

RESEARCH ARTICLE

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Factors Improving Oncology Nurse Role Performance in Providing Pediatric Palliative Care: A SWOT Analysis

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Abstract

Objective: Palliative care is provided by an interdisciplinary team in which, nurses play an important role, and improving their role performance can be effective in providing high-quality care. This study aimed to explore the factors related to improving oncology nurses' role performance in providing pediatric palliative care. **Methods:** This qualitative study was conducted using semi-structured interviews with 22 nurses, physicians, hospital supervisors, children, and their parents from September 2022 to January 2023. Data analysis was performed based on conventional content analysis proposed by Elo and Kyngas using MAXQDA 2020. Finally, subcategories of each main category were summarized in the SWOT analysis matrix. **Result:** Data analysis led to the extraction of 1250 codes, three main categories (nurse-related factors, child and family-related factors, and organizational factors), five generic categories, and 32 subcategories that were ultimately classified in the SWOT analysis matrix. **Conclusion:** This study showed that oncology nurses' role performance in providing palliative care is influenced by many internal and external factors. In this regard, in order to improve their role performance, increasing knowledge among nurses, nursing students, and the community on integrating pediatric palliative care topics into the nursing curriculum, fair access to palliative care services, drug accessibility, financial support, and further research are recommended.

Keywords: Cancer- children- nurse- palliative care- SWOT analysis- role performance

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Introduction

Cancer is a life-threatening disease that affects the lives of numerous children worldwide (Steliarova-Foucher et al., 2017). According to the World Health Organization (WHO) each year, an estimated 400,000 children and adolescents aged 0–19 years old develop cancer. In Iran, the incidence of cancer in children is about 33.36 per 100,000 children (WHO, 2021). According to the available statistics, cancer-related mortality in children is about 70% in developing countries and about 20% in developed countries (Green et al., 2017). The results of 13 childhood cancer registries around the world showed that about 1.5% of children with cancer die a few months after being diagnosed (Caron et al., 2020). Thus, in order to increase the survival of children with cancer, various methods, such as radiation therapy, chemotherapy, and bone marrow transplantation, are used. However, these treatments cause many complications, which require continuous monitoring and care (Enskär et al., 2020). Parents, who have the main responsibility of caring for and following

up on the child's treatment process, face many challenges, including changes in their daily life patterns and in marital relations, physical and psychological problems, and neglect of other siblings, which can ultimately lead to a decrease in the quality of life (Chung et al., 2021). Therefore, improving children's and parents' quality of life is one of the important issues in care programs for children with cancer. In this regard, it is necessary to provide comprehensive and family centered-care in the form of palliative care (PC) (Wolfe et al., 2022).

Pediatric palliative care (PPC) is a service that aims to prevent and relieve the physical and psychosocial suffering of patients through the early identification and comprehensive assessment of physical, mental, and spiritual dimensions, and ultimately to improve the quality of life and satisfaction of children with cancer and their families (Rassouli et al., 2021)

Considering the emphasis of the WHO on providing PPC in the Eastern Mediterranean region and the many benefits for children with cancer and their families, the establishment of PPC centers is a need in the practice

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of research in the Iranian health system. Due to many challenges, PC is not integrated into the health system of Iran, and scattered activities are carried out in this direction (Eshaghian-dorcheh et al., 2019; Rassouli et al., 2019a). In fact, integrating cancer care into the health system can save up about 70% of health system costs (Idris et al., 2020). Studies have shown that early integration of PC for cancer patients will lead to increased survival (Thakur and Ghoshal, 2019). Successful integration of PC for cancer patients requires some infrastructures and processes. One such infrastructures is having an interdisciplinary team (Rouh-Allahi M, 2013), and nurses are the main members of this team (Razban et al., 2013) because nurses are the first health professionals that assess patients, pay attention to their suffering (Perrin et al., 2022), spend a lot of time with them, and participate in the decision-making process (Latour et al., 2009). In fact, nurses all over the world play the main role in providing PPC (Wolfe et al., 2022). Therefore, improving their role performance can facilitate achieving the ultimate goal of PPC, which is to improve the quality of life and satisfaction of children and their families (Farooki et al., 2021).

