

An Examination of Physiotherapy Practice Pattern in Cancer Rehabilitation: A Survey among Physiotherapists in South India

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Abstract

Physiotherapists contribute significantly to the maintenance of functional independence and quality of life among cancer patients through early intervention and community follow up. Very little has been documented about the extent Physiotherapists are involved in the care and management of individuals with functional deficits related to cancer in India although physiotherapists are mandatory to promote and maintain physical function. The purpose of this study was to examine and describe current practice patterns of Physiotherapists in cancer rehabilitation in South India.

A descriptive study was performed using the survey method for data collection among 1120 randomly selected Physiotherapists licensed and practicing in South India. Following institutional review board approval, surveys with consent forms were e-mailed to subjects and subjects received follow-up e-mail reminders.

Usable surveys returned were 188 (18.13%). 62.8% of therapists reported treating individuals with a history of cancer while only 17.8% were treating the cancer patients on regular basis. Most common patients were with breast cancer (75%); common treatments were: home exercise programs and breathing exercises (both 77.1%), range of motion exercises (68.6%), chest clearance techniques (64.6%), strengthening and education (both 60.4%), and stretching (56.3%), Monitoring methods were: heart rates (58.3%), blood pressure (54.2%), pain scale and O₂ saturation levels (47.9%), and rates of perceived exertion (37.5%), functional outcome measures were: 6 minute walk test (41.7%), quality of life (20.8%), SF-36 (18.8%), and Functional Independence Measure (14.6%).

We found that, only very few physiotherapists are practicing exclusively in cancer care setting in South India. Intervention types were satisfying while monitoring and functional outcome measures were inconsistently used. Furthermore, number of physiotherapists working in the cancer centers is no match for the increasing demand of physiotherapy in cancer care.

Keywords: Physiotherapy, Rehabilitation, Cancer treatment, Survey, Practice patterns.

Introduction

Cancer has become a common condition and a source of significant disability. There is an increasing number of individuals living

with long-term and short term side effects of cancer and anti-cancer treatments who require supportive care. Individuals undergoing cancer treatment or in survivorship often develop functional deficits from pain, movement restrictions, fatigue, lymphedema, skin and soft tissue breakdown, and difficulty breathing.[1-4] Thus cancer may result in multiple impairments and disabilities that limit physical performance and activities of daily living.[5] This functional loss can be devastating to the patients, and results in a significant social and economic burden to their families and to society with increased levels of disability among cancer patients and survivors.[6,7] Current perspectives on cancer rehabilitation see it as a field concerned with

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helping each patient in many broad areas of human function including physical, psychological, social and vocational activities.

Cancer rehabilitation takes place in various stages in different forms, such as Preventive, Restorative, Supportive and Palliative rehabilitation therapy.[8] Physical exercise is perhaps the most important therapeutic modality in the rehabilitation management of physical disabilities.[9] Exercise could play a potential role as complementary therapy for cancer patients during and after treatment. [10] Supervised exercise programs during and after treatment show positive benefits on strength, cancer-related fatigue, physical functioning, and quality of life.[11-14] There are no formal cancer rehabilitation programs even in some of the developed countries, and there is a shortage of cancer rehabilitation programs around the world.[15,16] But, there is an underuse of rehabilitation services for cancer patients across the world. In some country rehabilitation services for cancer patients are also limited. The reasons of this fact include the following suggestions; failure to identify functional impairments by the acute care staff, lack of appropriate rehabilitation referrals, lack of awareness of rehabilitation services, and lack of knowledge about such services among family members.[17]

Physiotherapy helps cancer survivors to improve their physical skills, mobilize in a different way, or use assistive equipment. In cancer care, formalized physiotherapy involvement dates back to the 1960s, before the commencement of the modern hospice movement.[18] Today, the involvement of physiotherapists in the field of oncology is diverse and includes specific roles which are evidence based and commonly applicable. In addition, Physiotherapists guide patients how to safely exercise either to improve circulation, reduce swelling, and keep the muscles healthy to prevent deformities and health complications.[19]

