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# ***Role of Physical Therapy in Aiding Cancer Surviving Patients: Lebanese Oncologists' Perception***

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**Introduction:** Cancer rehabilitation, a 70 years old practice, awards importance to physical therapy as a tool to help cancer patients/survivors by improving joint restrictions, muscle weakness, fatigue, balance and gait problems, and nerve lesions. These impairments can affect the patient's physical and psychosocial wellbeing and require the oncologist's attention offering patients the available interventions to permit them to live well with or after cancer. In Lebanon, physical therapists cannot, legally speaking, treat a patient without a medical prescription from a medical doctor. Therefore, the oncologists are supposed to refer their cancer patients to physical therapy.

**Materials and methods:** The study goal is to reveal the status of referral of cancer patients to physical therapy, the criteria for referral, and the use of evidence based scales in evaluating survivors and the precautions mentioned when needed. This study will also analyze the ethical issues associated to the knowledge and practice of Lebanese Oncologists as it is related to prescribing physical therapy to their patients. An electronic questionnaire was sent to all 77 Oncologists in the country to collect the necessary data.

**Results:** The answers of 45 oncologists, those who responded, were collected and analyzed. Data analysis revealed some serious ethical issues particularly those concerned with the beneficence, non-maleficence, and the continuity of care which are major components of decision making.

**Conclusion:** Physical therapists can offer a wide range of solutions to cancer survivors, but oncologists still hold the key for referral. Clearer legislations and improving communication between all stakeholders can help overcome ethical issues and significantly improve the life of patients.

**Keywords:** Cancer survivor; Physical therapy; Oncology; Rehabilitation; Ethics.

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## Introduction

Cancer rehabilitation was first discussed in a book by Dr. Howard Rusk and Dr. Edward Taylor published in 1949 [1] and was followed by many editions that highlighted the important and evolving role of physical therapy in cancer rehabilitation [2]. Physical therapy is recommended during the whole continuum of care, from cancer diagnosis to end of life with distinct roles during the different phases. It was found to reduce the burden of symptoms, help restore functions, increase joints range of motion, decrease fatigue and improve quality of life. Although it is recommended for all cancer survivors, a term that has been redefined to include all cancer patients at the time of diagnosis regardless of prognosis [3], it is regrettably only prescribed for some [4].

Treating cancer is a prolonged process requiring chemotherapy, surgery, radiation therapy or other procedures with a relatively debilitating impact on the body and the quality of life. Research has shown that individualized therapeutic exercises prescribed by the physical therapist for survivors with different types of cancer during and after treatment, lead to improvements of cancer-related fatigue, physical fitness [5], muscle strength, posture, gait and balance and quality of life [6]. Along the same lines, neuromuscular electrical stimulation can improve muscle strength in some patients [7]. Adding resistance training to aerobic exercises can optimize the results obtained [8]. This goes in parallel with the recommendations of the American College for Sports Medicine for cancer survivors [9].

Patients with COPD can benefit from physical therapy which could increase their pulmonary volumes prior and post-surgery, and improve pain and gait affected by the chemotherapy [10]. Physical training program for patients undergoing rectal cancer resection had favorable effects on muscle strength and physical capacity, and decreased the complications of surgery and the recovery period [11].

As for gynecological cancer, physical therapists can help women with sexual problems related to pelvic floor issues after treatment. Pelvic floor can be deconditioned, may have weak and tight muscles, and sometimes adhesions from surgical scars [12]. Relaxing tight muscles, strengthening weak muscles, scar tissue auto mobilization and visual biofeedback can help relieve any pelvic pain and improve function [13].

Along the same lines, breast cancer survivors can benefit from physical therapy. Exercise decreases pain and allows the patient to overcome restricted shoulder movements [14], strengthen muscles and improve limb functionality [15] and the quality of life [16]. Children suffering from cancer can also benefit from physical therapy. Research revealed that a 12-weeks training program for cardiorespiratory function demonstrated an improvement in physical function and fitness [17] and had a cardio-protective effect [18]. Unfortunately, cancer survivors are not frequently referred to physical therapy. They are most often unaware of its availability and, according to Stubblefield, the same unawareness is shared by some oncologists [19].

The oncologists play a major role in prescribing physical therapy. When diagnosis is announced, cancer survivors are motivated to make lifestyle changes and become more active as this can affect cancer progression. Encouraging exercising among survi-

vors should be part of the whole cancer care process for optimal results [20].