Regardless of the importance of oncology nurses' role performance, their role performance in an interdisciplinary team is faced with many challenges, including a lack of financial support, the need to provide appropriate structures in hospitals, a lack of guidelines, a lack of training for nurses, and raising awareness in the community (Eshaghian-dorcheh et al., 2019; Rassouli et al., 2019b).

Considering the effectiveness of analyzing the stakeholders' perceptions in policy-making, management and planning in a health system such as hospitals (Organization, 2016), it is important to investigate their perspectives regarding the strengths, weaknesses, opportunities and threats (SWOT) of the oncology nurse role performance for providing PPC. In this regard, we can do a situational analysis and identify the necessary measures for planning, which is why SWOT model was used in the present study. SWOT is a simple framework that points to the importance of external and internal forces in order to identify the necessary strategies (Hosseinnejad et al., 2022). This tool helps explore the organization's current performance (strengths and weaknesses) and the organization's future opportunities and threats by accounting for the factors that exist in the external environment. SWOT is a powerful and sometimes highly successful technique that can be applied to individuals, groups, teams, organizations (Chermack and Kasshanna, 2007), situational analysis, program design, and ultimately improvement of care outcomes (Ansari et al., 2018). Therefore, the current research was designed using SWOT analysis to explore the factors affecting the improvement of oncology nurse role performance in providing PPC in Guilan province, Iran.

Materials and Methods

Study design

This is a qualitative-directed content analysis study and is part of a larger participatory action research project and

nursing PhD thesis related to improving oncology nurses' role performance in providing PPC in Iran.

Participants

In this study, 22 participants (nine nurses, two oncologists, two nursing managers, two children with cancer, and seven caregivers) were selected by purposeful sampling. Nurses and oncologists who were currently working in the oncology department, as well as nurse managers who had previous experience working in this department, were included in the study. Also, children whose cancer was confirmed by an oncologist and who were in the stage of active or follow-up treatment and their parents were included in the study.

Data collection

Data collection was done from September 2021 to March 2022. After the objectives of the study were explained, the time and place of the interviews were coordinated with the participants. Semi-structured interviews were used in order to collect data. The interview questions were different for participants. The interview questions for nurses were as follows: "What do you do in the field of caring for children with cancer and their families?" "How can you help families and children with cancer?" A sample interview question for parents was "Tell me about your experiences regarding visits to this hospital, whether outpatient or inpatient, since the beginning of your child's problem." The interview questions for physicians and nursing managers were as follows: "What actions do you see by oncology nurses in the field of caring for children with cancer and families?", "What actions do you see by oncology nurses in the field of physical/psychological symptom management for children with cancer and families?" or "What needs do you see in children with cancer and their families in the oncology department?". Also, we used probing questions to collect more information such as "Can you give an example? And can you explain more?"

Data analysis

The analysis of the findings was done simultaneously with the data collection. Data management was done using MAXQDA10 software. Data analysis was done based on the conventional content analysis approach proposed by Elo and Kyngas, which included preparation, organization, and reporting phases (Elo et al., 2014; Polit and Beck, 2020). In preparation phase, after transcribing verbatim, we selected semantic units and initial open coding was done. In organization phase, subcategories, generic categories, and main categories emerged. In reporting phase, all of the data analysis process reported with detail. Finally, we classified subcategories of each main category in the SWOT analysis matrix. An example of the analysis is presented in Table 1. Strengths and weaknesses represent internal organizational factors (in the hospital), and threats and opportunities represent external organizational factors (outside the hospital) that can affect the improvement of oncology nurses' role performance in providing PPC (Table 2).