Postoperative physiotherapy includes prevention and management of various system complications.[20] They prescribe specific

therapeutic exercise programs like supervised resistive strengthening/aerobic exercise to improve strength, tolerance and fatigue after cancer surgery/radiotherapy.[21] It is proved that lymphedema can be prevented or reduced if patients receive physiotherapy soon after their operation.[22] Apart from that, involvement of physiotherapists include acute institutional and community based rehabilitation through simple measures and also palliative care by utilizing all of the above applications to optimize quality of life and contribute positively to easing care giver's burden.[23] In addition, in hospice and palliative care settings physiotherapy treatments help to promote and maintain function.[24,25] In this regard, Physiotherapy, can contribute significantly to the maintenance of functional independence and quality of life among patients receiving palliative care.[23]

However, very little has been documented about the extent Physiotherapists involved in the care and management of individuals with functional deficits related to cancer.[9,26,27] In India, the situation is still worse with some of the regional cancer centers are not having the physiotherapy facility itself. Kathie, *et al*, (2004) found that only 46.8% physiotherapists were treating individuals with diagnosis of cancer in Washington.[28] Among them, 40% of respondents did not measure functional outcomes and 10 % of respondents did not monitor these individuals during treatment. Besides, physiotherapists used primarily strengthening, range of motion, patient education, and home exercise programs while functional outcome assessments, an indication of the progress and merit of interventions were inconsistently performed.[29] Furthermore, although large numbers of individuals have experienced cancer, very few of these individuals have benefited from the care of Physiotherapists. Even, cancers survivors are poorly integrated back into the workforce due to lack of health care provider and employer knowledge on return-to-work practices.[30] Although studies describe the degree that cancer and its treatments contribution, at the present time the number and type of cancer

survivors that would benefit from Physiotherapy interventions are unclear. In India no studies are found in this respect.

As the expanded information on Physiotherapist oncology practice patterns from the Indian states would be of benefit for advancing research initiatives, developing educational directives, and promoting professional practice guidelines in oncology physiotherapy practice, the aim of this study was to examine and describe current practice patterns of Physiotherapists in cancer rehabilitation in South India.

