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Healthcare Capacity Building in Northwest Syria: Challenges, Successes, and Lessons Learned

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ABSTRACT The conflict in Syria has caused significant loss of life and widespread displacement. Northwest Syria (NWS) has been heavily impacted, leading to challenges in providing healthcare services. Attacks on healthcare workers and facilities have worsened the situation. Healthcare students and professionals have been specifically targeted, disrupting their education and resulting in migration and shortage of skilled healthcare workers. To address these challenges, local and international organizations and institutions have supported long-term projects to improve healthcare facilities and provide trained healthcare workforce. Collaborations with multiple stakeholders have been established to ensure comprehensive and effective training opportunities, enabling healthcare workers to better serve the population's healthcare needs. A range of undergraduate, postgraduate, and research programs have been developed to enhance healthcare capacity building. These programs aim to strengthen the knowledge and skills of healthcare professionals in NWS. Efforts have been made to strengthen the health system and build the capacity of policy makers in utilizing evidence-based knowledge for informed policy decisions. Global and regional partnerships, along with adequate funding, have played a significant role in the successful enhancement of capacity building activities at all levels. Building healthcare and health research capacity in underdeveloped and conflict-affected parts of NWS present numerous challenges. Underdeveloped infrastructure, inadequate teaching and service delivery tools, gender disparities, and the sustainability of funding creates obstacles to effective capacity building. The political context, coupled with security concerns further complicate efforts. The accreditation of education and brain drain of skilled healthcare professionals add to the difficulties in strengthening the healthcare system in NWS. Addressing these challenges requires comprehensive and collaborative approaches that prioritize stability, security, gender equity, sustainable funding, and improved coordination and resources for education and service delivery. The lessons learned from capacity building efforts in the Syrian conflict have broader implications for other regions facing similar challenges.

KEY WORDS capacity building, healthcare facilities, healthcare manpower, healthcare services, northwest syria, syrian conflict

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BACKGROUND

The ongoing conflict in the Syrian Arab Republic, which initially started as a peaceful protest, has resulted in a devastating loss of millions of lives. This crisis has become one of the world's most significant and constantly evolving humanitarian emergencies, leading to a massive evacuation effort. Out of the total population of 23 million in Syria in 2010, a staggering number of Syrians have been displaced due to the conflict. According to the United Nations High Commissioner for Refugees-UNHCR, nearly half of the population has been forced to leave their homes, with approximately 3.5 million individuals seeking refuge in Turkey and another 1.6 million in the Middle East and North African region (Situation Syria Regional Refugee Response, 2023). In addition to the significant number of refugees a substantial population of internally displaced people resides in Northwest Syria (NWS) that comprises Idlib province and parts of Aleppo, covering an area of 6,000 square kilometres. This region is home to an estimated population of around 4.5 million people, as reported by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) in 2023 (North-west Syria, 2023). This figure highlights the complex humanitarian situation within NWS, which is already grappling with the consequences of armed conflict and being under the control of various armed groups. This situation compounds the challenges in delivering vital services and meeting the needs of the affected population.

In NWS, the ongoing conflict has had a devastating impact on civilian infrastructure, including healthcare training and services facilities. Moreover, the prolonged and complex nature of the warfare, involving multiple actors at both national and international levels, has further exacerbated the challenges faced by the healthcare system (Spiegel, 2017). This has led to a significant undermining of healthcare services, making it increasingly difficult to meet the healthcare needs of the population in NWS. The sparks of violence on healthcare services have garnered a lot of attention internationally (Ekzayez, 2020). This attention is mainly due to the fact that these violent attacks on healthcare services cause an interruption in the accessibility of healthcare services to millions of people who are in need. According to the World Health Organization (WHO), a total of 70% of global attacks on medical facilities, ambulances, services and healthcare workers have occurred in Syria (WHO, 2018). The target on health services undermines International Humanitarian Law and Geneva Convention, which are based on the principle of non-interference with medical services in times of armed conflict or civil strife as well as promote the freedom of doctors, paramedics, nurses and other healthcare providers to care for and care for the sick and wounded regardless of political affiliation (International Humanitarian Law, 2023; Customary IHL, 2023, Druce et. al., 2019). Between 2012 and 2016, almost 75% of Syrian health workers left the country because of the crisis. In Aleppo province (northern Syria), 95% of doctors have fled after a series of kidnappings, attacks, killings, and extortion trials (Medical Personnel, 2023). Additionally, 595 attacks were carried out against 350 different health facilities and at least 930 health workers were killed (Douedari et. al., 2020). Most were killed by shelling and bombing, followed by shooting, torture and executions. Among health workers, the most affected were physicians, who accounted for 32% of the deaths (Fouad et. al., 2017).

