitioners, specialists, mental health professionals, and transportation.

Together, these findings indicate that healthcare access depends not only on whether services are formally available, but also on whether refugees can understand, navigate, afford, and physically reach those services.

Table 6 Prevalence and manifestations of healthcare access barriers identified in the reviewed documents

Barrier	Prevalence	Primary Manifestations	Examples of Affected Countries	Policy Implications
Language barriers	98%	Interpreter shortages; reliance on child interpreters	All countries	Mandate professional medical interpretation; fund multilingual patient navigation
Documentation/ Administrative complexity	87%	Multi-step registration delaying care access for weeks	Slovakia, Moldova, Italy	Streamline registration to single national ID system; digitize onboarding
Financial constraints	79%	Co-pay for medications and dental; transportation costs; no income during early settlement	Moldova, Poland, Czechia, USA	Expand fee waivers; integrate transportation subsidies into refugee support packages
Geographic disparities	72%	Service concentration in major cities; rural areas lack GPs and specialists	Poland, Czechia, Italy	Develop mobile health units; expand telehealth to rural reception areas
Information gaps	68%	Refugees unaware of entitlements, referral pathways, and available services	All countries	Deploy multilingual health navigators; create standardized orientation materials at arrival

* Prevalence was calculated as the percentage of the 51 included documents that mentioned each barrier at least once.

4 Discussion

4.1 Displacement patterns and policy implications

The geographic distribution of Ukrainian refugees reflects the combined influence of geographic proximity, policy design, economic opportunity, and pre-existing diaspora networks. The EU's Temporary Protection Directive played a central role in this process by granting immediate legal status and facilitating mobility across participating countries [12, 13].

A key finding was the distinction between initial reception and longer-term settlement. Poland, Moldova, Romania, and other countries bordering Ukraine received a large proportion of arrivals during the first few months of the crisis, particularly between

February and April 2022. Over time, however, Germany became the largest host country in the EU. This pattern suggests that geographic proximity strongly influenced immediate destination choice, whereas longer-term residence was increasingly shaped by employment opportunities, social networks, housing availability, perceived service accessibility, and established Ukrainian communities.

The analysis also identified substantial discrepancies across refugee data sources. Reported estimates varied according to population definitions, reference dates, reporting frequency, and data-collection methods. These inconsistencies reduce the reliability of cross-country comparisons and may compromise planning for healthcare, housing, humanitarian financing, and responsibility-sharing.

Secondary movement within Europe further complicates burden-sharing [7, 8]. Countries that receive large initial inflows may continue to bear considerable administrative and financial costs even after some refugees relocate elsewhere. Funding models based solely on current registered populations may therefore underestimate the cumulative burden associated with reception, emergency assistance, registration, and early-stage assistance.

Temporal fluctuations in displacement also highlight the need for adaptive response systems. Refugee movements are influenced by changes in conflict intensity, infrastructure damage, border policies, and conditions in host countries. Humanitarian planning based only on annual forecasts may therefore be insufficient. More flexible systems are needed to rapidly expand registration, housing, healthcare, and social-support capacity in response to sudden surges.

4.2 Healthcare access disparities

Although all host countries established legal mechanisms intended to provide Ukrainian refugees with healthcare access, the quality and timeliness of implementation varied substantially. These differences reflected national healthcare capacity, administrative structure, workforce availability, financing arrangements, and the degree to which refugee services were integrated into existing systems. Germany, the Netherlands, and Spain generally offered broader and more integrated coverage, whereas countries with more limited resources or fragmented administrative systems experienced greater barriers.

Mental health and psychosocial support emerged as the most consistent service gap [22]. Studies have reported elevated rates of depression, anxiety, and post-traumatic stress among Ukrainian refugees [33], although estimates vary by population and measurement approach. Despite substantial need, access to trauma-informed, culturally responsive, and multilingual services remained limited, particularly in Eastern European host countries and in systems heavily dependent on nongovernmental organizations.

Language and communication barriers, administrative complexity, financial constraints, geographic disparities, and information gaps affected access across all healthcare-system types, as described in Section 3.3.4. These barriers disproportionately affected older adults, people with disabilities or chronic conditions, single parents, individuals with limited digital or language literacy, and refugees requiring ongoing specialist care.

Gender-specific healthcare needs also require greater attention. Adult women comprise a large proportion of the displaced population, accounting for approximately 43.5% of EU temporary protection beneficiaries, or roughly 62% of adult beneficiaries [19]. There is sustained demand for maternal, reproductive, and gynecological services, as well as support for survivors of gender-based violence. Gaps in these areas may have particularly serious consequences when combined with other barriers and limited availability of culturally appropriate care.

Overall, the findings demonstrate that legal entitlement is necessary but insufficient to ensure equitable healthcare access. Professional interpretation should be treated as a core

component of care, while simplified enrollment and coordinated navigation support are needed to reduce administrative delays. Policy responses should therefore move beyond formal coverage and focus on whether refugees can obtain timely, affordable, appropriate, and culturally responsive services in practice.

5 Conclusion

The Ukrainian refugee crisis has exposed both the adaptability and the limitations of existing humanitarian protection systems. This mixed-methods analysis found that displacement became prolonged and increasingly redistributed within Europe. There are major inconsistencies across reporting sources that continue to hinder reliable planning and international coordination. Across the ten host countries, healthcare access ranged from comprehensive in Germany, the Netherlands, and Spain to highly constrained in Moldova. In addition, formal eligibility did not consistently translate into timely and equitable care. Refugees continued to face language, administrative, financial, geographic, and healthcare-navigation barriers, along with inadequate mental health and psychosocial support. These findings highlight the need for harmonized refugee-data standards, durable legal pathways, integrated mental health services, professional interpretation, simplified enrollment, multilingual navigation support, and expanded telehealth and mobile care.

Future research should evaluate long-term integration and health outcomes, assess the effectiveness of refugee-focused interventions, and develop more responsive models for anticipating displacement and service demand. By linking displacement trends with healthcare-access conditions, this study provides evidence to support more coordinated, equitable, and sustainable responses to prolonged refugee crises.

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