Methodology

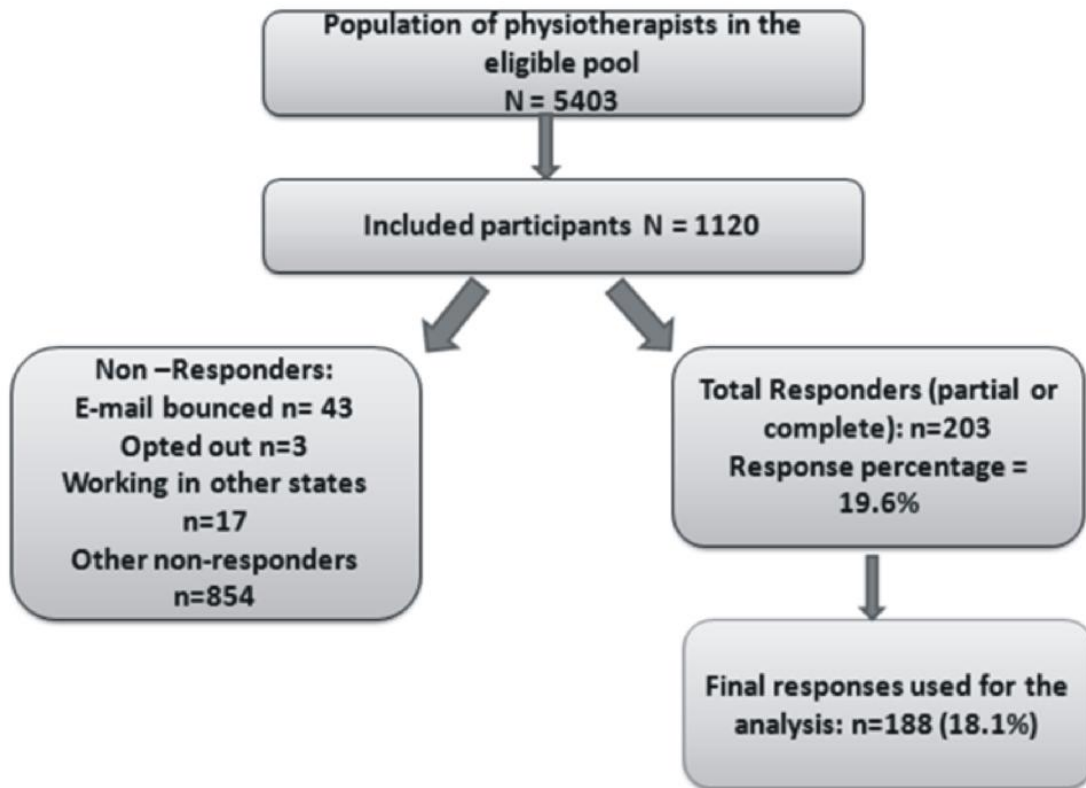
Since Indian physiotherapists' trend and practice pattern in cancer rehabilitation may be diverse and insufficient, this explorative research design was required to gain an insight into the current physiotherapy practice pattern. So, we opted for a survey using a valid, custom designed questionnaire. In this study, an estimated minimum of 355 responses were needed to detect significance with an alpha value set at 0.05.[31] Using a response rate of 31.7% (as of the previous study) and allowing for lost or undelivered surveys, we could able to identify the required sample size needed to achieve the minimum number of completed surveys.[29] Total 1120 Physiotherapists, qualified and currently practicing in the States of Tamil Nadu, Karnataka and Kerala of Southern part of India were included. Subjects were randomly selected through a computer randomization from an eligible pool of 5403 individuals registered with Indian Association of Physiotherapists. Physiotherapists were not eligible to participate in this study if they were not currently practicing, retired, or practicing in other states or in other countries.

The original, self-administered, validated, English version of the Questionnaire to assess the Physiotherapy Practice Pattern in Cancer Rehabilitation was having questions regarding the professional qualification, experience, working set up, oncology case load, modalities

prescribed for the cancer patients, diagnostic procedures used for the cancer patients and the physical and functional outcome measures used after the treatment of cancer patients under three sections.[32] The questionnaire was approved by the panel of experts and institutional ethical committee.

Procedure

Following receipt of institutional review board approval, surveys were sent by electronic mail to the sample subjects in these three states. The contact e-mail addresses have been identified from the data bases of Indian Association of Physiotherapists. The e-mailing included a cover letter stating the purpose of the study, an informed consent form, instructions on how to complete the survey, and the survey. The survey was made in writable pdf format using Acrobat-professional package (Adobe® Acrobat® X Pro) so that the respondents are just required to download the survey, type their responses and send back the same without the need to take print or to save. To assure confidentiality, the respondents name did not appear on the survey response form; however, respondents were instructed to sign an attached informed consent form. The e-mailing was done using a separate mail-id created for this purpose. To increase the response rate, an electronic survey was produced using 'Survey Monkey' online survey system (Copyright © 1999-2012 SurveyMonkey) on contract and the URL was been sent to the participants. This made the answering pattern as very easy and convenient. So the participants just needed to click that URL which took them to the survey page and then click on the responses as per the guidelines provided for each questions. Further to increase the response rate exactly after every week, another reminder mail was sent to every participant for three consecutive weeks. Third reminder was mentioned as final reminder. Survey was done between March and June 2012. To protect the anonymity of the participants, their names were not mentioned in the text in the results section. The name of the each respondent has been

Figure 1: Population, Non-responder and Responder Numbers, and Response Percentage

replaced by a number. Each number had been assigned to one particular survey participant.

