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Establishment of Integrated Hospital-Based Supportive and Palliative Services: An Experience from Iran

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ABSTRACT

Integrating supportive and palliative care into the oncology program is considered essential for effective cancer management. Despite the challenges that low- and middle-income countries such as Iran face in providing comprehensive supportive and palliative care services, continuous efforts are directed towards improving services and infrastructure. In this regard, the Iranian Cancer Control Center (MACSA) plays a fundamental role in providing supportive and palliative care with special emphasis on expanding services and ensuring equitable access for cancer patients in Iran. Through joint efforts with various organizations and hospitals, coupled with the implementation of effective leadership strategies, MACSA has tried to integrate its services into a referral hospital system in order to continuously improve and expand services and meet the multifaceted needs of patients and families affected by cancer. Indeed, MACSA's initiatives to embed supportive and palliative care within the framework of usual care in referral hospitals are critical in improving outcomes and quality of life for people battling cancer. The interdisciplinary nature of supportive and palliative care, involving a specialized team, is essential for efficient service delivery, cost-effectiveness, and overall quality of care.

Keywords: Cancer; Hospital-based; Integrated; Palliative care; Supportive care

INTRODUCTION

Cancer is one of the leading causes of deaths globally. In accordance with the data from the International Agency for Research on Cancer (IARC), cancer incidence and mortality rates are forecast to be occurred 20 and 9.7 million people by 2022, respectively. However, the importance of this issue is compounded by the fact that, if the necessary preventive and control measures are not taken, the cancer incidence rate will almost reach to over 35 million people in the next 30 years[1]. Accordingly, it may ultimately lead to significant effects in the macro trend of activities such as economic, social, and health[2]. Although cancer mortality is higher in more developed countries[3], the incidence of cancer is rising in low and middle-income countries (LMICs). Hence, it is projected that LMICs will be the home of

more than 66.7 % of all cancer deaths by 2030[4]. Likewise, Iran, as a LMIC [5], has faced the growing trend of cancer [6]. In addition, it can be estimated that the growing trend is related to factors such as industrialization, progress towards modern dietary, changes in lifestyle patterns and in environments as well as alterations in the epidemiological patterns of various malignancies [3]. Additionally, it can be dedicated that not only genetic and environmental factors have been effective in increasing the rate of cancer patients [7], but over diagnosis due to implementing cancer screening approaches also play a key role in reporting a rise in cancer incidence rate [8]. Over the past years, to combat against cancer and control growing trend of patients, various pharmacological and non-pharmacological interventions have been employed [9,10]. Even though some cancer patients may not respond effectively to current treatments or even in case of effective responding, it cannot lead to a trend toward an improvement in overall survival [11]. Accordingly, the importance of care development such as supportive and palliative care, alongside other therapeutic approaches, becomes more prominent in the battle of fighting against cancer [12].

Currently, various models have been introduced for supportive and palliative care services [13,14]. One of the most well-known classification of models is the one defined in the Oxford Textbook of Palliative Care [15] . By definition, the used models are divided into two general categories, including generalist and specialist [15]. It is worth noting that despite the importance of developing any model of supportive and palliative care, it is equally crucial to ensure patients are able to access supportive and palliative care effectively. To this end, the necessity of integrating supportive and palliative care in health care system has been emphasized. It is therefore imperative that decision makers and health care providers reach agreements regarding the principles of providing supportive and palliative care. Indeed, by devising appropriate policies in cooperation with non-governmental organizations (NGOs) like charities, governmental organizations can supervise this integration. Therefore, by the union and cooperation of the aforementioned organizations, the provision of supportive and palliative care services will be more effective [16]. It is then important to select and develop a suitable model for creating the infrastructure for providing supportive and palliative care services based on different factors, such as host setting [17], geography, culture, expertise, and resources [18]. In this regard, to achieve a more efficient palliative care approach, considering standard criteria for monitoring and evaluating the processes is necessary, among which the 13 key indicators of integration at ESMO designated centres of integrated Oncology and Palliative Care is one of the well-stablished indicators that can be applied (Figure 1)[19].

Integrating indicators into practice is crucial, as evidence from studies support that supportive and palliative care delivery capabilities, particularly within a hospital-based model, is highly effective. Indeed, supportive and palliative care teams can play a vital role in reducing the physical suffering of cancer patients, providing essential psychosocial support through a hospital setting, increasing patient satisfaction with healthcare providers and reducing length of hospital stay as well as medical costs[20,21]. However, regarding Iran, Health care providers do not receive adequate training around the concept of supportive and palliative care, which results in inadequate provision of services to terminally ill patients. Furthermore, the country face to inadequate specialized centers and services for patients with chronic illness such as cancer, which are either non-existent or inadequate in hospital settings. The overall quality of services in hospitals is not sufficient, both in terms of staff attitudes and knowledge and in terms of the adaptation of hospital facilities to the needs of patients requiring end-of-life care[22]. In this regard, a prominent example of this integration is the effort of a charity that has integrated supportive and palliative care across the hospital structure in a large national referral hospital in Iran. The aim of this initiative is to create a hospital-based model that emphasizes supportive and palliative care alongside primary care. The organization focuses on creating a transparent and coherent structure for the delivery of these services, thereby facilitating access for patients and their families. The initiative also seeks to increase the quality of services, reduce costs and hospital stays,

provide psychological and emotional support to patients and families, and ultimately increase patient satisfaction with the care received. In this regard, the experience of integrating supportive and palliative care, delivered by a charitable organization into a large tertiary referral hospital in Iran—one of the country's main national cancer centers—is presented, guided by recognized indicators for palliative care integration in oncology.