Rigor and Trustworthiness

The criteria introduced by Lincoln and Guba (1985), including credibility, dependability, confirmability, and transferability, were used in order to ensure rigor and trustworthiness. (Lincoln and Guba, 1985) Credibility was determined through long-term engagement with the participants, a member check, a peer check, and a review of the interview texts by the participants. To ensure dependability, the researchers used triangulation in data collection (observations, field notes, and interviews), maximum variation, and an external audit. Confirmability was ensured by accurately reporting all research processes and data analyses in detail. Transferability was ensured by presenting the findings in a detailed and comprehensive manner along with the quotes of the participants.

Results

The participants included 9 oncology nurses, 2 oncologists, 2 nursing managers, 2 children with cancer and 7 parents. The mean age of participants and experience of healthcare workers were 36.40 ± 1.2 and 12.30 ± 1.4 , respectively. Other demographic characteristics of participants are provided in Table 3. Data analysis led to the extraction of 1250 codes, three main categories (nurse-related factors, child and family-related factors, and organizational factors), five generic categories, and 32 subcategories. The subcategories of each main category were entered into the SWOT matrix (strengths, weaknesses, opportunities, and threats).

Nurse-related factors

The findings revealed that there are some nurse-related factors that can facilitate or hinder the provision of PPC.

Strengths

The participants stated the presence of empathy, professional commitment, and interest in learning the principles of PC as strengths for improving the oncology nurse's role performance.

In this regard, a nurse said: "...I personally have not participated in any class related to PPC, but I am very, very interested..." (P.3). The mother of a boy with brain cancer said: "...the nurses who work in this department understand us and always empathize with us..." (P.16).

Weaknesses

The participants mentioned the presence of psychological burnout and decreased motivation as weaknesses for improving oncology nurses' role performance.

In this regard, a nurse said: "... I am very interested in learning more or taking care of the family and children here, but the main problem is that our spirits and bodies are tired... we really need to change our mood... and this fatigue really affects our care for these children and their families..." (P.9).

Threats

The participants stated that having family problems is a threat to improving oncology nurses' role performance.

In this regard, a physician said: "...Many of our nursing colleagues have a lot of family problems such as having a child, financial problems in the family or having arguments with their spouse. All these factors definitely affect our work process, for example, during a shift, most of the time that a nurse can have is wasted struggling with her/his family or..." (P.6).

Child and family-related factors

The findings show that child and family-related factors can facilitate or hinder the provision of PPC.

Strengths

The participants stated that the readiness of the child and his/her family to promote their health literacy and self-care are strengths that can improve oncology nurses' role performance.

In this regard, a nurse manager said, "...Most of the families here have a high level of knowledge about their child's illness... this is very good and it definitely makes our nurse's job easier..." (P.12).

Weaknesses

The participants mentioned psychological, financial, and physical burdens related to cancer in the family as weaknesses that prevented the improvement of oncology nurses' role performance.

A nurse said, "... Most of the families here have severe financial problems, they can't even buy their medicines or do the laboratory tests, this makes our nurses always spend time after the discharge and call them asking if you bought a certain medicine?" (P.4).

Threats

The participants stated that incorrect cultural beliefs and opinions regarding pain management and cancer, as well as low death literacy in the community are threats preventing the improvement of oncology nurses' role performance.

A nurse said: "...Some families who come from different cultures, have certain views about pain control,

Table 1. Example of Data Analysis

Main category	Generic categories	Subcategories	Primary codes	Quotation
Organizational factors	Lack of supportive facilities	-Lack of therapeutic facilities -Lack of diagnostic facilities -Lack of welfare facilities	-Lack of MRI device -Lack of drug -Lack of room and bed for resting of the caregivers of children during their hospitalization	"... we don't have MRI or CT-Scan device here, and this makes us to send patients to an equipped center, and causes a lot of stress for us and the family...also, we don't access to some drug because of the sanctions. In addition, the families have a number of welfare needs, for example, they don't have a room or a bed to rest in..."

Table 2. Statements of the SWOT Analysis based on 3 Main Categories.