Despite benefits of physical therapy, precautions and restrictions must be followed when needed, given the consequences of hematological compromise, cardiopulmonary toxicity, neurotoxicity, bone fragility and advanced cancers [21]. Such precautions have to be indicated by the oncologist in the prescription of physical therapy in order to avoid complications during rehabilitation.

The physical therapy profession in Lebanon is regulated by law 8/78 which states, in its sixth article, that the physical therapist is not allowed to treat any patient without a medical prescription [22]. Referral to physical therapy from doctors through a medical prescription is a must to initiate rehabilitation sessions to ensure that the patient is getting the best care in line with the medical condition according to the up-to-date scientific data. The act on the rights of patients and informed consent law 574/2004, dating 11<sup>th</sup> of February 2004, mentioned in its first article that the patient has the right, within the framework of a health system and social protection, to receive the medical care that is rational and suitable for his/her situation, and in line with the current scientific data. This protection takes the form of prevention, treatment, palliative therapy, rehabilitation, and education [23]. Thus, providing rehabilitation to cancer patients in need is a must and medical care should ultimately include referring those patients to physical therapy as cancer is becoming a rising disease according to the national cancer registry of the ministry of public health in Lebanon with a total of 7914 patients who were diagnosed in 2005 and increased to 12238 in 2016 [24].

This study aims at finding out whether the oncologists in Lebanon are aware of the benefits of providing physical therapy to cancer surviving patients, the criteria upon which they decide referrals, the use of standardized outcome measures to decide referrals and the precautions they choose to include. On the ethical level, this study will attempt to present the different ethical issues regarding the beneficence that oncologists are offering to their patients through referral to physical therapy; the non-maleficence by knowing the limitations and specifying restrictions, providing best course therapy, the usage of evidence based tools to assess patient's physical and functional deficiencies, being up-to-date to provide the best care backed by evidence, and finally, the commitment to offering the best care.

## Materials and methods

The approval of the ethical committee of the faculty of medicine at the Lebanese university was first obtained. To be able to get the necessary data to meet the objectives of the study, the oncologists working in Lebanon were targeted. The orders of the physicians in Beirut and Tripoli were contacted and the needed data to communicate with the oncologists was secured. The Lebanese society of medical oncology was also contacted and its president confirmed that there are 77 oncologists working in Lebanon.

An electronic questionnaire, in English and French, was created using "google forms". Questions targeted the assessment of perception of physical therapy for cancer survivors, the referral of cancer survivors to physical therapy, the criteria relied upon, use of evidence based scales, and specification of restrictions in rehabilitation when necessary.

An explanation of the study aim was written at the beginning of the questionnaire to obtain the consent of the participating oncologists before proceeding to the questions. All oncologists' subspecialties are potential physical therapy prescribers, and therefore, they were all included in this study. Sub-specialties include oncologic radiotherapy medicine, oncologic surgery, medical oncology, hematology and medical oncology, hematology, pediatric hematology and oncology, pediatric oncology and pediatric hematology.

All oncologists received an email and/or an SMS explaining the study with a link to the electronic questionnaire. Those who did not respond after the first contact, received a second email and/or SMS as a reminder. A third and final email and/or SMS was sent to non-responders as a last call to answer the questionnaire. The total number of respondents was 45 responders, 58% of the total targeted population.

Data was analyzed using the statistical software SPSS (Statistical Package for Social Sciences), version 21. A p-value <0.05 was considered significant with a confidence interval of 95%. Pearson's chi-square analysis was used to determine the association between the variables. Logistic regression was applied taking subspecialty as the dependent variable and several independent

variables into account.