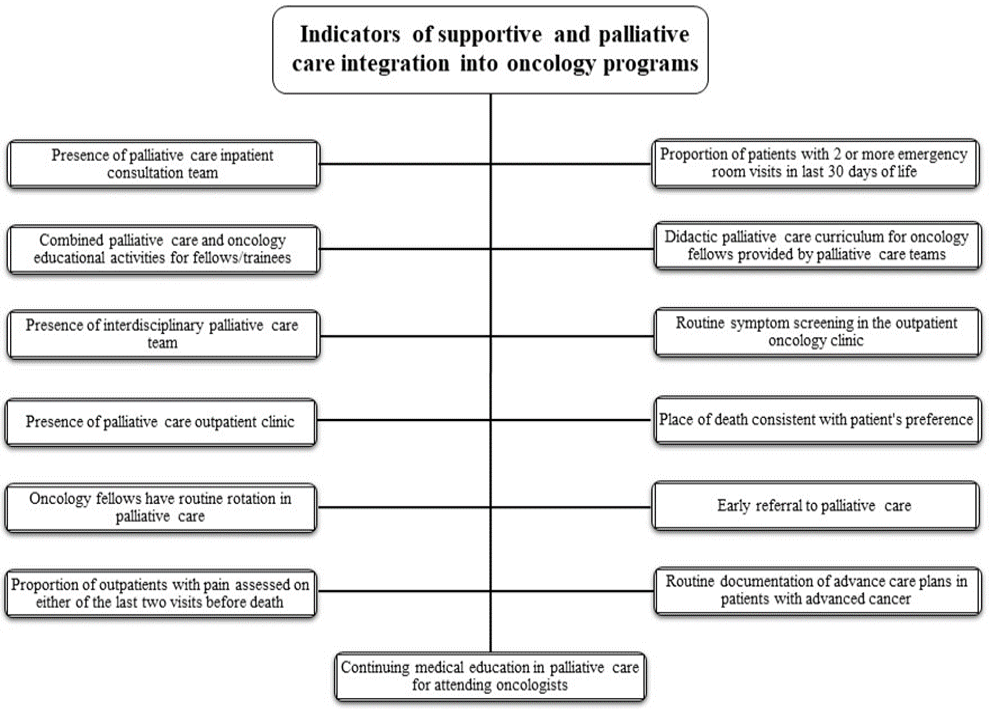

Figure. 1 Indicators of supportive and palliative care integration into oncology programs[23]

1. Supportive and palliative care models

Cancer management is a complex and multifaceted process[24] that can be completed by supportive and palliative care as one of the key links. Despite differences in origin, supportive care as well as palliative care are often confused and used interchangeably [12]. In this regard, to distinguish the exact meaning of these two terms, various definitions have been provided over the past years. For example, the Multinational Society for Supportive Care in Cancer (MASCC) has stated that the concept of supportive care incorporates preventive approaches as well as the management of cancer and the related treatment side effects (e.g., physical and psychological symptoms) since diagnosis to post-treatment. In addition, the World Health Organization (WHO) has defined palliative care as an approach that offers comprehensive support to patients and their families during periods of severe illness or life-threatening condition [25] . In terms of definition, the concept of supportive care is broader and entails including more interdisciplinary and multidisciplinary specialists and services as

opposed to palliative care. In other word, it actually serves as an umbrella term for such services. However, since palliative care is perceived negatively by the public as an end-of-life services, the two terms are integrated and therefore can be called as supportive and palliative care [26].

In this regard, supportive and palliative care approaches in different formats can be added to the cancer management process[27]. Generally, the models used to add supportive and palliative care into oncology programs can be divided into two categories, including conceptual and clinical models. Conceptual model, indeed, is consist of Time-based, Provider-based, Issue-based, and System-based models, which as following [28]:

I. Time-based model: As a common fallacy, palliative care is considered for the end of life, perpetuating the misconception that palliative care is solely linked to death phase. To resolve the conflicts about the wrong perspective of the patients and their caregivers around the concept of palliative care, different time-based approaches have been applicable. In this regard, the consensus of all the forms of approaches in time-based model indicate that, palliative care can be initiated at the time of diagnosis and intensifies its engagement progressively, extending beyond death [28,29].

II. Provider-based model: Service provision is divided into three primary, secondary, and tertiary approaches according to the level of patient status and the setting. To simplify, as the patient's needs become more complex, more specialized teams are referred, which can be initiated from oncologists and usual care providers, and depending on the complexity of the patient's condition, it can reach the level of referral to more supportive/palliative specialized teams [28,29].

III. Issue-based model: Despite providing an adequate level of supportive care, an oncologist may not be able to comprehensively address all patient concerns within a solo practice approach, in which care is delivered primarily by a single physician. Therefore, the need to refer patients to multiple specialists to address specific clinical demands becomes evident; this model is commonly referred to as the congress approach. However, integrated care approaches can be preferred to the previous two approaches based on which specialist palliative care teams are routinely referred to patients by their oncologists early in the course of their disease. Based on this approach, palliative care can be provided to patients in a timely and comprehensive manner in conjunction with oncologic treatment.

IV. System-based model: It is a patient-centered model, which can illustrate the journey of a typical patient as they navigate the healthcare system to receive supportive & palliative care. Indeed, the modified and integrated form of this model will ensure that patients who are eligible for supportive and palliative care receive dedicated care upon entering health system, after primary examinations by oncologists [28].

As it is clear, the primary and older forms of each conceptual model have both advantages and disadvantages, leading to the necessity of developing integrated approaches. However, implementing integrated approaches to achieve the optimal level of palliative care delivery is a complex task that can vary depending on the patient population and demands, size and resources of the healthcare system, and the availability of palliative care provided by oncologists and physicians [30]. According to the aforementioned models, it can be dedicated that the conceptual model can provide the main platform for how cancer care system collaborates with specialized supportive/palliative care teams to establish clinical models accordingly. Indeed, in order to provide supportive/palliative care, it is necessary to apply the principles of conceptual models as the pillars of the clinical model structure oncologists. In other words, clinical models demonstrate effective strategies for promoting communication and collaboration in real-world scenarios, address logistical obstacles, and offer insights into the outcomes of integrating practices in clinical settings (Table 1) [28].