Many medical, dental, veterinary and pharmacy students were also targeted resulting in the interruption of healthcare professional undergraduate and postgraduate education in NWS with little chance to produce new health workers and maintain the healthcare workforce. During the conflict it is essential to ensure an adequate supply of health workers with the right educational training and skills that meet the needs of the health system. However, the healthcare system in NWS is understaffed, underfunded and has become increasingly fragmented and politicised by the on-going conflict. A shortage of faculty lecturers has impacted teaching and training. Consequently, students and young professionals in NWS have been subjected to insufficient training and supervision, necessitating work beyond the scope of their education and expertise (Bdaiwi et. al., 2020). It was estimated that 10% of displaced healthcare students and workers were not able to return to the education process due to security concerns or the destruction of education centres. Moreover, 70% of healthcare workers in NWS are working either without completing their professional education or without possessing medical certificates (SAMS, 2018).

In response to the challenging circumstances, both local and international organisations have promptly stepped in to ensure the continuity of healthcare training and services. They have extended support and established health institutes and academies with the aim of enhancing the skills of healthcare workers and producing new graduates to fill the gaps created by the migration of medical personnel due to the conflict.

Effective management and monitoring of healthcare services and training by a competent authority are crucial. The Ministry of Health in Damascus was unable to provide uniform central coordination, thus it was essential to establish alternate means of coordination in NWS. International organisations began to help in the development

of regional governance institutions like Idlib health directorates to serve as the core centre of healthcare facilities (giz, 2023). With the development of the health directorate, organised activities like overseeing the work of the health centres and taking part in the selection and allocation of employees and resources were established.

The Syrian Board of Medical Specialization (SBOMS) was established by professional doctors to evaluate new graduates, raise the quality of medical services and combat the spread of forged medical certificates as well as impersonation of doctors (SBOMS, 2015). Many organizations have started long-term projects to provide health centers with skilled professionals. These projects aim to address both primary and secondary care needs, including surgical facilities, maternity care, limb prosthesis, and physical therapy. Health facility management and healthcare referral networks were established, and coordinated activities were started under the umbrella of the health directorates and supporting organisations. These organisations include WHO (WHO, 2020), UNHCR (UNHCR, 2013), the Humanitarian Relief Foundation (IHH, 2011), Qatari Red Crescent (QRC) (QRCS, 2023) and Syrian medical professionals living in developing countries, including the Syrian Expatriate Medical Association (SEMA) (SEMA, 2020), the Syrian American Medical Society (SAMS) (SAMS, 2023) and the Syrian board of Medical Specialties (SBOMS) (SBOMS, 2015).

The global landscape is marked by various regions facing the devastating consequences of conflicts, resulting in immense human suffering, displacement, and instability. This paper examines the process of health capacity building in the context of the ongoing conflict in NWS. It explores the initiatives undertaken to enhance medical education, training, and research for undergraduate and postgraduate students. This paper also sheds light on the challenges encountered and the opportunities that arise in the process of health capacity building in NWS. This paper aims to serve as a valuable resource for stakeholders in identifying the needs, strengths, and weaknesses of healthcare capacity in NWS and other conflict-affected regions of the world .

HEALTH WORKFORCE CAPACITY BUILDING

Capacity-building refers to the process of developing and strengthening the skills, instincts, abilities, processes, and resources that individuals, organizations and communities need to survive, adapt, and thrive in a rapidly-changing world (Capacity-Building, 2023). Healthcare capacity building encompasses the process of fostering the growth of knowledge, skills, and leadership required for the successful advancement of population health promotion (Decorby-Watson et. al., 2018). To attain this objective, capacity building occurs at three key levels: individual, organizational, and community. Comprehensive capacity-building services typically involve the delivery of scientific and technical support through webinars, training workshops, and knowledge products, all of which are tailored to serve the needs of the target population.