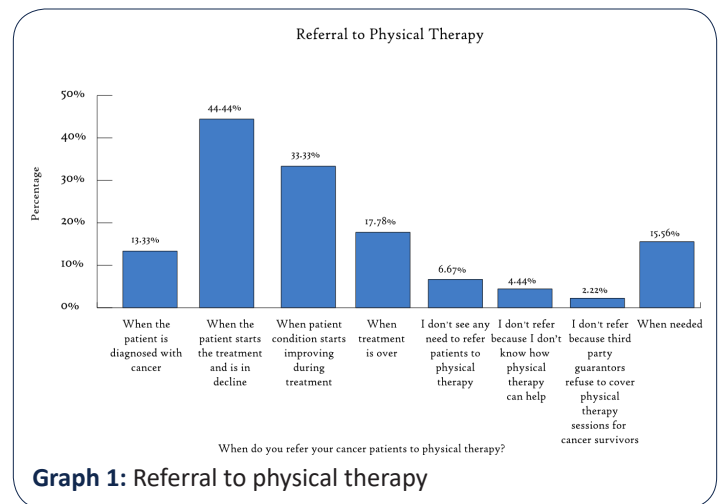
## Results

Regarding the socio-demographic information, as can be observed in table 1, the mean age was  $43.4 \pm 10.93$ , and majority was male (73.3%). Most respondents specialty was Hematology-Medical (55.6%) and for the least were oncologic surgery (2.2%). The mean years of experience of responders was 12.98 years. Oncologists with less than 10 years of experience reached 53.3%, and only 6.7% had more than 30 years of experience. Most respondents practiced in Beirut (51.1%), followed by Baabda (15.6%).

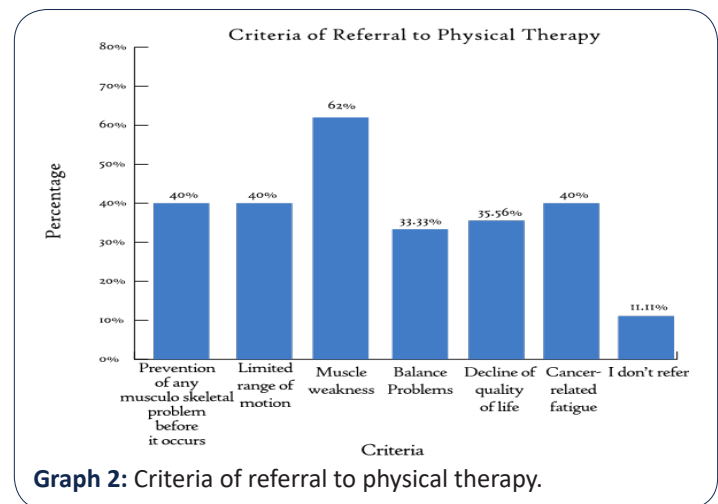
As for referral to physical therapy and with several choices overlapping as more than one answer was accepted, out of the 45 respondents, 44.44% confirmed that patients should be referred when the treatment starts, while 33.33% agreed that referral should be made when patient's condition improve during the treatment. Only, 17.78% considered that referral should occur when the treatment is over, and 15.56% consider referrals upon need. Moreover, only 13.33% considered that referrals to physical therapy should occur at time of diagnosis, and an equal percentage considered that referrals should never be prescribed (graph 1).

**Table 1:** Socio-demographics characteristic of the population.

Characteristics	Number of subjects	Frequency (%)
<b>Gender</b>		
Male	33	73.3
Female	12	26.7
<b>Age Class</b>		
[30-39]	23	51.1
[40-49]	8	17.8
[50-59]	10	22.2
≥ 60	4	8.9
<b>Subspecialty</b>		
Hematology	1	2.2
Medical Oncology	7	15.6
Hematology & Medical Oncology	25	55.6
Pediatric Hematology & Oncology	4	8.9
Oncologic Surgery	1	2.2
Radiation Oncology	7	15.6
<b>Years of experience</b>		
[1-10]	24	53.3
[11-20]	10	22.2
[21-30]	8	17.8
≥ 31	3	6.7
<b>Region</b>		
Beirut	23	51.1
Baabda	7	15.6
Saida	5	11.1
Jbeil	3	6.7
Bekaa	1	2.2
Nabatieh	1	2.2
Tripoli	1	2.2
Chouf	3	6.7
Abroad	1	2.2

