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Strengthening Health Policy and Systems Research in the Middle East & North Africa (MENA) Region: An Assessment of the Challenges and Recommendations for a Future Research Agenda

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Abbreviations

AMR:	Antimicrobial Resistance
AI:	Artificial Intelligence
EHRs:	Electronic Health Records
GCC:	Gulf Cooperation Council
HIS:	Health Information Systems
HPSR:	Health Policy and Systems Research
IDPs:	Internally Displaced Persons
MENA:	Middle East and North Africa
NCDs:	Non-Communicable Diseases
NGOs:	Non-Governmental Organizations
OOP:	Out-of-Pocket
PHC:	Primary Healthcare
PPPs:	Public-Private Partnerships
UHC:	Universal Health Coverage
UNDP:	United Nations Development Programme
UNHCR:	United Nations High Commissioner for Refugees
WHO:	World Health Organization

Executive Summary

The Middle East and North Africa (MENA) region is marked by remarkable diversity in its socioeconomic, political, and cultural landscapes. The region presents a complex array of health system challenges.

Despite notable progress in health outcomes over the past two decades, regional health systems remain challenged by fragmentation, inequitable access, workforce shortages, and the dual burden of infectious and chronic diseases.

While health policy and systems research (HPSR) capacity is developing, there is a need for research that is contextually relevant and responsive to the region's diverse needs. Furthermore, addressing the identified priority themes will be critical for achieving universal health coverage and improving population health outcomes across this diverse region.

This scoping review synthesizes two decades of literature, policy documents, and stakeholder input to identify the most pressing health systems and policy challenges in the MENA region.

The review identifies the following health system challenges for the MENA region:

1. Health System Leadership and Governance
2. Healthcare Workforce Development and Strengthening
3. Health Financing and Sustainability
4. Emergency Preparedness, Response, and Resilience
5. NCDs and Mental Health
6. Climate Change and Health
7. Artificial Intelligence (AI), Digital Health, and Health Information Systems (HIS)
8. Antimicrobial Resistance (AMR)

Building on these challenges, we recommend the following areas of priority in order to strengthen health systems and improve population health outcomes in the Middle Eastern region:

- the facilitation of a partnership working agenda between academic institutions, governments, and international organizations to support research capacity building and knowledge exchange.
- increased emphasis and implementation of stakeholder engagement exercises and incentives that involve policymakers, healthcare providers, and community representatives.
- building an agenda of public-private partnerships, with a research agenda that can engage international donors, regional organizations, and private sector partners to support high-priority research projects represents an important next step.
- learning from and building existing knowledge and evidence regarding health system improvement, with an implementation science agenda that facilitates the translation of research findings into policy and practice.
- encouraging the dissemination and translation of research findings through peer-reviewed publications, conference presentations, policy briefs, and other channels to inform decision-making and research prioritisation efforts.

Introduction

The MENA region, as defined by the World Bank, encompasses a diverse group of countries spanning North Africa, the Levant, and the Arabian Peninsula. This region includes (21 countries) Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, the United Arab Emirates (UAE), West Bank and Gaza, and Yemen (1, 2).

This complex geographical landscape experiences significant economic disparities, with some nations benefiting from vast oil and gas reserves, while others struggle with poverty and limited natural resources (3, 4). The region has the highest youth unemployment rate averaging 24.4% in 2023, nearly double the global average of 13.0% (5). This economic instability is further exacerbated by political unrest and conflict (6,7,8,9).

The MENA region has a young and rapidly growing population, with over 60% of its inhabitants under the age of 30 (10). The region is also experiencing a demographic transition, with declining fertility rates and increasing life expectancy (2). The population is aging, leading to a growing burden of chronic diseases such as diabetes, cardiovascular diseases, and cancer (11,12,13,14). Migration and displacement are additional critical demographic issues (2), where the region has some of the largest populations of refugees and internally displaced persons (IDPs) in the world, primarily due to conflicts in Syria, Yemen, and Libya (15).

This combination of economic, political, and social factors leads to a diverse range of health system challenges for the MENA region. Rapid urbanization, demographic transitions, and epidemiological shifts have intensified the demand for healthcare services while posing new challenges to health systems. The dual burden of disease, combating non-communicable diseases (NCDs) while addressing infectious diseases poses additional challenges (12,16). Migrant populations often face significant barriers to accessing healthcare, including legal, financial, and cultural obstacles (8).