Data obtained from the surveys were entered into and analyzed with SPSS (version 20.0, ©IBM Corporation, 2011). Descriptive statistics were used to assess responses on the survey. Spreadsheets were made for the multiple answer questions and Frequency distributions (number and percentage) were calculated for each question.

Result

The response rate to the mailing was 203 (19.6%) completed surveys. Following the recommended time interval, reminders mails were sent to non-responders to improve the response rate. The final response rate (Figure 1) was 188 (18.13%) as only 188 surveys were partially or fully completed and used in the study. Surveys that were returned but not used in the study included 15 which were incomplete. Furthermore, 43 surveys among the total sent were undeliverable due to

incorrect e-mail addresses, 3 therapists opted not to participate in the survey and 17 response surveys were belonging to the Physiotherapists currently working in other states although they were basically belong to any of these three states. So those 17 surveys also were not considered as response and were not included for the data evaluation.

Respondent Demographics

Table 1 shows the demographic characteristics of the respondents. 130 respondents were male and 58 were female. All the respondents were currently in the job. Out of total 188 respondents, 77 Physiotherapists (41%) were from Tamil Nadu while 67 (35.6%) from Karnataka and the remaining 44 (23.4%) were from Kerala. The mean age of the respondents was 30.51±4.3 years. Among them 63.8% were working as Physiotherapist while the remaining 36.2% were working as academicians in the colleges. Entry level Physiotherapy degrees of respondents were 27.7% Bachelor in

Table 1: Demographic Characteristics of the Respondents

Characteristics		N	%
Gender	Male	130	69.1
	Female	58	30.9
Designation	Therapist	120	63.8
	Academician	68	36.2
Current area of practice	Acute Ortho	35	18.6
	Out-patient Ortho	94	50.0
	Acute Neuro	1	0.5
	Out-patient Neuro	17	9.0
	IP rehabilitation center	20	10.6
	Extended care Facility	3	1.6
	Academic institution	17	9.0
	Other	4	2.1
	Highest entry-level degree	BPT	52
MPT		130	69.1
PhD		6	3.2
Speciality	Cardio-Respiratory	26	13.8
	Musculoskeletal	84	44.7
	Neurology	33	17.6
	Paediatrics	16	8.5
	CBR	6	3.2
	Others	8	4.3
Experience	Less than 2years	37	19.7
	2-5 years	46	24.5
	More than 5 years	105	55.9
Attended Oncology related workshops/ continuing education		49	26.1