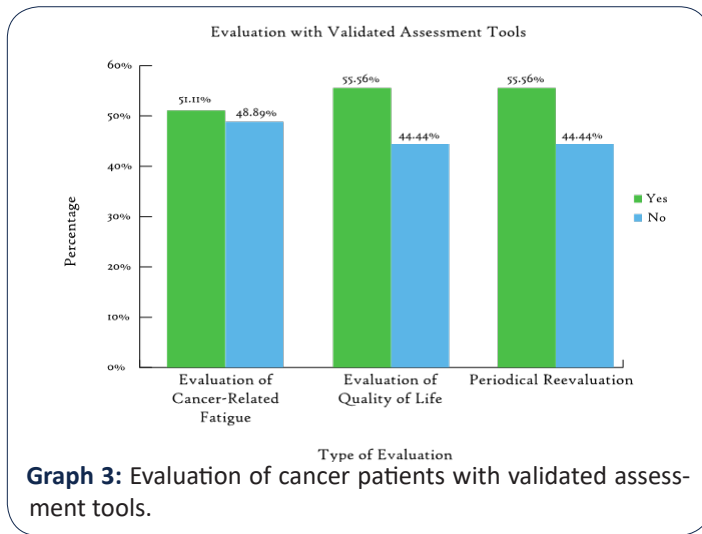


**Graph 1:** Referral to physical therapy



**Graph 2:** Criteria of referral to physical therapy.

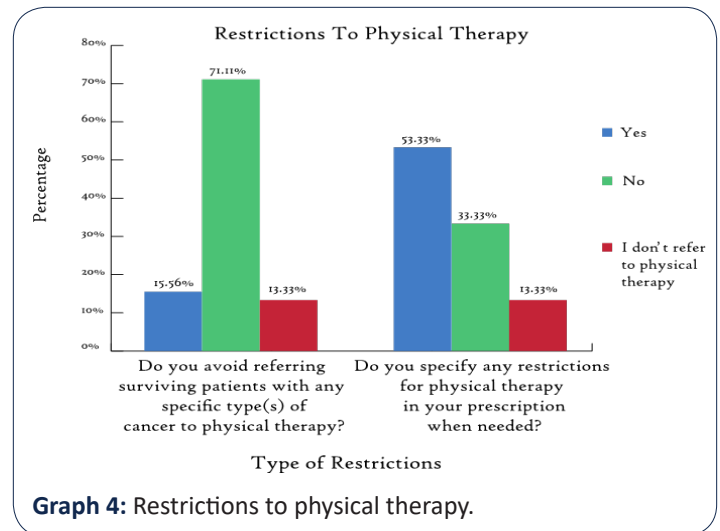
The oncologists were asked to reflect on the conditions that they consider merit referrals to physical therapy with several choices overlapping as more than one answer was accepted. A majority of respondents (62.22%) considered muscle weakness as the most relevant, 40% confirmed that prevention of musculoskeletal problems before they occur is a criteria for referral, another 40% mentioned fatigue and 35.56% considered decline of the quality of life as a criteria for referral, 33.33% included balance problems, 40% considered limited range of motion, and only 11.11% said they do not refer to physical therapy (graph 2).



**Graph 3:** Evaluation of cancer patients with validated assessment tools.

When it comes to the questions regarding the use of the validated assessment tools for the cancer-related fatigue, the quality of life and the periodical reevaluation in their practice, the oncologists were invited to choose between “Yes” in case they use such tools or “No” in the opposite case. The respective percentage of the oncologists who had a positive response was 51.11%,

55.56% and 55.56%, while those who had a negative response was 48.89%, 44.44% and 44.44% (graph 3).



**Graph 4:** Restrictions to physical therapy.

Concerning the restrictions of referral to physical therapy, either by non-referring due to the type of cancer or by specifying restrictions in the prescription when needed, the responses came as follows: 15.56% of the oncologists mentioned that they avoid referring patients with certain types of cancer to physical therapy, while 71.11% said they didn't. The remaining did not refer altogether. Moreover, 53.33% specified restrictions to physical therapy when needed, while 33.33% don't specify any restrictions (graph 4).

#### Bivariate analysis

Chi square analysis was varied out between demographic variables taking the criteria of referral as the dependent variable in our study. The results are tabulated below in table 2 and table 3.