While some nations, such as the Gulf Cooperation Council (GCC) states, have advanced healthcare infrastructure and high health expenditures, others, particularly conflict-affected countries like Yemen and Syria, struggle with fragmented and under-resourced systems (4,6,17,18,19). Yet despite these disparities, common challenges include inequitable access to care, workforce shortages, and the growing burden of NCDs (13,14,16,20).

The Need for Further Research

Over the past two decades, countries in the MENA region have made significant strides in health systems development, but they continue to face complex and multifaceted challenges (13,16). These challenges have been exacerbated by socio-political instability, conflicts, rapid urbanization, and shifting disease burdens. The region's ability to achieve universal health coverage (UHC) and improve health outcomes faces various challenges (21).

Health policy and systems research (HPSR) is crucial for addressing these challenges and improving health outcomes (22). However, HPSR capacity in the region remains underdeveloped, with limited funding, weak institutional frameworks, and a lack of trained researchers. Despite these challenges, there has been growing recognition of the importance of HPSR in informing policy and practice (14,19).

The purpose of this scoping report is to provide an overview of health systems and policy challenges in the MENA region. Its aim is to identify key health challenges and identify priority research areas (themes) to inform the development of a regional health system research agenda.

This scoping review aims to address the following research question:

What are the key health system challenges and population health needs within the Eastern Mediterranean/MENA Region, and how can these inform the development of recommendations for a MENA health system research agenda?

Methodology

A comprehensive literature review was conducted by searching different search engines and databases including PubMed, Google Scholar, and other electronic resources to identify articles and publications describing health systems challenges in the MENA region during the period from 2004 to 2024. The review process also included grey literature, official reports, policy and planning documents, and online resources by international organizations such as the United Nations agencies (UN), specifically the World Health Organization (WHO), United Nations Development Program (UNDP), and the World Bank.

The literature review was conducted using tailored search terms and keywords related to the topic including health policy and systems research, health systems and policy challenges, HSP research priorities, health financing, health outcomes, Middle East and North Africa region, MENA countries, Eastern Mediterranean, and by applying different combinations of these keywords. The identified references were reviewed to extract, analyze, organize and report the findings.

Documents were included in the review, including resolutions, reports on Health Policy and Systems Research (HPSR) and health systems in general produced by WHO departments and the Alliance for Health Policy and Systems Research, reports of (high level) Task Forces on HPSR, and documents originating from outside WHO that helped to clarify certain topics that emerged as part of the review.

A qualitative thematic analysis was conducted to identify and extract key themes and patterns in the data. This involved organizing the data, grouping into categories, and identifying overarching themes related to health system priorities and population needs in the MENA region. The findings were then synthesized and summarized to provide a comprehensive overview of the current state of knowledge, highlighting key challenges, opportunities, and areas for future research prioritization. Additional input was gained via the Thematic Working Group on Teaching and Learning of HPSR (TWG T&L) from subject matter experts and stakeholders at the 8th Global Symposium on Health Systems Research (HSR 2024).

Findings

Our review identified the following research challenges for the MENA region:

I. Health System Leadership & Governance

Effective governance is crucial for the functioning of health systems while effective leadership is essential for the successful implementation of health policies and programs. Transparency,

accountability, and good governance are key factors that influence health financing effectiveness (23).

According to the WHO's Health Systems Governance for Universal Health Coverage report, health system governance in the region is often undermined by political interference, weak regulatory frameworks, and a lack of transparency in decision-making processes (24). Political instability, economic disparities, and low levels of public trust adversely affect health governance, leading to ineffective public health management (25,26). Additionally, ongoing conflicts in parts of the MENA region severely disrupt health services and governance, posing significant barriers to implementing effective health policies (27).

One of the primary issues is the fragmentation of health systems and a lack of coherence in health governance. Many MENA countries experience weak institutional frameworks that result in inefficient resource allocation and duplicated efforts, hindering effective policymaking and implementation (28). This fragmentation is particularly problematic in managing NCDs and responding to public health emergencies like the COVID-19 pandemic, where coordinated efforts are essential (29).