Graph 1: Practice Settings Reported by Number for All Respondents

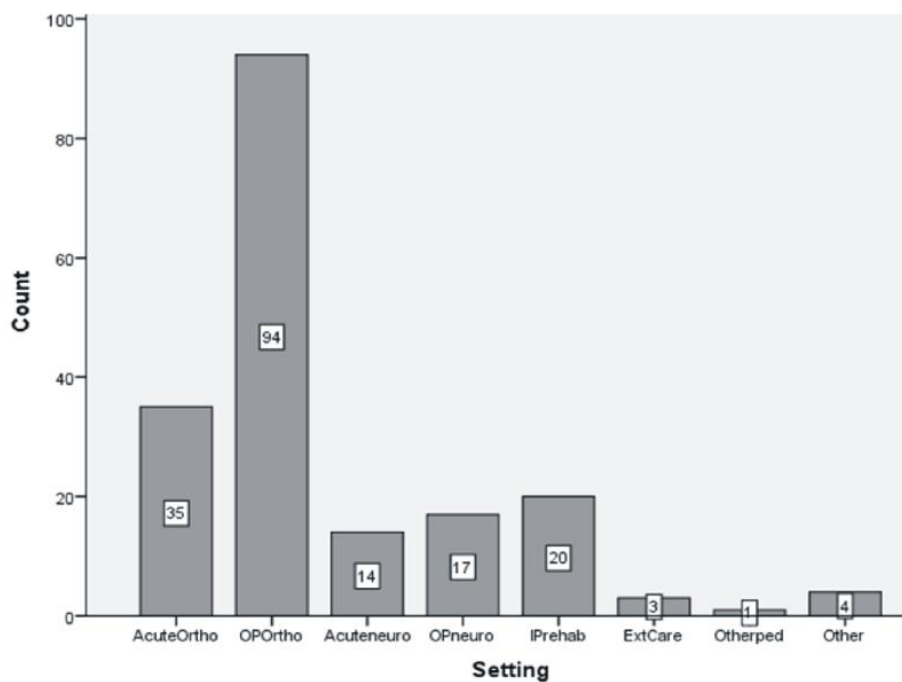


Table 2: Cancer Patient Load for the Respondents

Characteristics	N	%	
Treated cancer patients	118	62.8	
Cancer Practice Routine	Regularly	21	17.8
	Occasionally	57	48.3
	Rarely	40	33.9
No. of cancer patients treated till now	Less than 2	10	8.6
	2-5	34	29.3
	6-10	26	22.0
	More than 10	48	40.7
Mode of approaching the cancer patients	In-patient	13	27.1
	Out-patient	11	22.9
	Both	24	50.0
Mode of cancer patients referred for physiotherapy	Direct	8	16.7
	Physician/surgeon	40	83.3

Physiotherapy; 69.1% Master of Physiotherapy; and 3.2% were Doctor of Physiotherapy. The specializations of respondents were; Musculoskeletal was the most common (44.7%), followed by Neurological (17.6%), Cardio-Respiratory (13.8%), Paediatric (8.5%), CBR (3.2%) and the others (4.3 %) including OBG. The 'Musculoskeletal' category included specialization in Hand Rehabilitation, Manual Therapy, and Sports Physiotherapy. The working experience of the respondents after

their graduation was; 19.7% with less than 2 years and 24.5% with 2-5 years while 55.9% were with more than 5 years of experience. The current practice settings (Graph 1) of respondents were; out-patient orthopaedics was the most common (50.0%), followed by Acute Orthopaedics (18.6%), In-patient rehabilitation centre (10.6%), Out-patient neurology (9.0%), Academic Institute (9.0%), other (2.1%), extended care facility (1.6%), and the acute neuro care (0.5%). The 'other' category represented write-in responses that

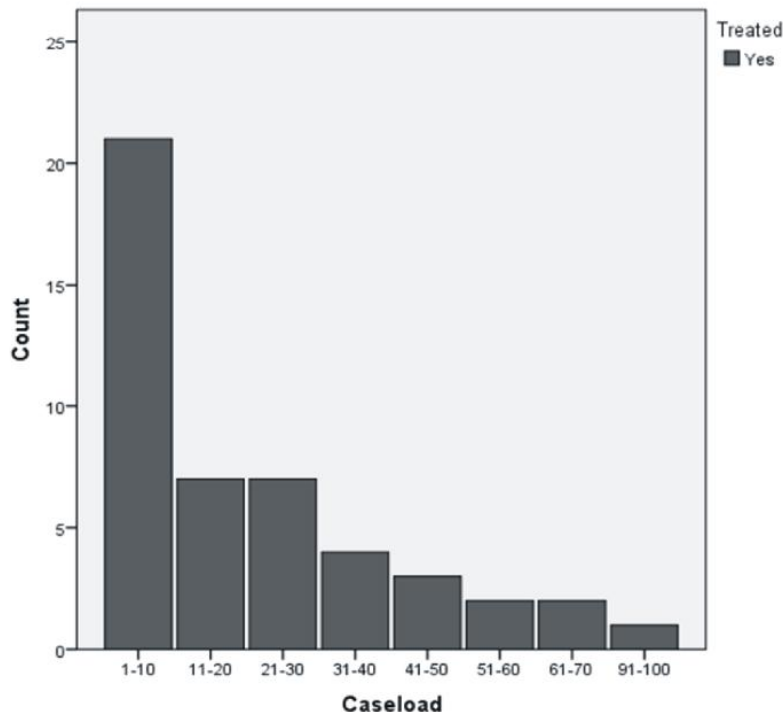
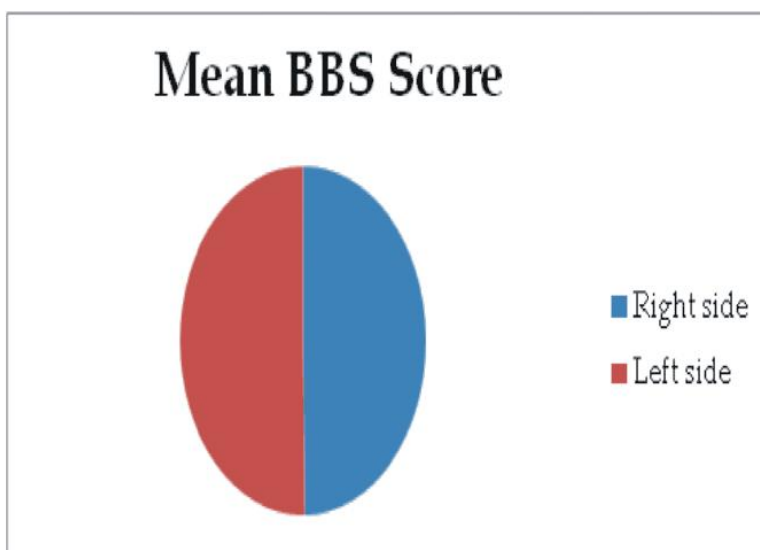
Graph 2: Reported Oncology Patient Caseload Percentage