Main category	SWOT matrix	Column1
Nurse-related factors	Strengths	Weaknesses
	-Empathy -Professional commitment -Interest in learning the principles of palliative care	-Psychological exhaustion -Decreased motivation
	Opportunities	Threats
	----	-Family problems
Child and family-related factors	Strengths	Weaknesses
	-Readiness of the child and his/her family to promote their health literacy and self-care	-Psychological, financial and physical burden related to cancer
	Opportunities	Threats
	----	-Incorrect cultural beliefs and opinions regarding cancer -Low death literacy in the community
Organizational factors	Strengths	Weaknesses
	-Peer support -Gaining experience from experienced nurses by novice nurses	-Lack of diagnostic, therapeutic and welfare facilities -Inappropriate physical structure of the oncology department
	Opportunities	Threats
	-Support of non-governmental organizations (NGOs) -Development of short-term interdisciplinary palliative care curriculum -Legislation for palliative care services by the MOHM	-High workload -Ineffective organization of the nursing workforce -In hospital rotation of nurses -Lack of knowledge
	-Holding national educational webinars/workshops -Possibility to participate in international courses (fellowship) -Access to clinical guidelines"	-Lack of an interdisciplinary healthcare team -Lack of a palliative care program -Lack of referral system -Lack of palliative care courses in the bachelor's degree curriculum in nursing -Lack of a curriculum for the master's degree in oncology nursing

for example, they think that pain is a punishment from God and the child should bear it and not inform us... This negatively affects our ability to identify the child's pain very well and provide relief..." (P.3).

A physician said: "...we don't talk much about the death of a child here, we transfer a child who is close to death to the ICU, it seems like death and talking about it is a taboo and this makes it difficult for us to talk to the family about their child's condition..." (P.5).

Organizational factors

The findings show that organizational factors can facilitate or hinder the improvement of oncology nurse role performance in the provision of PPC.

Strengths

Participants mentioned peer support and gaining experience from their experienced colleagues in the oncology department of 17-Shahrivar Hospital as strengths that improve oncology nurses' role performance.

In this regard, a parent said: "...When I took my child to this department, I easily and quickly got acquainted with other families who have similar conditions, and it helped me to have a better acceptance of my child's disease..." (P.11).

A physician said: "...new nurses, at first, are oriented towards managing cancer patients accompanied by their experienced colleagues in the oncology department ..." (P.5).

Weaknesses

The participants identified a lack of diagnostic,

therapeutic and welfare facilities; the inappropriate physical structure of the oncology department; a high workload; the ineffective organization of the nursing workforce; the in-hospital rotation of nurses; and a lack of knowledge as weaknesses that hindered improvements in oncology nurses' role performance.

A nurse said: "...We don't have diagnostic devices such as CT scan here, and this makes us send children to a more equipped center... this sending causes a lot of stress for us and the family during our shifts..." (P.20).

A 14-year-old child said: "...There is no CT scan and I think that's why my nurse is busy. She is coordinating my work from the beginning of her shift and doesn't have time to speak or play with me..." (P.19).

Opportunities

The participants stated that support from non-governmental organizations (NGOs), the development of short-term interdisciplinary PC curricula, legislation for PC services by the Ministry of Health and Medical Education holding educational webinars and workshops, the possibility to participate in international courses (fellowship), and access to clinical guidelines as opportunities to improve the oncology nurse role performance.

A parent said: "...When I took my child to this department, I received some money from NGOs such as Hamava charity. Also, they held celebrations in various ceremonies in this department that can help us to forget any sorrow or discomfort ..." (P.12).