Table1: Clinical supportive and palliative care models

Model	Advantages	Disadvantages	Ref
Community-Based	• Reducing in-hospital mortality in end-of-life patents • Reducing intensive care providing • Improving symptom control and satisfaction • Receiving long term palliative care along with treatment • Symptom control, especially pain and dyspnea	• Miss the patient in follow ups • Challenging to confirm compliance with follow-up regulations • Difficult to preserve database regularly communication of treatment centers with the primary care providers	[14,27,31,32]
Hospital-Based	• Improving the severity of the symptoms and complications • Enhancing patients' moods • Increasing quality of life • Providing on-site availability of various specialties and diagnostic procedures • Reducing patient's length of stay in hospital • Reducing the use of non-beneficial or harmful treatments near the end of life • Increasing the knowledge of other health care staff about palliative care • Having positive impact on treatment staff	• Providing more space for families of the patients to be present near the patient • Making challenges in getting reimbursed for the services provided by the hospital's palliative care teams • Preferring the patient to die at home rather than in the hospital	[17,27,33,34]
Outpatient Clinics	• Requiring few resources • Serving a large number of patients for monitoring the patients in early stages of the disease • Presence of highly variation in the composition and training of interdisciplinary palliative care teams, comprehensiveness of intervention, timing of referral, and intensity of follow-up • Decreasing cost of care • Providing best options when resources and start-up funding is limited • Decreasing depression • Increasing quality of life • Enhancing symptom burden, satisfaction with care, communication about end-of-life care preferences, survival, and healthcare utilization	• Increasing contamination • Making Patients to be mobile in order to attend the clinic • Remaining limited and delayed • Requiring leaving home and travel to clinic • Increasing cost of co-payment	[14,17,35]

Model	Advantages	Disadvantages	Ref
Inpatient palliative care consultation team	• Improving quality of life • Decreasing cost of care and hospitalization • Decreasing anxiety and depression • Decreasing the use of futile chemotherapy at the end of life • Adding an outpatient clinic using the same staff • Increasing family satisfaction • Enhancing the use of healthcare resources	• Lacking skills needed to provide palliative care by staff who care for hospitalized patients • Referring the patients to inpatient palliative care in the last stages of life which is accompanied by negative view of caregivers about palliative care	14,17,35
Day-care	• Providing services to stabilize symptoms, respite for caregivers, and patient and family counseling • Providing procedures like draining of ascetic fluid, wound care, etc. • providing food and • companionship • Providing rehabilitative therapies	• Diverse Care Approaches, Going Beyond Patient Differences • Ambiguous Referrals and Varied Patient Demographics • Identifying Opportunities and Obstacles	17,36
Ambulatory-based	• Developing interdisciplinary collaborations • Increasing quality of life • Increasing survival time • Decreasing hospital length of stay	• Providing non-specialized care • less standardized and controlled fewer opportunities for humanitarian action and less concentration of volunteering opportunities0	27,37
Emergency department-based	• The possible provision of providing palliative care on the first day of admission • The sole location equipped to deliver necessary treatments (such as administering IV fluids or pain relief medication) and offer immediate access to advanced diagnostic procedures (like CT scans or MRIs) around the clock, every day of the week	• Gradual development due to utilizing the unique circumstances of each patient to establish a strong foundation for the emergency department palliative care program	38,39
Hospice-Based	• Reducing suffers • Improving quality of life • Experiencing a peaceful death • Improving physical, spiritual, psychological, social status of patients and caregivers • Providing cares for patients to be supported in the community • Providing an alternative to dying in the hospital • Decreasing rates of hospitalizations, emergency department visits, and intensive care unit admissions • Decreasing end of life care costs	• Occurring patient referral too late • Requiring forgoes life-sustaining therapies such as chemotherapy, radiation, and future hospitalization when they enroll in hospice	14,27

Model	Advantages	Disadvantages	Ref
Home-Based	• Improving physical, spiritual, psychological, social status • Reducing treatment costs for both patient and the health care system • Reducing the hospital readmission and the related side effects • Increasing quality of life • Providing an environment for patients more comfortable than a health-care setting • Maintaining privacy and confidentiality • Increasing community awareness of palliative care • Improving concordance between actual and preferred location of death • Reducing the length of hospitalization.	• Increasing the rate of home death • Lacking standardization of practice guidelines, oversight, and a lack of payment structures • Lacking sustainable financing approaches • Lacking standardized program design	14,17,27,40,41
System integrated	• Providing care for all aspects of needs such as physical, psychosocial, and spiritual at all stages of disease	• Challenges of providing effective care for individual patients or managing difficult situations like severe, unresponsive pain due to the absence of a readily available team of experts for real-time clinical consultation.	27,37

1. Iranian cancer control center (MACSA); a specialist supportive and palliative care in cancer

As mentioned, there is a tremendous burden on societies and the health care systems resulting from serious life-threatening and life-limiting illnesses [42]. Hence, there is an urgent need to integrate palliative care into health care systems on a global basis, both ethically and economically [42]. LMICs are home of more than 78% of global palliative care demands, the specific needs of providing intensive care are much more required in LMICs in comparison to high-income economies to ensure optimal patient outcomes [43]. In addition, providing palliative care requires a set of fundamental principles (e.g., providing patient-oriented care, continues care during treatment process, inter-professional collaboration), which has been implemented and developed in advanced countries [44]. It is while in LMICs like Iran [45], there are still weaknesses and challenges in the implementation of an integrated management and development [44]. Indeed, according to the data released by the Worldwide Palliative Care Alliance (WPCA) in 2020, Iran is classified under the "3-A" category of palliative care development. In other words, Iran is categorized as countries with isolated provision of palliative care upon which the palliative care providing is sporadic, is limited to a few centers, does not have well-developed programs, and relies on donor-dependent sources [46]. However, palliative care, particularly for cancer patients, is an area of focus for cancer research centers and the Ministry of Health in recent years. It is, therefore, necessary to create and develop infrastructures and platforms for providing supportive and palliative care according to patients demand [47]. In this regard, although some centers provide sporadic supportive and palliative care services [48], Iranian cancer control center (MACSA) is known as the only specialized center providing supportive and palliative care to cancer patients in Iran.