Table 3: Descriptive Statistics for the Frequency and Type of Cancer Patients had been Treated by the Respondents

Sl. No	Type of cancer	Treated	Frequency	
			Less	More
1	Breast	36 (75)	20(55.6)	16(44.4)
2	Skeletal	29(60.4)	18(62.1)	11(37.9)
3	HNC	30(62.5)	18(60.0)	12(40.0)
4	Nervous System	28(58.3)	19(67.9)	9(32.1)
5	Lung	30(62.5)	23(76.7)	7(23.3)
6	GIT	24(50.0)	19(79.2)	5(20.8)
7	Lymphoma	18(37.5)	13(72.2)	5(27.8)

Read the values as: Frequency (percentage)

Graph 3: Most Commonly Reported Interventions



were primarily home care, but also included fitness centre, and cancer centre.

A total of 118 physiotherapists (62.8%) reported treating individuals with an oncology history. (Table 2) Among them, 48.7% of the respondents in the out-patient orthopedics, 20% in Acute Orthopedics, 11.3% in In-patient rehabilitation centre, 7.8% in Out-patient neurology, 7% in acute neurology, 2.6% in extended care facility and 1.6% in other categories reported working with individuals with an oncology diagnosis or history. Furthermore, only 17.8% of those having the cancer patient case load were treating the cancer patients regularly while 48.3% were dealing occasionally and about 33.9% were dealing with cancer patients rarely. In addition, only 40.7% of them answered that they had treated more than 10 patients till now

while the remaining physiotherapists had treated less than 10 cancer patients.

The most common response for caseload percents (Table 2) was that respondents did not treat individuals with oncology conditions (37.2%). Among the respondents treated cancer patients, the common case load (Graph-2) in a typical week was "1-10 %" (44.7%) of the caseload category followed by "11-20" and "21-30 %" (14.9%). This indicates that 58.5% of respondents never or rarely manage individuals with oncology diagnoses or histories. Among the respondents who had dealt with cancer patients (48), most number of therapists had treated the patients with breast cancer (75%) followed by HNC & Lung (62.5%), Skeletal (60.4%), Nervous system (58.3%), GIT (50.0%) and the least amount (37.5%) of Lymphoma patients. The frequency

of cancer patients the therapists encountered for each type is provided in Table 3. It shows that most of the respondents (more than 55.5%) had treated various types of cancer patients less frequently. For a surprise only 4 out of the total 188 respondents were working in the oncology rehabilitation centres.