Threats

Participants stated that the lack of an interdisciplinary

Table 3. Demographic Characteristics of Participants

No.	Education	Position	Gender	Age (y)	Marital status	Job experience	Previous education about palliative care
P1	Master of sciences	Head nurse	Female	57	Married	29	No
P2	Bachelor	Nurse	Female	28	Married	4	No
P3	Bachelor	Nurse	Female	36	Married	10	No
P4	Bachelor	Nurse	Female	33	Married	9	No
P5	Fellowship	Oncologist	Male	45	Married	9	No
P6	Fellowship	Oncologist	Male	55	Married	12	No
P7	Bachelor	Nurse	Female	25	Married	1	No
P8	Bachelor	Nurse	Female	33	Married	9	No
P9	Bachelor	Nurse	Female	37	Married	9	No
P10	Diploma	Housewife/mother	Female	43	Married	---	No
P11	Diploma	Housewife/mother	Female	39	Married	---	No
P12	Master of sciences	Nurse officer	Female	45	Married	28	No
P13	Diploma	Agriculture/father	Male	45	Married	---	No
P14	Diploma	Computer engineer/father	Male	29	Married	---	No
P15	Master of sciences	Nurse officer	Female	55	Married	23	No
P16	Diploma	Housewife	Female	37	Married	---	No
P17	Bachelor	Housewife	Female	35	Married	---	No
P18	Bachelor	Nurse	Female	42	Married	12	No
P19	Student	Child with cancer	Female	14	Single	---	No
P20	---	Child with cancer	Male	5	Single	---	No
P21	Bachelor	Teacher	Female	33	Married	---	No
P22	Bachelor	Nurse	Female	30	Married	5	No

PPC team, PC program, referral system, PC courses in the bachelor's degree nursing curriculum, and master's degree curriculum in oncology nursing are threats preventing the improvement of oncology nurses' role performance.

A nurse manager said: "...We do not have any plan for providing PC for the child and his family..." (P.15).

Discussion

This study aimed to explore the factors affecting improvements in oncology nurses' role performance in providing PPC. The results led to the identification of three categories of factors affecting the improvement of their role performance, including nurse-related factors, child and family-related factors, and organizational factors.

Regarding nurse-related factors, studies revealed that nurses' empathy and professional commitment are influential in providing high-quality PC for children with cancer (Brito-Pons and Librada-Flores, 2018). In fact, empathy is one of the main skills in nursing. By relying on these skills, oncology nurses can understand patients' conditions and establish a proper supportive relationship with the patients, which can ultimately lead to improved care. Based on a study conducted in Iran, it has been determined that the level of empathy of oncology nurses is at a medium level and that methods such as in-service training programs, training in nursing schools, periodic assessments of the level of empathy of nurses with valid tools, feedback techniques, and sharing the experiences of oncology nurses with their colleagues can promote empathy among them (Rohani et al., 2018). Having

professional commitment also causes the establishment of a relationship with humanity and altruism and leads to a more effective presence of nurses at the patient's bedside, which is very effective in reducing the pain and suffering of the patients. According to the study of Mojarad et al., (2019) in Iran, despite the existence of many problems in hospitals, oncology nurses have a proper professional commitment and believe that they should provide safe, favorable, and high-quality care for cancer patients and their families. In fact, they feel satisfied that they provide good care for patients according to their ethical principles and job duties.

Nurses' interest in learning the principles of PC was one of the strengths obtained in the present study. In this regard, research has shown that nurses' interest can be a facilitating factor in acquiring the necessary abilities to provide PC (Stevens et al., 2009). Therefore, considering the interest of the nurses, studied in this investigation, implementing training courses related to PC can be one of the strategies to improve oncology nurses' role performance.

Regarding nurse-related factors, psychological exhaustion and decreased motivation were extracted as weaknesses. In this regard, other studies have also shown high levels of psychological exhaustion and decreased motivation among nurses working in oncology wards, which can act as an obstacle to providing effective care and requires special attention (Dijxhoorn et al., 2021).

A study in Iran showed that oncology nurses have high levels of burnout (Taleghani et al., 2017), which can decrease their motivation, job satisfaction, professional

commitment, and the quality of patient care. Some of the most important reasons for these problems are a high workload, a lack of nursing staff, insufficient social support, and the complex conditions of caring for children with cancer, which lead nurses to continuously face the death or suffering of children and their families (Taleghani et al., 2017). Interventions such as providing sufficient staff, reducing nurse workload, and utilizing relaxation and mindfulness techniques can be effective in reducing burnout among oncology nurses (Burger and Lockhart, 2017).