Weak accountability and limited transparency are significant governance challenges in the MENA region. Underdeveloped social accountability structures restrict communities from holding providers and policymakers accountable. Stakeholder participation in decision-making is often limited, potentially leading to inadequate policies. Limited involvement of non-governmental actors and civil society organizations in policy formulation and implementation reduces program ownership and impact (19,29).

Another significant challenge is the insufficient training and development of health leaders and policymakers. Many MENA countries do not invest adequately in capacity-building initiatives for health professionals, which are crucial for fostering effective governance and innovative health solutions (19). Weak leadership and leadership turnover can lead to ineffective crisis management, as seen during the pandemic when many MENA countries were slow to respond due to a lack of coordinated leadership and strategic planning (30).

II. Health Workforce Development & Strengthening

The health workforce is the backbone of any health system, and in the MENA region, various challenges impact its efficiency and sustainability (29). The region experiences difficulties related to recruitment, retention, professional licensing, continuous education, and the need for a strong organizational culture with clear policies to support workforce diversity (29). Addressing these challenges is critical for ensuring a resilient health system capable of meeting the evolving health needs of the population.

A key challenge is the variation in human resource for health distribution and density among and within MENA countries. While the mean physician density in the region stands at 20 physicians per 10,000 population, higher than the global average of 13.9, many countries within the region fall below the physician density expected for their income levels (29, 30). A similar pattern is observed in the nursing and midwifery workforce, with an average density of 36.8 per 10,000, surpassing the global figure of 28.6 but remaining inadequate in certain countries (30). Moreover, the workforce is largely concentrated in urban areas, leaving rural populations underserved (16). This urban-rural disparity, coupled with a shortage of female health professionals due to cultural considerations, exacerbates access issues (16).

Another pressing concern is the migration of healthcare professionals. Many MENA countries, particularly low-income ones, struggle with retaining qualified professionals due to limited employment opportunities, weak deployment strategies, and insufficient policies for workforce management (31). Meanwhile, the Gulf Cooperation Council (GCC) countries heavily rely on expatriate medical staff, with approximately 80% of their workforce trained outside the region in over 50 different countries (31). In response, GCC nations are implementing educational frameworks to develop the skills of local healthcare professionals and reduce dependency on foreign-trained personnel (32). However, despite these initiatives, the growing demand for healthcare professionals, driven by demographic changes and an increasing burden of non-communicable diseases (NCDs), poses a significant challenge (33).

There is a shortage of public health practitioners, further limiting the region's ability to address epidemiological transitions. This deficiency in structured training and career pathways, combined with underdeveloped public health infrastructure, poses a challenge to integrating preventive and health promotion services with curative care (16). Research capacity is another critical issue. The MENA region has an insufficient number of academic researchers in the health sector, with an average of only 25 health workers per 100,000 people in Organization of Islamic Cooperation (OIC) countries, barely surpassing the threshold needed to deliver basic health services (14). The lack of emphasis on research training in medical education, coupled with heavy clinical workloads, limits health workers' ability to engage in research (34).

III. Health Financing & Sustainability

Health financing remains one of the most pressing challenges in the MENA region. Despite the region's relatively high income in some countries, there is a heavy reliance on out-of-pocket (OOP) payments, which leads to financial barriers to care, particularly for low-income and vulnerable populations (35). In 2014, OOP spending ranged from as low as 6% in Oman to 76% in Yemen and Sudan, with GCC countries having lower OOP spending on health services than other MENA countries (30). According to the Institute of Health Metrics and Evaluation, OOP spending in the MENA region has increased from 32 billion US dollars in 1995 to 68 billion dollars in 2018, a large amount considering that the total government spending on health care that year was only 130 billion US dollars (36).

Countries in the MENA region have some of the lowest percentages of public expenditure on health when compared to other countries in the world, representing 3.2% of GDP (35,37,38). However, healthcare expenditure in the MENA region varies widely (18). High-income countries invest significantly more in healthcare, but even in wealthier nations, health systems face challenges related to inefficiency, inequity, and over-reliance on expatriate healthcare workers (37,38). In conflict-affected areas, healthcare financing is often inadequate or non-existent (3,8).