MACSA's actions are in line with the policymaking and as a result of the guidelines related to outpatient and home-based centers issued by the Ministry of Health and Medical Education of Iran to 17 universities of medical sciences across the country. In this context, MACSA is of special importance because of its systematic provision of supportive and palliative care. In fact, with over 30000 patients and their families receiving free supportive and palliative care since the last decade, MACSA has grown into a

leading institution in providing supportive and palliative care in Iran. A key objective of MACSA is to make efficient supportive and palliative care easily accessible to all patients who may benefit from such services in the near future through the assistance of donors, experts, policymakers, and a synergy between governmental and non-governmental organizations. Moreover, MACSA has taken step toward modeling various approaches of offering supportive and palliative care services in Iran that are tailored to the country's specific needs and infrastructure, which can facilitate the path towards providing services with higher quality and also the development of the services to more patients. In addition to above, there are two areas in which MACSA defines its mission: first, extensive management and second, leadership in the provision of comprehensive supportive and palliative care services in Iran, both of which can be reached by applying leadership and executive approaches. To this end, MACSA provides supportive and palliative care in six Iranian cities independently as well as in 10 more through collaboration with other organizations and university of medical sciences through the country. However, as a means of reaching its goals, MACSA has recently expanded its services by collaboration with specialized hospitals for cancer patients and providing different models including integrated supportive and palliative care services in Iran (Table 2 and 3) [49]

Table 2: Supportive and palliative care provided in different settings of MACSA

Settings of MACSA	Physical care						Psychological care			Spiritual care	Social work services	Family care
	Medical	Nursing	Physiotherapy	Nutrition	Lymph therapy	wound management	Child psychology	Couples therapy	General psychology			
Hospital	✓	✓	✓	✓		✓			✓	✓	✓	✓
Clinic	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓
Home care	✓	✓	✓	✓		✓			✓		✓	✓
Hospice	✓	✓	✓	✓	✓	✓			✓		✓	✓

Table 3: Supportive and palliative care models established in MACSA settings in different hospitals of Iran

Supportive and Palliative Care Models		Setting of MACSA (Based on the hospital where the setting is located)
Inpatient supportive and palliative care	General	A*
	Specialized	B*
Ambulatory-based		C*
		D*
Outpatient supportive and palliative care		D*
Day-care		D*
Hospital-based		D*
Home-based		E*

*University hospitals in Iran

2. Implementation of supportive and palliative care programs in the hospital platform

The importance of integrated care is highlighted as a key policy for provision of supportive and palliative care. In addition, integrated care represents a shift towards more comprehensive and coordinated care systems. To this end, MACSA, as a leading institution of supportive and palliative care in Iran, has expanded their services and gone further in order to expand patients' access to supportive and palliative care through integration of services with Shariati Hospital, one of the general tertiary referral hospitals in Iran.

Founded in 1976, Shariati hospital provides general medical care to patients in Tehran, Iran. With 834 licensed beds [50] and about 640 active beds in the infrastructure with an area of 41,000 square meters [51], Shariati hospital provides services in three general departments, including:

I. Inpatient Departments (e.g., Orthopedics, Rheumatology, Neurology, Endocrinology, Oncology, Nuclear Medicine, ICU General)
II. Outpatient Departments (e.g., General Surgery, Gastroenterology & hepatitis, Obstetrics, Gynecology, Pulmonology)
III. Paraclinics (e.g., Laboratory, Radiology, Nuclear Medicine, Spirometry, Bronchoscope, Urodynamic, BMD, Echocardiography, and EMG-EEG)[50] .

Shariati Hospital exemplifies the successful integration of medical services with research and education, particularly marked by its pioneering achievements in bone marrow transplantation in Iran [50]. Particularly, as one of the main pillars of Shariati hospital, the Department of Hematology, Oncology, and Stem Cell Transplantation plays an important role in the advancement of medical sciences, education of future professionals, and comprehensive care of patients with different hematological and oncological disorders. The Shariati hospital is involved in not just state-of-the-art research [52], but also in catering service to a large patient population of about 35,000 yearly admissions. Also 50,000 and 400,000 people refer to the emergency room and outpatient clinics of Shariati hospital respectively every year [51]. Hence, due to the critical role of the Shariati Hospital in Iran as one of the primary providers of cancer care, along with the considerable volume of patients seeking services, the integration of supportive and palliative care within the treatment framework has become crucial. Indeed, over time, the need for such integration has become apparent, which highlighted a significant gap in the current care model that should be addressed to enhance both the quality and quantity of services.

3. Integrated hospital-based supportive and palliative care services for cancer patients

Hospitals and facilities that care for patients with chronic conditions can effectively implement supportive and palliative care by adopting a hospital-based model [17]. In this context, the establishment and advancement of hospital-based model in various countries demonstrate its effectiveness in being integrated within the healthcare system [20,21,53,54]. Although it may not be possible to provide the services to every patient immediately, having a dedicated palliative care team within a hospital can enhance patient outcomes.

Hospital-based supportive and palliative services improve symptom management by offering access to various specialties and diagnostic resources on-site, enabling discussions about values, diagnoses, prognoses, and treatment goals. Research shows that supportive and palliative care can reduce the length of hospital stays and facilitate smoother transitions to home care. In addition to benefiting patients, supportive and palliative care services also support hospital staff by increasing their understanding of palliative care principles and encouraging the integration of these concepts into other areas of treatment. Ultimately, as a vital component of the healthcare system, the services positively influence both patient care quality and staff training [17].

3.1. Organizational integration

The Iranian health care system has undergone major reform, emphasizing the need for comprehensive care models that recognize the significance of patient management; thus, it can take place either within the entire health system or within its individual components. In this regard, the Iranian

Ministry of Health and Medical Education has played a key role in making policies that support integrations and delegated tasks to universities of medical sciences and their affiliated hospitals. Especially regarding supportive and palliative care in Iran, integration of these cares within hospital settings has become an urgent need with growing chronic diseases among the population such as cancer. In this context, the collaboration between MACSA as an NGO and Shariati Hospital-supervised by Tehran University of Medical Sciences-represents a prime example of a collaboration embracing this integrative approach to enhance patient care.