Regarding child and family factors, studies have shown that parents' health literacy leads to the promotion of self-care (Duarte and Pinto-Gouveia, 2016). In fact, parents' appropriate health literacy can lead to their active and effective participation in taking care of their children and the continuation of the treatment process (Morrison et al., 2019). Considering that parents in the current study were highly prepared to improve their health literacy, it was regarded as a facilitating factor. Therefore, it seems that the quality of PC can be improved through comprehensive training.

One of the weaknesses was the psychological burden associated with cancer. Studies have revealed that the parents of a child with cancer suffer from psychological burdens that can lead to an ineffective ability to care for the sick child and can ultimately affect the child's treatment process. Nurses also experience high levels of stress while caring for these children (McCloskey and Taggart, 2010). Therefore, through proper planning, such as providing psychological counseling for parents and nurses, as well as increasing nurses' skills in the field of the psychological management of children with cancer and their parents, a suitable step can be taken to improve oncology nurses' role performance in providing PC.

Another key finding is related to incorrect cultural beliefs and opinions regarding cancer. According to a study by Rassouli et al., (2019b) in Iran, due to the strong relationship between parents and children and lack of awareness, if a child gets sick, parents might deny any bad prognosis or the possibility of the child's death. These false cultural beliefs can be an obstacle to providing care and treatment for a child with cancer.

Low death literacy is another threat. According to the cultural context of Iran, parents experience much stress, denial, and despair, and they feel trapped after receiving the news of their child's cancer. In fact, the Iranian people consider cancer a fatal and incurable disease. If these parents do not have appropriate death literacy, it can result in tension, increase the nurse's workload, and affect the provision of quality care (Kang et al., 2022).

Regarding organizational factors, Elcigil et al. found that the presence of peer support in children's oncology departments led to the greater compatibility of parents with the child's disease and interest in pursuing his/her medical treatment and adhering to the treatment. In fact, peer support through facilitating the establishment of social relationships makes cancer more easily accepted by parents and leads to their greater compliance with their child's treatment process (Elcigil and Conk, 2010). All these factors can ultimately facilitate oncology nurses'

role performance in providing PC.

One of the other strengths was the possibility of gaining experience from experienced nurses by novice nurses. According to previous studies, the possibility of gaining experience from experienced nurses by novice nurses had a direct impact on the quality of care provided to a child, and it was recommended to include peer support and mentorship in nursing in order to learn about palliative and end-of-life care topics (Wahab et al., 2016). In oncology departments, where experienced nurses act as mentors for novice nurses, the process of socialization is also facilitated in novice nurses, and they can learn the skills necessary to provide quality care for children with cancer more easily (Rosenzweig et al., 2019).

A lack or shortage of diagnostic, therapeutic, educational, and welfare facilities, as well as a lack of an appropriate oncology department structure, was another weakness. Considering that there is no national regulation for providing PC for children in Iran and that PC has not been integrated with the health care system, so far, the necessary planning and support for providing equipment, structure, and appropriate diagnostic-therapeutic and educational facilities have not been provided by the authorities (Rassouli et al., 2019b).

A lack of knowledge of nurses is another weakness. Based on the study of Rassouli et al., (2019b) the level of knowledge of nurses in Iran in the field of PC is not favorable, and nurses and healthcare team members need to participate in courses related to PC. The desire of nurses to change the workplace and in-hospital rotation are other weaknesses. In fact, the desire of skilled oncology nurses to change the workplace causes a lack of trained nurses to provide care for children, and novice nurses replace them, which can affect the quality of care (Day et al., 2015).

The lack of an organized interdisciplinary team was another finding. Based on previous studies, the lack of an interdisciplinary team and the unclear description of the duties of the members of the team are among the problems in providing PC (Silbermann et al., 2013), and one of the most important reasons for these problems is the insufficient knowledge of healthcare workers about how to work as a team. Also, inappropriate attitudes, an inability to communicate with workers in different disciplines, a lack of a clear goal, a lack of human resources, and unclear descriptions of the duties to be performed by each member of the team are other reasons (Rassouli et al., 2019b; Wolfe et al., 2022). In response to the lack of an interdisciplinary team, a short-term interdisciplinary PC curriculum has been compiled in Iran, which was designed after analyzing the situation and extensive needs assessments (Irajpour et al., 2015).