While wealthier MENA countries have made progress in financing health services through public insurance schemes, many lower-income countries still rely heavily on donor funding or face the challenge of financing health programs sustainably (39). The region's dependence on oil revenues also presents a significant challenge to health financing sustainability. Fluctuations in oil prices can destabilize national health budgets, as evidenced by countries like Saudi Arabia, which has faced budget cuts in the health sector during periods of economic downturn (4). This volatility, coupled with rising healthcare costs due to aging populations and the increasing burden of NCDs, requires a shift toward more diversified and sustainable health financing mechanisms (39, 40).

Health financing is a critical component of health systems, as it determines the availability and quality of health services (29,38). In the MENA region, there is a strong need for research

investigating effective and equitable health financing mechanisms. Building a more equitable and sustainable health financing landscape will require an interdisciplinary approach involving collaboration among economic, social, and health policy professionals aimed at enhancing research output and developing practical solutions tailored to the region's unique challenges (29). This highlights the importance of developing sustainable financing models that can support health systems in the long term (29).

IV. Emergency Preparedness, Response & Resilience

Emergency preparedness, response, and resilience in health systems are critical in the MENA region, given the frequency of crises such as armed conflicts, political instability, natural disasters, and health emergencies (e.g., pandemics). The regional response to the pandemic varied significantly, with GCC countries better prepared due to rapid national responses and recovery plans, while low- and middle-income countries, particularly those affected by conflict, faced additional vulnerabilities (41).

Countries like Syria, Yemen, and Libya have experienced prolonged conflict, leading to the destruction of health infrastructure, displacement of populations, and disruption of health services. At the same time, countries in the region face natural disaster risks, including earthquakes, floods, and extreme weather events linked to climate change, which further strain already fragile health systems.

Prior to the pandemic, healthcare systems in many MENA countries, particularly middle-income nations, suffered from underfunding despite an increasing share of public sector spending as a portion of GDP (42). The pandemic exposed the inadequacies of core public health resilience elements, and exacerbated existing weaknesses in the region's health systems, such as inequitable financing, fragmented care delivery, limited resources, and inadequate surveillance systems (41).

According to the WHO, health systems must not only be able to respond to acute emergencies but also have the capacity to recover and continue providing essential services during and after crises (43). Resilience involves the ability to absorb, adapt to, and recover from shocks, ensuring continuity of care even in the face of adversity (42).

V. Non-Communicable Diseases (NCDs) & Mental Health

Non-communicable diseases (NCDs) such as heart disease, diabetes, cancer, and chronic respiratory diseases are now the leading cause of death and disability in the MENA region (13,14, 20, 44). According to the WHO, NCDs account for nearly 66% of all deaths in the Eastern Mediterranean region, with lifestyle factors such as poor diet, physical inactivity, smoking, and alcohol consumption playing a significant role in their rising prevalence (14,16,20,30,44). In addition, demographic shifts including an aging population and urbanization are further exacerbating the burden of NCDs (45).

While many MENA countries have made significant progress in controlling infectious diseases, the focus on NCDs in health systems has been limited (14). Health systems in the region are often primarily structured around treating acute conditions and infectious diseases, with inadequate infrastructure and capacity to manage chronic diseases effectively (16,39,46). Primary healthcare (PHC) systems are underdeveloped in many countries, and there is a general lack of integration between NCD management and other aspects of health services (16). As a result, NCDs are often treated in isolation rather than as part of a comprehensive, long-term care model. This results in

fragmented care, poorly coordinated services, and insufficient focus on prevention, screening, and early diagnosis.

The rise of NCDs poses both a health and economic challenge for the MENA region (46,47). NCDs are associated with long-term health costs, such as expensive medications, hospital admissions, and surgeries, placing immense pressure on national health budgets (39). Additionally, the productivity losses from premature morbidity and mortality related to NCDs further hinder economic growth and development in many MENA countries (14).

Mental health disorders, including substance use disorder, pose a significant public health burden in the MENA region. According to the WHO, one in eight individuals worldwide suffers from a mental disorder (48). Major Depression is particularly concerning, as it is the leading cause of disability globally and is projected to become the second leading cause of disability in MENA by 2030 (48,50).