From an overall perspective, the collaborative model of supportive and palliative care between MACSA and Shariati Hospital is an integrated hospital-based approach to meet the specific needs of patients. In fact, the principal of the integrated model is intended to offer a total care system that cares not only for the medical aspects but also includes psychological and psychosocial dimensions for patients. However, it is important to recognize that there exists a spectrum of models for delivering supportive and palliative care, each one of these can vary in structure and also in the way it is implemented. As an experience of Iran, the choice of integrated hospital-based model was influenced by the patient's status and the organizational structure of Shariati Hospital. By assessing the patients' needs and the healthcare system capabilities, stakeholders decided that this model would be the most effective to deliver high quality care.

However, to gain a deeper understanding of the process of the collaboration as an experience of Iran, it is essential to magnify and examine the step-by-step process of action at organizational level. To simplify, organizational integration is a widely debated form of integration within the healthcare system, which ranges from complete autonomy of separate entities to full integration through mergers. In fact, it involves the coordination of services to ensure they are produced and delivered in a cohesive manner [55] . So, a key aspect of this integration is to understand the spectrum of organizational integration. In the case of MACSA and Shariati Hospital a network like governance structure was adopted which balances flexibility and commitment. In fact, it allows adaptive response to the dynamic health environment while keeping focus on patient centered model of care.

The collaboration between MACSA and Hospital Shariati continued by establishment of a strategic alliance focused on supportive and palliative care service promotion. The aforementioned collaboration involved the development of shared goals and protocols, ensuring that the two organizations collaborate effectively. Additionally, early discussions focused on funding, staffing needs, and physical space necessary to accommodate the integrated care team. It is also worth noting that an important aspect of this integration was the creation of a share understanding of what supportive and palliative care entails. To this end, in the wake of the challenges realized through insufficient training and knowledge among healthcare providers, the organizations began to implement joint training programs and workshops. This not only enhanced knowledge about the concepts of supportive and palliative care but also widened collaboration between specialists and clinical staff.

3.2. Promoting evidence-based knowledge about supportive and palliative care

One of the major problems identified in the provision of supportive and palliative care is the variability in education and formal training related to these essential components of patient management. Moreover, previous studies have indicated that supportive and palliative care services may encounter structural and organizational limitations, including gaps in training and awareness at the level of healthcare providers, regarding the principles and practices of supportive and palliative care [56]. Consequently, efforts to integrate supportive and palliative services into conventional treatment models may face practical and institutional challenges.

In view of overcoming these barriers, a new interactive approach was adopted, which included the organization of joint journal clubs and scientific seminars. These educational forums helped expand the knowledge base and increase awareness of supportive and palliative care among treatment staff. It was considered important that specialists in

supportive and palliative care and oncology work together to foster a shared culture of learning. This effort, over time, encouraged the dissemination of evidence-based practices related to supportive and palliative care, so educational modules in palliative care were incorporated into training. In addition, supportive and palliative care training was provided to oncology department staff with specific assistance from specialized palliative care teams.

This was a tactical way to fill the knowledge gap, but also initiated a scientific and practical collaboration. These initial steps were necessary to create a foundation for integrating services and fostering acceptance within the context of hospital treatment. With continuing education alongside interdisciplinary collaboration, the face of cancer care is gradually changing over time, recommending a holistic approach to patient management: one that prioritizes treatment and offers higher quality of life to patients with serious illnesses.

3.3. Pilot Implementation

During the third step, coordination of services for patients began crossing, institutional, and sectorial boundaries and integrated across time, location, and discipline. In this phase, limitations, challenges, and demands were more evident than before, especially in complex health contexts. Particularly, it became a critical issue for those patients who need services from multiple fields. A person-centered perspective was also imperative during this stage of health promotion in order to not simply institutionalize the approach to a particular condition but to deal with it in the context of holistic well-being. Accordingly, in order to make supportive and palliative care available to patients, more developmental steps were needed. To this end, the need to expand the supportive and palliative care team in an interdisciplinary manner was highlighted. In this regard, it was necessary to promote treatment and education simultaneously. In other words, as the specialists such as doctors, psychologists, and social workers were recruited, the training of young workers to join the team also began. Furthermore, it was imperative for the supportive and palliative care team to have access to the hospital's Health Information System (HIS) in order to effectively communicate and coordinate with the patient's care team. This access is essential in ensuring that all teams are informed of each other's actions and decisions, ultimately leading to improved patient care and outcomes. Therefore, the negotiations regarding the access of the supportive and palliative care team to the hospital HIS system were among the most important steps in the pilot implementation phase. Also, due to the provision of specialized supportive and palliative care services to patients, the creation of dedicated electronic files and routine documentation of care plans in cancer patients were included in the list of important measures for the development of services. Subsequently, the aforementioned measures could facilitate the way for patients to receive supportive and palliative consultations from other hospital departments besides hematology and oncology department. As a result, the cooperation and coordination of different MACSA settings was highlighted for providing continuity of supportive and palliative care services to patients even after discharge in different cities through the orchestration of different branches.

3.4. Service development

As the team expanded, services were provided more extensively, and supportive services were offered even before the definitive diagnosis of cancer in oncology departments along with symptom screening in the outpatient oncology clinic. According to this approach, a portion of patients who could have received cancer supportive and palliative care were referred to other supportive and palliative care settings, including related inpatient wards and home care, which played a significant role in reducing hospital admissions. Also, over time, with the focus on providing home care services, referrals to this setting were given more attention than before, thereby reducing not only the burden on Shariati Hospital but also the burden on other inpatient wards related to supportive and palliative care (Figure 2).