The lack of a PC program in hospitals and the lack of PPC topics in the nursing bachelor's and master's curricula are other findings. In fact, PPC in Iran is a new service, and there is no clear and specific program provided by the Ministry of Health and Medical Education for children with cancer and their families (Khanali, 2018). The absence of a referral system is another finding. In Iran, PC has not yet been integrated into the health system. The most important reasons for this are the unfamiliarity of officials and policymakers with the

principles of PC (concept, areas, and dimensions), the absence of regulations and guidelines in the field of PC, and insufficient social support (Barasteh et al., 2021).

One of the opportunities was the support of NGOs for children with cancer. All over the world, volunteers play a critical role in providing PC (Candy et al., 2015). They perform extensive activities with the cooperation of nurses. Fortunately, in Iran, charitable organizations and NGOs also support children with cancer (Khanali, 2018). Therefore, their cooperation can be a strong point for improving oncology nurses' role performance in providing PC to these children and their families.

Another opportunity is the legislation for PC services by the Ministry of Health and Medical Education. However, despite this regulation, PC is still provided in a limited way, and it is in its pilot stage in some hospitals in Tehran. In implementing this program in hospitals, the provision of healthcare services, follow-ups, and continuity of care will be facilitated even after discharge. Therefore, it is necessary to provide the infrastructure and resources to provide PC in hospitals (Rassouli and Sajjadi, 2016).

Holding several national webinars and workshops, the possibility to participate in international courses (such as fellowships) related to PC for nurses, and access to PC clinical guidelines are other opportunities that were revealed in this study. In fact, the participation of nurses in specialized training courses and their empowerment can have a significant effect on improving their knowledge and performance and can ultimately lead to the provision of high-quality PC (Eshaghian-dorcheh et al., 2019; Rassouli et al., 2019b). The current study has some limitations. One of the most important limitations is that this study was conducted in a single center. Therefore, the findings should be generalized and applied with caution, considering the organizational culture of different contexts.

In conclusion, this study shows that oncology nurses' role performance in providing PC is influenced by many internal and external factors. It is necessary to improve the strengths and opportunities and make appropriate plans to reduce weaknesses and threats in order to improve oncology nurses' role performance in providing PPC in Iran. In this regard, holding in-service training courses for nurses; teaching nursing students in nursing colleges; integrating PPC topics into the curriculum of nursing courses is recommended. Also, supporting authorities to approve regulations regarding fair access of children with cancer and their families to PC services at different levels; facilitating access to drugs (especially opioids); offering financial support; providing diagnostic, therapeutic, and welfare facilities; creating a supportive culture; increasing people's awareness in the field of PPC and the end of life; and conducting further research is recommended.

Author Contribution Statement

Study conception and design: S.P., Z.T.E., M.R., B.D., N.J.P.; data collection and analysis: S.P., Z.T.E., M.R., B.D., N.J.P.; preparing final report and revisions: S.P., Z.T.E., M.R., B.D., N.J.P.; supervision: Z.T.E., M.R., B.D., N.J.P.

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Scientific approval

This study was as a result of PhD dissertation in nursing. It has been approved by the research committee of the Deputy of Research and Technology of Guilan University of Medical Sciences.

Ethical approval

This study approved by the Ethics Committee of Guilan University of Medical Sciences (IR.GUMS.REC.1400.267). We followed the principles of the Declaration of Helsinki. Participation in this study was voluntary and all the information obtained from them remained confidential. Written informed consent were obtained from participants.

Availability of data

All data of the present study can be available through sending e-mail with the corresponding author and the approval of all member of research team.

Conflict of interest

There is no conflict of interests.

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