Despite the high burden of mental health disorders, public health research on the issue in MENA remains scarce (51). This research gap is exacerbated by widespread stigma surrounding mental illness, which discourages individuals from seeking treatment and contributes to underreporting (51). Sociocultural factors, including societal attitudes, religious beliefs, and misconceptions about mental health, further deter people from accessing care (52). Many individuals in the region prioritize somatic symptoms over emotional distress due to limited mental health awareness (53). Additionally, some religious interpretations may discourage reliance on Western therapeutic interventions, while others incorporate faith-based approaches to well-being (54).

A critical challenge in mental healthcare delivery is the shortage of trained professionals, further exacerbated by the "brain drain" phenomenon, where mental health professionals migrate abroad, leaving a gap in services (55,56). This limits diagnostic and treatment capacity across the region.

Encouragingly, since 2017, 70% of MENA countries have reported implementing mental health policy reforms, reflecting a growing awareness of the issue (50). However, substance use disorders remain a major concern. The region includes areas known for high opium and cannabis production, and recent conflicts and social unrest have fuelled substance abuse rates (57). In war-affected areas, worsening mental health conditions contribute to increased substance use, while drug trafficking financially sustains warring factions, perpetuating instability (58).

VI. Climate Change & Health

Climate change is a critical threat to health in the Middle East and North Africa (MENA), exacerbating existing challenges and introducing new risks (59). The region is warming at a faster rate than the global average, with summer temperatures projected to rise by up to 4°C by the end of the century, leading to unprecedented heatwaves affecting over 100 million people by 2060 (60). This extreme heat will increase cases of heat-related illnesses and aggravate chronic conditions such as cardiovascular and respiratory diseases, particularly among vulnerable populations (61).

Water scarcity is another major challenge, with 11 of the 17 most water-stressed countries located in MENA. Nearly 90% of children in the region live in areas of high or extremely high-water stress, which contributes to malnutrition and waterborne diseases (59,62). The combined effects of rising temperatures, drought, and declining water resources threaten food security, with crop yields expected to decline by 30% under 1.5–2°C warming and up to 60% under 3–4°C warming (27).

These factors place additional strain on health systems, which are already struggling to address basic public health needs (63). Rising sea levels further threaten MENA's coastal populations, with 43 port cities at risk, including in Egypt, Tunisia, Libya, and the UAE. Additionally, climate-induced displacement is expected to rise, with an estimated 19 million people on the move in North Africa by 2050 (64).

Health systems in MENA face significant adaptation challenges, including inadequate infrastructure, poor coordination among stakeholders, and limited integration of climate considerations into health policies (65).

VII. Artificial Intelligence, Digital Health & Health Information Systems (HIS)

Health Information Systems (HIS) are essential for improving healthcare delivery, policymaking, and health outcomes in the MENA region. These systems facilitate data-driven decision-making by integrating people, institutions, technologies, and regulations to ensure efficient healthcare management (66). However, the region faces multiple challenges in implementing robust HIS, including fragmentation, lack of interoperability, financial constraints, and political instability (29,67).

The fragmentation of healthcare services in MENA results in inefficient data sharing and limits the potential for evidence-based decision-making (29). Many countries lack standardized protocols, making real-time data access difficult, especially in emergency situations like disease outbreaks (67). Additionally, the underdevelopment of HIS infrastructure and limited investment in health IT solutions hinder progress (16). While some countries are investing in electronic health records and data capture systems, the region still struggles with ensuring data reliability and availability (16).

Digital health solutions, including telemedicine and mobile health, offer promising avenues to improve healthcare accessibility and efficiency (68). The COVID-19 pandemic underscored their importance in delivering remote care and reducing transmission risks (67). However, digital health remains underutilized in fragile MENA states due to disparities in research and implementation (16).

Artificial Intelligence (AI) can revolutionize healthcare by enhancing diagnostics, predicting disease outbreaks, and optimizing resource allocation. AI-driven tools improve data analysis speed and accuracy, enabling more effective healthcare responses (69). However, challenges such as data privacy concerns, a shortage of skilled personnel, and regulatory gaps hinder AI adoption in MENA (70,71).