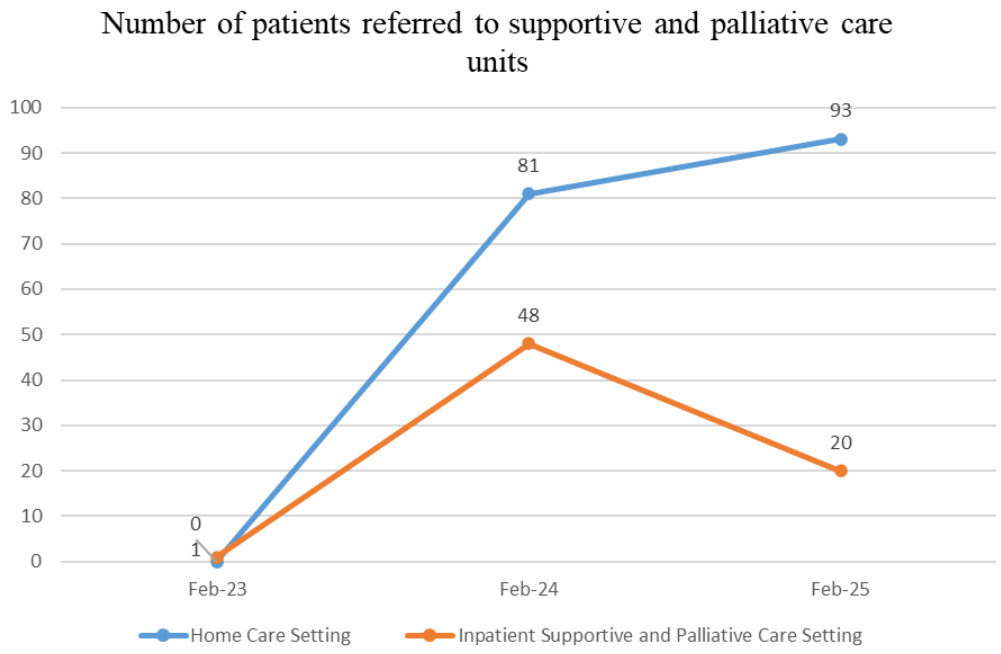

Figure 2. Number of patients referred to supportive and palliative care units. The integration of the MACSA setting with Shariati Hospital one year prior has resulted in an increase in patient referrals to alternative supportive and palliative care provisions, including inpatient and home care, consequently mitigating the burden upon the hospital. Throughout 2024-2025, a concerted effort was directed towards the provision of home care services, aiming to obviate the necessity of patient transportation from inpatient wards and facilitate the management of their illness through the receipt of services within their residences.

Hence, it was considered an effective step in reducing the rate of returning patients to the hospital during the treatment process, so that since the beginning of the merger of MACSA with Shariati Hospital, about 2000 patients have been admitted. In addition, more than 3000 specialized psychological services (such as psycho-oncology, couple therapy, and child psychology) and about 250 nutritional services have been provided to the patients since the integration. However, provision of supportive and palliative services expanded beyond this point. As a result of the importance of providing supportive and palliative services to cancer patients, MACSA has identified setting up supportive and palliative care inpatient clinics as one of the main future necessary actions in order to integrate supportive and palliative care with medical services at the hospital level (Figure 3).

4. Ethical principles

Access to supportive and palliative care services is considered a fundamental right, especially during challenging times for patients and their families. In this regard, healthcare professionals, must adhere to biomedical ethical principles during supportive and palliative care providing, including (1) Respecting autonomy by involving the patients , (2) Upholding nonmaleficence by ensuring no harm is caused during providing healthcare supports, (3) Practicing beneficence by providing evidence-based and beneficial health services, and (4) Upholding justice by ensuring patients receive necessary healthcare services equitably [57].

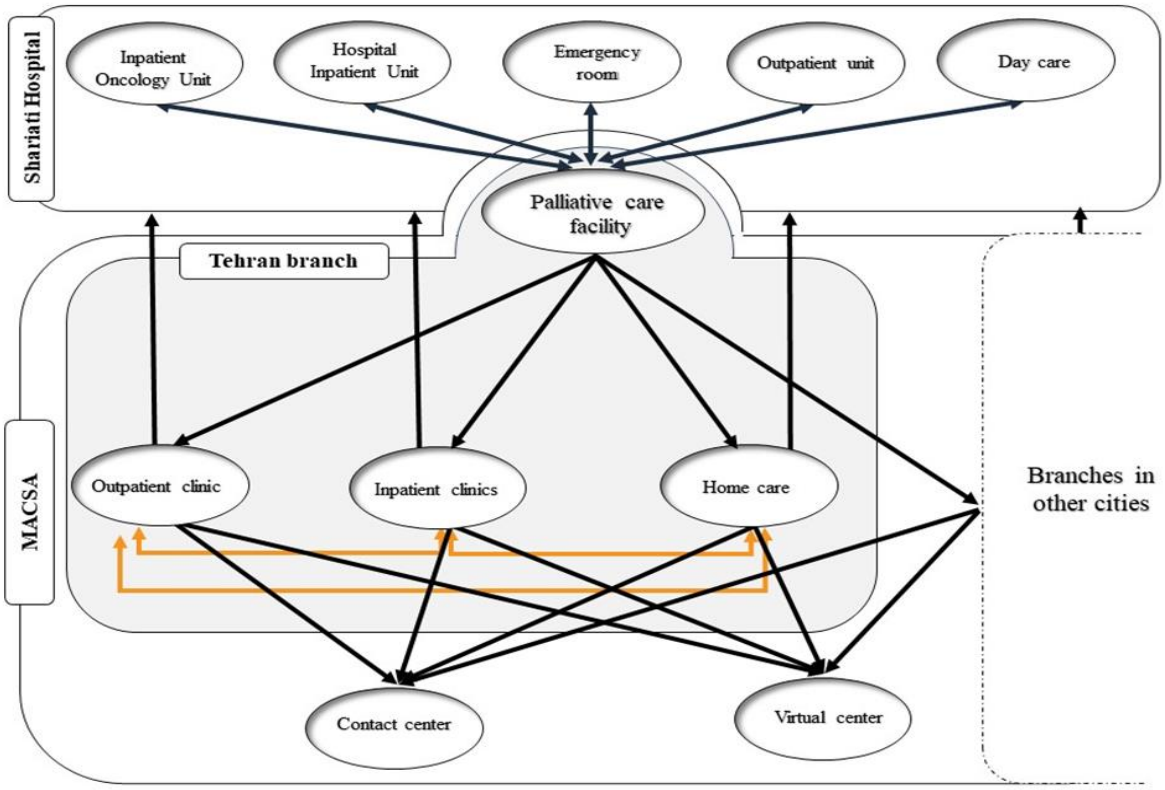

Figure 3. The pathology and number of patients referred to MACSA unit in Shariati Hospital during a two-year period since the establishment. The structure of the network between the Shariati Hospital system, as one of the general tertiary referral hospitals in Iran, with Iranian Cancer Control Center (MACSA), as a specialist supportive and palliative care provider has been illustrated. Shariati Hospital includes inpatient oncology unit, hospital inpatient unit, emergency room, outpatient unit and day-care provided by MACSA, situated within Shariati Hospital, plays a critical role by coordinating patient care across the different hospital units and establishing connections with the broader MACSA network. MACSA includes various services including outpatient clinics, inpatient clinics, home care, call center, virtual center, and branches in other cities, facilitating access to care for a wider population.