The scarcity of the healthcare workforce poses significant challenges to the delivery of quality healthcare services. A recent review emphasizes human resources as a vital aspect in the effective function of healthcare systems while simultaneously highlighting the growing human resource crisis (Deprez et. al., 2023). Ensuring quality and sustainability of health workers is critical for achieving Universal Health Care. Accreditation of educational institutions and regulation of clinical practice are essential mechanisms to attain this goal because humanitarian crises also put regulatory mechanisms and resources under strain (WHO, 2023). Building a healthcare workforce in NWS that can meet the populace's healthcare needs is a critical component of the capacity-building strategy. International organisations are considerably working towards building health capacity (Institute on Governance, 2010). In the case of NWS, healthcare professionals must be prepared to handle the challenges of working in a conflict zone. Many training programs for healthcare professionals in NWS have been established by international health organizations (Fouad et. al., 2017). In order to meet the increased demand for healthcare workers, some organizations, such as SAMS, SEMA and Union of Medical Care and Relief Organizations (UOSSM) (SEMA, 2020; SAMS, 2023; UOSSM, 2012), have started to provide training courses for medical and paramedical professionals. These include graduate and post-graduate level training, skills-based training, and workshops. Furthermore, the Continuing Medical Education (CME) is an initiative from SEMA that covers a wide range of subjects through online lectures to upgrade healthcare staff capacity and keep them updated with the last protocols and procedures.

Many of these initiatives were made in response to the health and humanitarian needs of the people (Bdaiwi et. al., 2020). These training and education programs are designed for naive individuals and for those whose education, training, or practice were interrupted due to conflict. It offers learning opportunities that involve effective communication to enhance health literacy, including the acquisition of knowledge and the development of life skills that promote the well-being of the population (Finn et. al., 2021).

UNDERGRADUATE CAPACITY BUILDING

Undergraduate medical education and training provide skills and development that correspond to the needs of conflict-affected practitioners. SEMA has been giving training through its Academy of Health Sciences in Idlib (SEMA, 2020). SEMA initiatives aim to train and qualify students in various specialist skills through high-quality academic two-year programs, that include training for paramedics, nursing and midwifery, physiotherapy, orthotic and prosthetic, and laboratory and pharmacy technicians (ACQUIN, 2023). The education programs have been accredited, and the quality of education is consistently monitored by multiple organizations to ensure high standards and effective outcomes. The academy of health sciences includes specialized programs (nursing, physiotherapy, and emergency medicine for 127 students) that last 24 months. Their programs are accredited by ACQUIN (Accreditation Certification and Quality Assurance Institute – Germany) and are funded by the Qatari Red Crescent (QRC) and Qatar Fund For Development (QFFD) (QRCS, 2023). Additionally, collaborative agreements were signed for developing Gaziantep University's Health Institutions in Jarablus region of NWS and to develop a comprehensive ongoing medical education program for healthcare staff in all specialties in NWS. In 2018, through two-year-diploma programs, about 65 nurses, 43 paramedics, and 20 physiotherapists were trained (SEMA, 2020).

The SAMS has also established medical institutions in NWS, including two midwiferies and nursing schools in Idlib. In 2018, SAMS awarded scholarships in the fields of medicine, dentistry, and pharmacology to 28 Syrian students who started their medical studies in Syrian accredited universities but were interrupted because of the conflict (SAMS, 2023). Additionally, Free Aleppo University (FAU), and Idlib University are two other major public educational institutions contributing to healthcare capacity building in NWS. They provide training in medicine, dentistry, and pharmacy. Private educational facilities like Al-shamal University and Al-Hayat University of Medical Sciences provide training in anaesthesia, physiotherapy, nursing, and midwifery (Enab, 2019).