VIII. Antimicrobial Resistance (AMR)

Antimicrobial resistance (AMR) is a growing public health threat globally, and regionally where unique socio-economic and healthcare dynamics exacerbate the challenge (72). AMR occurs when microorganisms such as bacteria, fungi, viruses, and parasites evolve to resist the drugs that once killed them, leading to infections that are harder to treat and increasing the risk of transmission, severe illness, and death (73).

The Eastern Mediterranean region reports some of the highest antibiotic resistance levels globally, with sepsis-related deaths in 2019 reaching 431,000 cases associated with resistance, and 115,000 directly attributed to bacterial resistance (74). This alarming trend is driven by excessive antibiotic use, which remains the highest and most rapidly increasing in the Middle East and North Africa (74).

The COVID-19 pandemic further exacerbated AMR challenges due to increased inappropriate antibiotic use (74). However, it also accelerated advancements in infection prevention and control (IPC), with 17 out of 22 EMRO countries now implementing IPC programs (74). Despite these improvements, surveillance efforts remain fragmented. The region lacks comprehensive antimicrobial resistance surveillance in food-producing animals and foodborne bacteria, impeding a full understanding of AMR transmission (73). Additionally, while TB, HIV, and malaria resistance data are relatively well-documented, overall data on AMR's magnitude and socio-economic impact remain limited (73).

Laboratory capacity is a significant hurdle, with less than half of EMRO countries having a national reference laboratory, and only five participating in external quality assessments (75) Weak regulatory frameworks further compromise AMR containment. Only ten countries have national regulatory authorities, and just seven can enforce antimicrobial quality standards (75). The widespread availability of counterfeit medicines and unregulated online antimicrobial sales exacerbate the issue (75).

Recommendations for a Future Research Agenda

Our analysis identifies a range of challenges for the MENA region. Building on these challenges, we recommend the following areas of priority to strengthen health systems and improve population health outcomes in the Middle Eastern region:

- **Foster Regional Collaboration:** we recommend the facilitation of a partnership working agenda between academic institutions, governments, and international organizations to support research capacity building and knowledge exchange.
- **Engage Stakeholders:** increased emphasis and implementation of stakeholder engagement exercises and incentives are needed that involve policymakers, healthcare providers, and community representatives. The role of research and development should be central to these endeavours, with research processes that ensure findings are context-specific and actionable.
- **Leverage Funding Opportunities:** building on an agenda of public-private partnerships, how a research agenda can engage international donors, regional organizations, and private sector partners to support high-priority research projects represents an important next step.
- **Promote Knowledge Translation:** learning from and building existing knowledge and evidence regarding health system improvement represents an important next step for the MENA region. An implementation science agenda is called for to facilitate mechanisms that translate research findings into policy and practice, ensuring that evidence informs health system reforms.
- **Knowledge Dissemination:** encouraging the dissemination and translation of research findings through peer-reviewed publications, conference presentations, policy briefs, and other channels to inform decision-making and research prioritisation efforts in the Eastern Mediterranean/MENA Region.

By focusing on these areas, we encourage a health systems research agenda that can play a pivotal role in addressing the MENA region’s health system challenges, improving health outcomes, and advancing toward universal health coverage.

Limitations

This scoping review, while comprehensive, has limitations that should be acknowledged. First, despite efforts to include a wide range of sources, the review may still reflect selection bias, as studies and reports from low-resource or conflict-affected settings are often underrepresented in the literature. Second, the heterogeneity of health systems across the MENA region poses a challenge for generalizing findings, as the applicability of research priorities may vary significantly between high-income Gulf states and low-income or fragile states. Third, while the review incorporated insights from stakeholder surveys, interviews, and consultations, the perspectives of some key stakeholders, particularly those in remote or underserved areas, may not have been fully captured. Additionally, the review is constrained by the availability of recent and high-quality data, especially in emerging areas such Artificial Intelligence (AI), antimicrobial resistance (AMR), and climate change. Finally, the exclusion of non-English literature may have omitted relevant studies, particularly those from local contexts. These limitations underscore the need for ongoing primary research, expanded stakeholder engagement, and the inclusion of diverse data sources to further refine and validate the identified research priorities.

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