**Table 2:** Association between socio-demographic, prescription criteria and subspecialty.

		Subspecialty : n (%)							P Value
		Hemato-logy	Medical Oncology	Hemato-logy and Medical oncology	Pediatric Hemato-logy & Oncology	Oncology Surgery	Radiation oncology	Total of n	
<b>Gender</b>									0.167
	<b>Male</b>	0	4 (8.9%)	19 (42.2%)	2 (4.4%)	1 (2.2%)	7 (15.6%)	33	
	<b>Female</b>	1 (2.2%)	3 (6.7%)	6 (13.3%)	2 (4.4%)	0	0	12	
<b>Years of Experience</b>									0.826
	<b>1-10</b>	1 (100%)	2 (28.6%)	13 (52%)	4 (100%)	1 (100%)	3 (42.9%)	24	
	<b>11-20</b>	0	3 (42.9%)	3 (16%)	0	0	4 (57.3%)	10	
	<b>21-30</b>	0	1 (14.3%)	7 (28%)	0	0	0	8	
	<b>≥31</b>	0	1 (14.3%)	2 (8%)	0	0	0	3	
<b>Prevention of any Musculo-skeletal problem before it occurs</b>		1 (2.2%)	3 (6.7%)	9 (20.0%)	2 (4.4%)	0	3 (6.7%)	18	0.769
<b>Limited range of motion</b>		0	4 (57.1%)	8 (32%)	2 (50%)	0	4 (57.1%)	18	0.567
<b>Muscle weakness</b>		0	4 (57.1%)	15 (60%)	2 (50%)	0	7 (100%)	28	0.160
<b>Balance problems</b>		0	3 (42.9%)	8 (32%)	2 (50%)	0	2 (28.6%)	15	0.866
<b>Decline of quality of life</b>		0	4 (57.1%)	7 (28%)	2 (50%)	1 (100%)	2 (28.6%)	16	0.425
<b>Cancer-related fatigue</b>		1 (100%)	5 (71.4%)	8 (32%)	1 (25%)	0	3 (42.9%)	18	0.295
<b>I don't refer</b>		0	1 (14.3%)	3 (12%)	1 (25%)	0	0	5	0.849

**Table 3:** Association between evidence based practice and subspecialty.

	Subspecialty: n(%)							P Value
	Hematology	Medical Oncology	Hematology & Medical Oncology	Pediatric Hematology & Oncology	Oncologic Surgery	Radiation Oncology	Total of n	
Evaluation of cancer-related fatigue using validated assessment tools	0	4 (57.1%)	13 (52%)	2 (50%)	0	4 (57.1%)	23	0.806
Evaluation of quality of life using validated assessment tools	0	4 (57.1%)	13 (52%)	3 (75%)	0	5 (71.4%)	25	0.555
Reevaluation periodically using the scales	0	4 (57.1%)	15 (60%)	2 (50%)	0	4 (57.1%)	25	0.736
Avoid referring surviving patients to physical therapy	1 (100%)	0	5 (20%)	0	0	1 (14.3%)	7	0.444
Specify restrictions for physical therapy in prescription when needed	1 (100%)	2 (28.6%)	15 (60%)	1 (25%)	1 (100%)	4 (57.1%)	24	0.703

As it is observed in these bivariate analysis tables, none of the items were significantly associated with the subspecialty of the doctors so this means that the prescription of the physiotherapy does not relate to the subspecialty of treating doctor. In other words, none of the doctors has prescribed physiotherapy or at least don't prescribe physiotherapy based on the listed criteria. As well as for the evidence based diagnosis tools as we can observe that the hematology and medical oncologist are the most professionals that evaluate their patients using validated assessment tools and reevaluate periodically their patients through the scales. On the other hand, they have many restrictions while prescribing physical therapy; but no significance has been associated between the tools and subspecialty with all the *P* values above 0.05.

### Discussion

Reading into the data collected from the questionnaire in this study, some ethical issues emerge and must be discussed, starting with referral to physical therapy. According to Hewitt and his colleagues, physical therapy should be present from the time a patient is diagnosed with cancer till the end of life [25]. Moreover, a study by Schwartz and her colleagues concluded that rehabilitation should be initiated at the moment of diagnosis to optimize the physical and psychological benefits, as well as, resilience to treatment [9]. Along the same lines, Kimmel and his colleagues mentioned in their research that in 2001 rehabilitation was mostly prescribed for end-stage cancer patients, but with the positive results obtained, referral to physical therapy is currently being set as early as possible for most patients [4]. The result of our study revealed that this is not the practice followed in Lebanon. Only 6 out of the 45 (13.33%) oncologists prescribe physical therapy when the patient is diagnosed with cancer. The patients of 73.33% oncologists will be missing the benefits of physical therapy at this early stage, though they might be referred at a later stage. The remaining 13.33% of the oncologists who never refer their patients to physical therapy will be depriving patients from any benefit they can get at any stage, acting against the non-maleficence principle. This shows that most oncologists are not up-to-date with the latest guidelines. Some are not aware of the benefits of physical therapy at all or prescribe it later than it should be, thus, decreasing or eliminating the beneficence they can provide to cancer survivors.