POSTGRADUATE CAPACITY BUILDING

The aim of post-graduate health force training and education in NWS is to empower healthcare professionals with the necessary skills and knowledge to deliver affordable and quality healthcare services to the local population, ensuring the healthcare needs of the population are fully met. It also includes continuing education and training programs for health professionals to ensure that they are knowledgeable on the most recent advancements in healthcare delivery. Training programs also involve organizational and administrative skills, as well as communication, counselling, and advocacy abilities. In 2015, the Syrian Board of Medical Specialties was established in NWS to provide certification for the completion of specialty and subspecialty training. This involves reviewing applicants' qualifications and performance through standardized examinations (SBOMS, 2015). It is affiliated to the Ministry of Health of the Syrian Interim Government.

Language barriers in healthcare education can pose significant challenges, impeding effective communication and understanding between educators and learners. Overcoming these barriers requires innovative approaches. The Medical Education Platform (SBOMS, 2015) was launched with the goal of improving the knowledge of Arabic-speaking medical professionals in various medical aspects. The platform offers courses and lectures in various medical specialties, delivered by a team of experienced lecturers using up-to-date content developed for online training systems and telemedicine. The platform enables participants to expand their knowledge in a flexible, time and space-efficient learning environment while ensuring high-quality training outcomes. Currently, the scientific committee includes Vascular Surgery, Urology, Pediatrics, Pediatric Surgery, Otorhinolaryngology, Orthopedic Surgery, Ophthalmology, Oral and Maxillofacial Surgery, Obstetrics and Gynecology, Neurology, Nephrology, Internal Medicine, General Surgery, and Gastroenterology. The academy of health sciences supported by SEMA in Idlib province offers 24-month specialized programs in nursing, physiotherapy, and emergency medicine to 127 students.

In addition to clinical training programs, significant emphasis was placed on public health education. Recognizing the importance of this aspect, a special agreement was forged through collaborative efforts involving SEMA, Idlib Health Directorate, QRC and Ankara Yildirim Beyazit University (AYBU) (SEMA, 2020). As part of this agreement, 20 healthcare providers working in the Syrian humanitarian context of healthcare in Syria and Southeastern Türkiye are enrolled in a Master's in Global Health program at the university. This program offers specialized coursework and training to equip healthcare professionals with a deeper understanding of global health issues, cross-cultural healthcare practices, and strategies for addressing health disparities on local and global scale. This program enhances public health education by ensuring that healthcare professionals receive

comprehensive training in areas such as disease prevention, health promotion, and community healthcare management. By providing public health education to healthcare workers, a holistic approach is fostered, equipping healthcare professionals with the knowledge and skills necessary to address both individual and population health needs effectively. An online Essential Public Health and Epidemiology Training Program was also arranged by the agreement between SEMA and AYBU. Over 40 healthcare providers, particularly those working at the health administration level in NWS, have undergone specialized training in essential public health epidemiology and disaster management. This training equips them with the crucial knowledge and skills needed to effectively address public health challenges, understand disease patterns, analyse data, implement preventive measures, and efficiently respond to emergencies or disasters. Indeed, by investing in the public health training of healthcare providers, there is a strong hope to bolster the public health infrastructure in NWS. These training programs were funded by QRC (QRCS, 2023) and QFFD (QFFD, 2023). This investment aims to enhance the overall capacity of the healthcare system to effectively protect and promote the well-being of the population, especially in the face of various health threats.

HEALTH RESEARCH CAPACITY BUILDING

Conducting health research in conflict zones and other complex settings is difficult yet necessary. Improving healthcare research capacity in conflict-stricken settings holds significant importance in enabling a clearer understanding of the unique healthcare challenges presented in these contexts and helps inform evidence-based interventions and policies. By enhancing research capacity, one can generate knowledge specific to conflict settings, leading to improved healthcare outcomes, more effective response strategies, and ultimately, the promotion of health and well-being in these challenging environments. However, the capacity to conduct such research is often limited and rarely practiced, especially in conflict-affected countries and regions (Bowsher et al., 2019).

Healthcare research in conflict settings is often limited due to various factors. These limitations primarily stem from restricted infrastructure, inadequate human resources in terms of both quantity and expertise, as well as general instability. These factors collectively impede local health research efforts, making it challenging to conduct comprehensive studies and gather robust data. Addressing these limitations and investing in research capacity-building becomes crucial to overcome these barriers and generate essential knowledge for improving healthcare in conflict settings.

