



Continuity of Pediatric Oncology Care in Iran During Wartime Strain: Health System Adaptation and Cultural Resilience

Tahereh Rostami¹, Azadeh Kiumarsi^{2,*}, Zahra Heydari², Tahereh Jangjoo², Parnian Hashemifard²

¹ Hematologic Malignancies Research Center, Research Institute for Oncology, Hematology and Cell Therapy, Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran

² Department of Pediatric Hematology and Oncology, Children's Medical Center Hospital, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

*Corresponding Author: Pediatric Hematologist Oncologist, Children's Medical Center Hospital, Department of Pediatric Hematology & Oncology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran. Email: akiumarsi@tums.ac.ir

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Dear Editor,

Children with cancer constitute a particularly vulnerable population during crises, as optimal outcomes depend on uninterrupted access to chemotherapeutic agents, timely diagnostics, and supportive care. Even brief delays or unplanned modifications in therapy may compromise cure rates and increase treatment-related morbidity and mortality. Experiences during the COVID-19 pandemic highlighted how rapidly system disruptions can affect pediatric oncology worldwide and underscored the need for coordinated strategies to protect this population (1). However, in the recent wartime context affecting Iran (US-Israeli-Iran War 2026), within a health system already strained by long-standing economic sanctions, pediatric oncology services have demonstrated notable continuity. Continuity of care can be conceptualized across three related but distinct domains: institutional service continuity, defined as the ongoing operational availability of inpatient and outpatient oncology services; patient-level continuity, defined as sustained attendance and adherence to planned treatment and follow-up schedules; and therapeutic continuity, defined as the capacity to maintain complex, resource-intensive interventions without suspension.

Recent national and registry-based studies indicate that childhood cancer represents a substantial health burden in Iran. Reported incidence estimates for childhood malignancies in Iran are comparable to those

in other middle-income settings (2). Nationwide registry analyses have demonstrated improved survival for pediatric malignancies in Iran, reflecting the progressive development of pediatric oncology services, referral pathways, and access to contemporary treatment modalities (3). These gains, however, remain fragile when exposed to shocks such as economic sanctions and armed conflict.

Economic sanctions have exerted both direct and indirect effects on Iran's health system over the past two decades. A national and subnational analysis from 2000 to 2020 showed that sanctions have influenced population health and health-system performance through multiple pathways, including constraints on public financing and vulnerabilities in drug supply chains (4). Synthesizing global and Iranian experience, Sajadi and Majdzadeh concluded that health systems under sanctions must actively cultivate resilience through strategic planning, domestic production, policy flexibility, and deliberate protection of vulnerable populations (5). Thus, pediatric oncology units in Iran entered the recent war-related period with substantial prior experience in managing constraints and with enhanced adaptive capacity.

Importantly, during the most recent period of intensified wartime strain, pediatric oncology centers continued to provide not only conventional chemotherapy and supportive care but also

immunotherapies and hematopoietic stem cell transplantation (HSCT).

As an example of preserved service delivery, hospital administrative records from two university-affiliated pediatric oncology referral centers in central Tehran were reviewed. These institutions serve as major tertiary referral centers and are presented here as case examples rather than as a representative nationwide sample. Between 1 March and 10 April 2026, a 20-bed pediatric oncology ward and a 10-bed pediatric HSCT unit recorded 127 inpatient admissions. For contextual comparison, during the same calendar period in the previous year (1 March-10 April 2025), the same centers recorded 142 admissions. Although this represented a modest decrease, overall service activity remained broadly comparable across the two periods, suggesting that core pediatric oncology services in these centers were largely maintained despite wartime conditions. These figures reflect routine inpatient oncology and HSCT activity recorded in hospital service logs for the respective wards.

The continuation of immunotherapy and transplantation requires functioning multidisciplinary teams, reliable access to high-cost medications and cellular products, intensive care support, and robust infection-control measures. Maintaining these resource-intensive therapeutic modalities in such a constrained environment highlights the depth of institutional commitment and organizational resilience.

Proactive governance and planning, together with nongovernmental organizations and cancer-related charities, have played meaningful roles in the continuity of care and supportive services. In Iran, informal community networks provide financial assistance and support families with transportation and accommodation, thereby helping to bridge gaps that might otherwise lead to treatment interruption during wartime.

Beyond organizational factors, social and cultural resilience has also been central to maintaining pediatric oncology care under wartime strain. Iranian families often rely on strong kinship ties and community support when confronting serious illness. Previous studies suggest that religious beliefs can serve as an important coping mechanism for parents of children with cancer, helping them tolerate uncertainty and sustain engagement with demanding treatment processes (6). In the recent wartime context, clinicians

in the described centers observed that most families continued to bring their children for scheduled chemotherapy sessions and follow-up visits despite the surrounding instability. Although the present report does not directly measure the determinants of this engagement, the cooperative relationship between families and clinical teams, potentially shaped in part by culturally grounded coping practices, family support networks, and community solidarity, may represent one plausible factor supporting continuity of care. This cooperative relationship may also represent an additional and often underrecognized contributor to the continuity of care.

Taken together, these observations suggest a layered pattern of resilience. At the macro level, adaptations within the health system under prolonged sanctions, including policy learning, strategic management of constraints, and engagement with civil society organizations, may help buffer some of the pressures associated with wartime disruption. At the meso level, pediatric oncology centers appear to rely on crisis-management approaches similar to those developed during the COVID-19 pandemic, such as prioritization of essential treatments and flexible reorganization of services, while maintaining complex interventions, including immunotherapy and hematopoietic stem cell transplantation. At the micro level, family resilience, spiritual coping, and cooperative engagement between healthcare providers and caregivers may support continued adherence to treatment plans.

The interaction of these elements offers one possible explanation for how pediatric oncology services in the described centers were able to continue delivering advanced cancer care despite substantial external strain.

This report has several limitations. It is based on descriptive institutional experience from two pediatric oncology referral centers in central Tehran and does not constitute a formal comparative study. The centers described benefit from tertiary-care infrastructure. Consequently, the observations presented here should be interpreted as illustrative case experiences, and the explanatory mechanisms proposed should be considered plausible contextual interpretations rather than empirically established determinants.

The experiences described in these two referral centers suggest that multiple domains of continuity, namely institutional service availability, patient adherence to treatment schedules, and the maintenance

of selected high-complexity therapies, can be preserved in highly constrained environments when organizational preparedness, community engagement, nongovernmental support, and culturally embedded coping resources operate together. However, further multicenter and national-level studies are necessary to determine how broadly these observations apply across different healthcare settings within the country.

Footnotes

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