When it comes to the criteria that oncologists rely on to refer to physical therapy, muscle weakness was chosen by 62.22% of the oncologists and less choices for the other criteria. This could actually result in less referrals to physical therapy and cancer survivors would miss its possible benefits. In fact, all the criteria should have been selected for two main reasons. First of all, prescribing physical therapy at the time the patient is diagnosed with cancer can help in preventing musculoskeletal problems. Secondly, the presence of any of the mentioned criteria should be a reason for referral to physical therapy if we are to follow international standards. According to Smith and Zheng, physical therapy should be prescribed to all patients with cancer because it can reduce the burden of symptoms and can help restore functions, joints range of motion, decrease fatigue and improve quality of life [3]. Campbell and his colleagues further highlight the fact that exercise is the best option to reduce cancer related fatigue<sup>26</sup>. The research findings highlight the lack of knowledge that oncologists might actually have about the multiple benefits of physical therapy for their patients.

The use of validated assessment tools helps the process of better decision-making through evaluating problem by utilizing the best scientific solutions available to date. While 51.11% of oncologists mentioned using such tools for cancer-related fatigue assessment, 48.89% do not evaluate this problem, which could be leading to non-treatment, inappropriate treatment or out-of-date treatment. This is against the beneficence and the non-maleficence principles. Escalante and Manzullo recommend routine screening of patients for cancer-related fatigue and suggest a different approach for mild and moderate to severe intensity [27].

When it comes to evaluating quality of life, 55.56% claimed using validated tools while 44.44% did not use such tools which ultimately leads to non-treating or offering an outdated treatment which also goes against the beneficence and the non-maleficence principles. According to the study led by King and her colleagues, the use of validated tools to assess quality of life has a positive effect on improving the care offered to the patient [28]. The continuity of care of the patients by keeping their file up-to-date as required is actually achieved by 55.56% of oncologists who reevaluate periodically cancer-related fatigue and quality of life, while the rest do not accomplish this task.



Applying the non-maleficence principle may sometimes mean non-referral to physical therapy or specifying restrictions to physical therapy as the opposite might put the patient at risk according to the type and phase of cancer and the possible consequences of the treatment: 13.33% mentioned they do not refer to physical therapy at all, 15.56% of oncologists mentioned they avoid referring certain types of cancer to physical therapy, while 71.11% stated they don't. As for restrictions in the patient's physical therapy prescription, 53.33% stated that they mention restrictions while 33.33% do not mention any restrictions. Chemotherapy side effects mentioned by Maltser and colleagues [21] need to be taken into consideration in order to decide whether referrals to physical therapy with restrictions should be made in order to avoid possible incidents during rehabilitation which could result if the physical therapist was not been clearly informed in the prescription.

### Conclusion and recommendations

The concept of rehabilitation for cancer patients has been at the forefront of providing comprehensive care for over seventy years giving patients a chance to live a better life regardless of the status of the disease. Physical therapists can offer a wide range of solutions for cancer patients in order to improve their physical status and life. Nevertheless, this continues to be dependent on the referral of those patients from their oncologists as imposed by law. This study has shown that some ethical principles are not well respected in the oncology field, mainly those related to referral to physical therapy. As mentioned previously, beneficence is not always taken into consideration due to a lack or an out-of-date knowledge and, unfortunately, this may lead to offering less benefits to patients. Moreover, undesirable events during rehabilitation could occur with certain cases which need to be clearly detailed in referrals which is not the current practice in Lebanon. This may lead to a disregard of the ethical principle of non-maleficence. The non-use of validated assessment tools, which allows for better decisions and improve the continuity of care, is another essential ethical issue in oncology which needs to be more valued and emphasized.

Some steps can be recommended in order to decrease or avoid such ethical issues. The order of physicians and the Lebanese Society of Medical Oncology are encouraged to help the oncologists stay up-to-date with the new emerging guidelines concerning rehabilitation for cancer patients as this would provide patients with benefits they might be missing and improve their quality of life. The order of physicians is also invited to improve legislation concerning the use of validated assessment tools to help the oncologists make better decisions concerning patients' problems assessment and continuity of care. Furthermore, the communication between the oncologists and the physical therapists must be improved by direct contact and by reciprocal communication of roles at a higher level including the professional orders to better understand the benefits that each can provide to the cancer survivors and decrease the risks that might be associated with rehabilitation which could result from lack of communication.

### Declarations

**Conflict of interests:** The authors declare they have no conflict of interests.

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