In order to ensure the continuation of health research, multiple academic and humanitarian groups have initiated collaborative efforts to establish new networks and partnerships in NWS. These endeavours aim to foster research practices and policy engagement, facilitating the generation of valuable knowledge and the sustained advancement of healthcare in the region. The ongoing conflict is significantly impacting the population, causing profound consequences on various aspects of their lives, and calling for a robust system of evidence-based research on health care needs and medical practice. Health research indeed plays a vital role in shaping policy decisions. Through rigorous scientific investigations and the generation of evidence, health research provides policymakers with valuable insights into various aspects of healthcare, such as disease prevention, treatment effectiveness, health system performance, and public health interventions. The findings and recommendations derived from health research help guide policy development, implementation, and evaluation, ultimately leading to evidence-based policies that have a positive impact on public health outcomes. By relying on robust research, policymakers can make informed decisions that prioritize the health and well-being of communities. Health research capacity building partnerships in conflict-affected northwest Syria was essential for addressing the unique healthcare challenges faced in this region. These research partnerships bring together academic institutions, humanitarian organizations, local healthcare providers, and community stakeholders to collaboratively conduct research and generate evidence-based solutions. By pooling resources, expertise, and knowledge, these partnerships facilitate the development of context-specific research initiatives that focus on the health needs of the affected population. Through collaborative research efforts, health research partnerships aim to inform policy, improve healthcare delivery, and enhance the overall well-being of communities impacted by conflict in NWS (Kutluk et al., 2019).

The growth of this partnership is founded on the experiences of the various organizations involved as well as the relationships and experiences of Syrian scientists, many of whom served in the NWS and are representatives of the community (Ekzayez et al., 2022). Involving local partners in research is of paramount importance. Local partners can provide valuable insights, contribute to study design, facilitate access to research participants, and ensure that research findings are relevant and applicable to the specific needs of the community. Furthermore,

involving local partners promotes capacity building, empowers local researchers, and fosters sustainable collaborations that can continue beyond the research project, leading to long-term benefits for the community and the overall advancement of healthcare in the region. Some of the academic and humanitarian organizations include the Conflict and Health Research Group at King's College London (CHRG, 2020), The Syria Research Group (SyRG) co-hosted by the London School of Hygiene and Tropical Medicine (LSHTM) and Saw Swee Hock School of Public Health (SyRG, 2023), the Union of Medical and Relief Organizations (UOSSM, 2012), the Syrian American Medical Society (SAMS, 2023), and the Global Health Security at Chatham House (GHS, 2023). Furthermore, the Syria Public Health Network created in 2015 assesses and improves the humanitarian and health response to the conflict in addition to providing a platform for discussion, analysis, and policy generation regarding effective health strategies and interventions in the context of the crisis (Syria Public Health Network, 2023). Other organizations such as MIDMAR are dedicated to promoting social empowerment among the population of NWS, enabling the affected populace to actively engage in healthcare and education (Incubation, 2023).