4.1. Autonomy

Autonomy refers to the freedom to act in self-governing areas without external influence in matters related to medical care [58]. However, discussing goals of care when patients are critically ill may affect aspects of autonomy. In this regard, supportive and palliative care as a comprehensive approach, with multidisciplinary nature, evaluates and deals with all patient issues, especially psychosocial issues, care concerns and prognosis. Supportive and palliative care also provides patients and families with insights into alternatives to a strict all-or-nothing approach to health care. However, one of the obstacles is the lack of correct understanding of the concept of supportive and palliative care by many people, such as the general public and even providers of more specialized medical services. Therefore, increasing the amount of education and awareness for both the patient and their families can be a constructive solution in the process of maintaining the patient's independence [59]. As a specialized provider of supportive and palliative services in Iran, MACSA can convey the necessary information to the patients and their families with approaches such as holding a family care conference where the central management of this program is with a specialized support and palliative team. In the conferences, various aspects of the patient's and family's condition will be discussed and investigated in order to clarify the available approaches for the independence of patients and their families. Once understanding is achieved, the patient and family can discuss with the health care team about choices that are consistent with their values. The result of this process will be independence in decision-making and future planning, and the person will be in the center of attention in the midst of illness along with his/her quality of life. In other words, palliative care providers will discuss and facilitate continuity of care with adjustments and services that are needed by the patient and family [60]. It is worth mentioning that the team's ongoing communication with the attending physician and other experts is not limiting; rather, it fosters independent decision-making. As a result, the continuity, cooperation, and open dialogue between the palliative team and the primary treatment team have a positive impact on promoting independence.

4.2. Non-maleficence

Non-maleficence refers to a principle in medical practice that does not cause unnecessary injury. It is attributed to the fundamental maxim "Primum noncore," which would simply mean, "first, do no harm." Some of the medical interventions indeed inflict pain or harm, though the principle of non-maleficence pays much attention to the ethical justification that may be presented for any kind of harm. It is acceptable to inflict harm if the benefits of the medical intervention outweigh the harm to the patient, as long as the intervention is not intended to harm the patient. To uphold the principles of beneficence and non-maleficence, healthcare professionals must comprehend their roles and responsibilities in end-of-life care [58]. As an example, the relief of physical pain and distressing symptoms of patients are an ethical duty of palliative care, and it is within the competency of the discipline. Pain is the most common and feared problem in hospitals; nearly 50% of all terminally ill patients have moderate to severe pain. To neglect pain when it can be treated is to harm patients, which is a violation of the principle of non-maleficence. This could lead to medical complications, longer hospitalization, and loss of independence associated with unnecessary suffering. Besides, uncontrollable pain can undermine a patient's autonomy due to the impact such pain has on decision-making processes [61]. Similarly, in MACSA, the principle governing pain management for a patient follows the fundamental principles of palliative care that can be delivered at a basic level by a general practitioner or a nurse and in complex situations by a specialist practitioner, such as pain management specialists. However, the principle of non-maleficence applies in more areas other than pain management and in a variety of symptoms presented by a patient.

4.3. Beneficence

In healthcare system, deciding what is most beneficial for every patient in any given situation can be complex. On the contrary, health care decisions could be in consistency with the patient's benefit

when these are based on sound clinical judgments, respect for the person, family, and caregivers, and consideration of limitations of fair provision of health care services. To this end, strategies such as integrating care and treatment options, honoring the patient's preferences, alleviating distressing symptoms, fostering collaboration among healthcare professionals, and ensuring an appropriate care environment can enhance patient outcomes. However, it is important to recognize that the concept of benefit can vary based on different circumstances and timeframes; what was once beneficial may no longer be effective, and vice versa. For example, for end of life patients, applying approaches to relieve symptoms and improve quality of life can be more beneficial than pursuing aggressive primary treatments [62]. The principle of beneficence is completely consistent with the principles of providing supportive and palliative care services in MACSA. Specifically, in accordance with the primary aim of supportive and palliative care, evaluations of the patient's condition from multiple perspectives are essential. Hence, supportive and palliative strategies can be employed based on patient's circumstances at each phase of the illness, which serves to alleviate suffering and enhance quality of life.

4.3. Justice

The concept of justice as a moral principle can encompass many aspects of health care delivery. First of all, the need for justice can be assessed at the level of the patient. Paying attention to the current needs of the patient, avoiding under-treatment or over-treatment, preventing complications due to the use of multiple drugs and ensuring that the people under treatment are placed in the most appropriate conditions are among the aspects that can be mentioned in this regard. At the family environment, considering the legitimate and reasonable needs of the family members and caregivers of the patient, justice should be applied in such a way that they are not pressured in this challenging process. However, at the level of a system, it should be noted that the resources of the health system framework in which specialists are engaged in providing services are limited. Accordingly, the current limitations can present the concept of justice from a newer perspective. Hence, justice in health care delivery requires respect and equitable benefit for all stakeholders [62].