The Research for Health in Conflict in the Middle East and North Africa (R4HC MENA) project stands as a notable research partnership dedicated to building research capacity in NWS. This collaborative initiative focuses on exploring the intricate relationship between health and conflict within the MENA region. By bringing together researchers, policymakers, and practitioners, the project aims to conduct research that informs policies, enhances healthcare delivery, and strengthens health systems. Through multidisciplinary research, capacity building, and knowledge exchange, R4HC MENA contributes to evidence-based solutions and sustainable improvements reflected in the health outcomes of conflict-affected areas of NWS (Kutluk et al., 2019). R4HC-MENA is funded by a Research Councils UK Global Challenges Research Fund Award. Health system strengthening is indeed of utmost importance in conflict-affected settings, as the bolstering of a robust health system not only improves immediate health outcomes but also builds resiliency in effectively responding to future challenges. The Research for Health Systems Strengthening in Syria (R4HSSS) project, focuses specifically on strengthening health systems in Syria. This project aims to generate evidence and provide practical solutions for enhancing the effectiveness, efficiency, and resilience of healthcare systems in the region. By collaborating with local researchers, policymakers, and healthcare providers, R4HSSS seeks to address the specific challenges faced in the Syrian context and contribute to sustainable improvements in healthcare delivery. This project emphasizes capacity building, knowledge sharing, and the implementation of evidence-based interventions to support the long-term development of a robust and responsive health system in Syria. This research was funded by the National Institute for Health Research (NIHR) through aid from the UK Government directed toward the support of global health research (R4HSSS, 2023). Capacity building by policymakers and program managers is crucial for successful translation of evidence-based research into effective health policy and programs. By strengthening the capacity of policymakers and program managers, they can acquire the skills and knowledge necessary to understand, interpret, and utilize research evidence in decision-making processes. Overall, the achievements of R4HC and R4HSSS highlight the importance of evidence-based research in achieving beneficial results regarding health policy and program implementation, ultimately benefiting the NWS populations impacted by conflict. By equipping policymakers and program managers with critical appraisal skills, abilities to understand research methodologies, and awareness of evidence-informed decision-making capabilities, they can now effectively incorporate research findings into policy development, program planning, and resource allocation.

Similarly, the Syria Research Group (SyRG) is a team of primarily Syrian health system researchers based at the London School of Hygiene & Tropical Medicine and the National University of Singapore Saw Swee Hock School of Public Health (SSHSPH), which has extensive experience working with field researchers in Syria, particularly on studies pertaining to health system governance and community participation (CHRG, 2020). Nevertheless, adequate research capacity is essential for conflict-affected countries to plan for affordable and logic-driven healthcare systems, sound economic policy, and effective aid utilization.

CHALLENGES

Building health and health research capacity in underdeveloped and conflict-affected parts of the NWS faces several challenges. Furthermore, health capacity building may not progress uniformly, as individual and professional objectives, along with organizational objectives and processes, may vary, potentially leading to conflicts and suboptimal outcomes. In addition, humanitarian organizations operate within the dynamic interplay of professional and political contexts, where their practices can be influenced by political interests and external forces. Consequently, this can lead to resistance towards capacity building interventions aimed at strengthening health systems (Aroni, 2012). The regions of NWS lack many services and infrastructure that would aid in the

development of educational capacity building (Safak, 2023; Alfakhry et. al., 2023). The number of educational facilities are still small compared to the size of the population and students residing in the area. The lack of necessary infrastructure such as healthcare facilities, laboratories, educational and research institutions hamper the establishment of robust healthcare education and research systems. Due to the attacks on health facilities, there is a shortage of healthcare facilities designed to train new healthcare students (OMER, 2020). The challenging geographical environment for present educational infrastructure also exacerbates the difficulties for capacity building. The area is constantly subjected to air attacks and military barriers that separate cities and villages. Sharing control among several armed groups is a significant issue for students as they move from one location to another (UNSC, 2020). Obtaining permission to enter Turkey for educational purposes often involves a complex paperwork process with the educational institution, funders, and authorities within the NWS. While the Presidency of Migration Management under the Ministry of Interior is facilitating the process for Syrian students, this bureaucratic procedure can occasionally result in delays or interruptions in the commencement of education.

Security constraints pose a significant challenge for students in the NWS. The volatile and unpredictable security situation in the region creates obstacles and risks that hinder the pursuit of education. Students face difficulties in accessing educational institutions, attending classes regularly, and ensuring their personal safety. These security constraints not only disrupt the learning process but also impact the overall well-being and educational outcomes of students in the NWS. Collaboration between capacity building stakeholders with local authorities is essential to ensure the protection and safety of students. Collaborative efforts can include regular security assessments, coordination in emergency situations, and information sharing to mitigate risks can create a secure and conducive environment for students to continue their healthcare education despite the challenges posed by conflict zones. In fact, some organizations are conducting comprehensive evaluation to develop proposals for large projects that include large and secure educational areas (SAMS, 2022).

The lack of medical trading and healthcare equipment also poses a significant challenge in the educational setting of NWS. Practical education and hands-on training are crucial for students to apply their knowledge and develop practical skills. However, the high cost and limited availability of medical devices, as well as the challenges of delivering them to educational institutions in conflict zones, hinder students' capacity building. Efforts to address these challenges should prioritize the provision of necessary medical equipment and laboratories, ensuring that students have access to the resources they need to enhance their practical education and training.

Lack of real need assessment, inadequate planning and execution of the capacity building process are also posing risk to capacity building (Pherali, 2020). Accurate and comprehensive needs assessment is crucial, encompassing various aspects related to the healthcare workforce and infrastructure such as doctors to population ratio, population, and graduates etc. Identifying the range of medical specialties available in the area and evaluating their distribution is also important since it helps identify gaps in specialized healthcare services and informs targeted capacity-building initiatives. Achieving a balance between the number of trainees and mentors is crucial for effective capacity building in healthcare education. By ensuring balanced distribution of trainees and mentors, capacity building efforts can be sustained over time. However, to achieve this balance, careful planning, resource allocation, and mentorship capacity assessments are essential. Coordination among various humanitarian organizations and capacity-building institutions is also crucial to meet both short-term and long-term human resource needs. Effective collaboration and cooperation can ensure efficient utilization of resources and avoid duplication of efforts.

Preventing brain drain in the healthcare sector is a significant challenge faced by NWS (Syrian, 2023). Doctors and other healthcare professionals pursuing training opportunities in the West and Turkey are reluctant to return to work in NWS. The push and pull factors that contribute to this phenomenon can be addressed through providing financial support, improving working conditions and bettering professional opportunities as well as security. The gender gap in health workforce capacity building efforts in NWS needs to be addressed, as women and girls face social and cultural barriers that limit their participation (Refworld, 2023). To promote gender equality and inclusivity, women empowerment and tailored capacity building programs that address the specific needs and challenges faced by women and girls are crucial. Humanitarian organizations and institutions supporting the capacity building activities in NWS can encourage the establishment of gender-responsive policies and practices within healthcare institutions, including equitable recruitment, retention, and promotion practices. The financial strain experienced by students who have to work during their studies to support their families and cover expenses can have a significant impact on their academic achievement and capacity building. Increase the

availability of scholarships and financial aid programs that cover not only tuition fees but also living expenses. This will alleviate the financial burden on students and allow them to focus more on their studies.

Poor administrative system is a well-known challenge in conflict zones, as the control is distributed among several groups, and there is no central state (Union Agency for Asylum E. Syria, 2022). This results in the difficulty of unifying health decisions and curricula as well as distributing health workers and health resources in the NWS in an equal and fair manner to serve the entire population. Accreditation of education is another issue, though some humanitarian agencies provide support for specialization programs in various medical fields, and a significant challenge lies in the absence of international accreditation for the certificates awarded. This lack of accreditation undermines the recognition and credibility of these specialized programs.

OPPORTUNITIES

Nevertheless, conflict in NWS was successful in bringing the issue of fragile healthcare capacity, and the international community has recognized the urgent need to address healthcare capacity building in this region. The involvement of international organizations presented unique opportunities and provided several benefits to conflict affected NWS healthcare workers and healthcare system. Initiatives such as training programs, infrastructure development, provision of medical supplies and equipment, and knowledge exchange platforms are all due to heightened attention of international organizations. Access to much-needed resources, funding, and technical assistance have helped NWS to overcome challenges posed by the conflict and the development of resilient healthcare systems.

Furthermore, the attention of international organizations draws global awareness to the healthcare needs and challenges in conflict-affected regions. This led to increased advocacy efforts, funding opportunities, and policy support at the international level, and helped in further strengthening healthcare capacity building initiatives.

While the conflict remains a significant obstacle, the attention and support of international organizations provide hope and a pathway towards developing sustainable healthcare systems and mitigating the impact of the conflict on the health of the affected population. At this point, it is crucial to seize this opportunity by fostering strong partnerships and collaboration among international organizations, academic institutions, local healthcare providers, governments, and communities. The lessons learned from capacity building efforts in the Syrian conflict can indeed be applied to other regions facing similar challenges. It has been demonstrated that by working together, it becomes possible to address the specific healthcare needs of the conflict-affected region, improve access to quality healthcare services, and enhance the overall well-being of the population.

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