Caring for patients with cancer in resource-poor areas frequently requires ethically challenging decisions about how to allocate limited resources. More than 60% of the world's cancer deaths occur in LMICs, where most countries face limitations regarding both access to care and access to effective symptom management [63]. It should be noted that Iran is no exception to this rule. As mentioned, Iran is classified under the "3-A" category of palliative care development, signifying that it is a country where palliative care services are isolated, sporadic, limited to a few centers, lack well-developed programs, and heavily depend on donor funding [46]. Whereas Iran is among countries that have limited access to supportive and palliative care, efforts to spread the care have been taken by MACSA as a specialist provider over the past years. To simplify, MACSA has made significant progress in incorporating supportive and palliative services into the healthcare systems of most referral hospitals in Iran. Additionally, organized branches in various cities of Iran have been established, providing services under a unified management structure to ensure the delivery of well-coordinated services nationwide.

DISCUSSION

Over the past years, the significant impact of cancer on patients' QOL has increased the critical need for palliative care services in Iran. While there has been some progress in this area, there is a significant gap between the current situation and the desired standards [64]. Iran's economic and health structure is also centrally organized and operates at the provincial level without a clear framework for the provision of supportive and palliative services, while it is classified as a developing country with abundant resources. Additionally, most of supportive and palliative care is provided informally, mainly for cancer patients, and financing for these services comes from the public and private sectors, with the private sector playing a significant role. Iran's health system is different from other developing countries,

but it still struggles to develop appropriate frameworks for supportive and care that meet its specific needs. Furthermore, there are significant differences in health status between Iran and better-performing countries, which often have different payment systems and semi-centralized structures. Given the issues, the need of an urgent integration of a specialized care system within the Iranian health framework has been highlighted[22]. To fill up this gap, MACSA, as the biggest supportive and palliative service provider to cancer patients and their families in Iran, initiated efforts to embed such services in the usual care system of the referral hospitals. In this context, this study examined the stages of integrated establishment of hospital-based supportive and palliative services in Iran from different aspects, including goal setting, process (i.e., participation of stakeholders, implementation, pilot development, standardization of care, and management of education), stakeholder (e.g., the Ministry of Health, health care providers, and non-governmental organizations), and the ethical context.

Through the provision of supportive and palliative care from diagnosis, during treatment, and beyond, NGOs like MACSA work with the evolving needs of patients and the health care system in Iran, thereby making feasible the completion of a comprehensive care framework that addresses the diverse needs of patients suffering from the cancer, hence improved outcomes, and eventually an overall efficient health care system. In this regard, it is worth noting that MACSA's journey to achieve its ultimate goal, which is to provide specialized services of supportive and palliative care at the tertiary level for cancer patients, has progressed from primary and secondary care to now include specialized and advanced support for patients at the highest level of care.

The experience of Shariati Hospital has been the first initiative experience of MACSA around the concept of the provision of integrated hospital-based supportive and palliative services. Indeed, the program was conceived with the objective of establishing a comprehensive system that offers supportive and palliative care to cancer patients starting from their admission to the hospital. In this regard, MACSA expanded its work by covering the patients referred from the emergency and hospital departments with supportive and palliative services and is trying to cover the third referral portal, i.e., patients in the clinic department, in the near future. In fact, MACSA's strategic approach to expand services at Shariati Hospital is to transition from an issue-based to a system-based approach. A system-based approach effectively enhances the issued-based approach and they complement each other. However, upgrading the service delivery structure to a system-based approach can help to simplify the referral process and ensure the high quality of providing supportive and palliative care to patients[28]. However, the scope of services extends beyond patient admission to the hospital and initial medical consultations. To simplify, patient monitoring can occur post-referral to outpatient facilities or via direct referral to the supportive and palliative care hospital-based team. It is while, a forward-looking approach to patient monitoring involves broadening follow-up services through virtual MACSA and the home care facility. In fact, these strategies aim to reduce unnecessary hospital referrals, particularly for patient's resident outside the capital city, thereby enhancing patient welfare through the delivery of high-quality services.

Align with future plans, over the past years, MACSA has been made significant progress in establishing systematic supportive and palliative services through numbers of branches across the country. Therefore, the leading role played by MACSA in developing integrated hospital-based supportive and palliative care brings into light the NGO contribution, not only about funding, but also consolidation in the management and organization of services delivered by charitable organizations and volunteers from the community. Taking into account MACSA's achievements so far and its future plans to expand services, has promote its role as a facilitator of Iran's level in the global development of supportive and palliative care. Indeed, it aims to active palliative care initiatives in various locations, increase local support, have multiple funding sources, provide a variety of hospice and palliative care services from different providers as well as educational programs concerning palliative care, which is called as 3-B category by WPCA [46].

CONCLUSION

The integration of supportive and palliative care into health-care systems around the world is important in relieving the burden of serious illnesses. Even though providing comprehensive palliative care is very difficult in LMICs like Iran, efforts are ongoing in improving services and developing infrastructure[23]. Supportive and palliative care providers for cancer, including MACSA, are the mainstay of supportive and palliative care in Iran, which places great emphasis on expanding services with the view of availability for all patients. MACSA purports to take a leading role in ensuring comprehensive care for all cancer patients in Iran by collaborating with various organizations in using leadership strategies.

The efforts by MACSA to make supportive and palliative care helpful within the usual care setting in referral hospitals mean a big step toward better outcomes for patients and QOL. Supportive and palliative care is essentially interdisciplinary, requiring a team of specialists without which effective service delivery cannot be done with any considerations of cost-effectiveness and quality of care in general. Further, it has been realized that continuing interprofessional education can help overcome the challenges, including failures in teamwork and coordination among various professions involved in health care. It can further underline the importance of multilateral cooperation in tackling the complex needs of cancer patients, thereby improving the quality of care in general and reducing hospital readmissions.

Despite the challenges foreseen on a large scale, what added to the importance of this cooperation was its lofty goal, which could be a win-win for all its stakeholders. As far as supportive and palliative care in Iran is concerned, most of the services are provided as counseling in clinics, and the departments providing the services, specifically created for patients in their final stages of life; however, no specific organizational structure was established for the services [65]. In this regard, providing supportive and palliative care from diagnosis, through treatment, to post treatment, is one of the main ideals of MACSA organization in line with the needs of patients and health care system, which has been developed.

CONFLICT OF INTEREST

The authors report there are no competing interests to declare.

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