Interventions

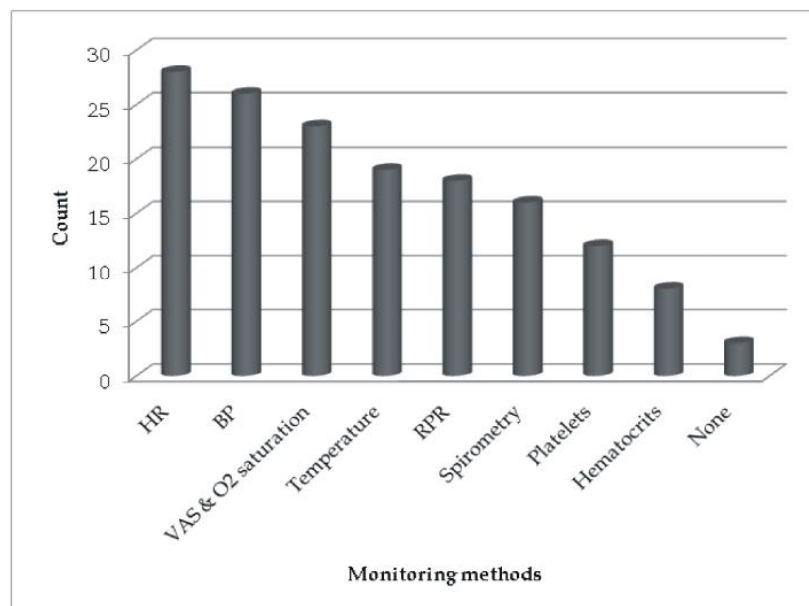
Most (34) of the respondents have mentioned that Pain was the most common symptom for which the cancer patients were referred or contacted for physiotherapy treatment followed by other symptoms in the following order; General weakness (29), Joint stiffness (28), Breathing difficulty (24), Neurological symptoms (22), Muscle tightness/Scar & Swelling (21), and lastly (4) for the skin/vascular problems. Though the therapists were working in different set ups, most of them (83.3%) received the cancer patients by both directly and physician/surgeon referral while only 26.4% were receiving the patients directly. Likewise, 50.0% of the respondents approached the cancer patients both as in-patients and out-patients while 27.1% of the respondents approached only as inpatient and the remaining (22.9%) approached the cancer patients as out-patient

only.

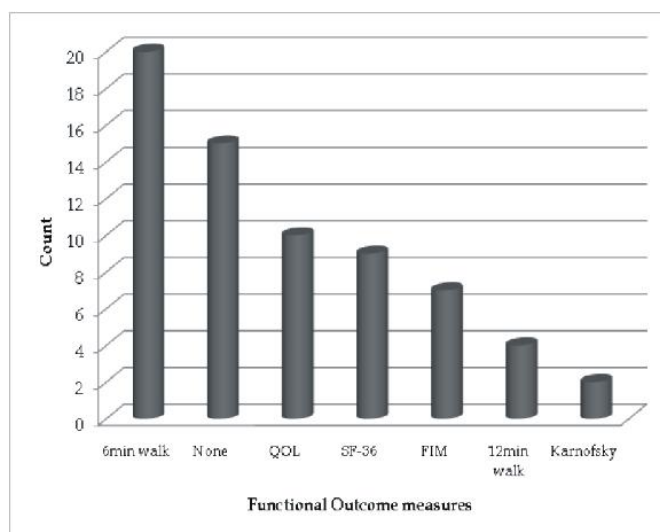
Interventions reported by respondents are displayed in Graph 3. The most common interventions used were home exercise programs (HEP) and breathing exercises (both at 77.1%), range of motion (ROM) exercises (68.6%), chest clearance techniques (64.6%), strengthening exercises and patient education (both at 60.4%), stretching (56.3%), manual lymphatic drainage (MLD) (54.2%), scar mobilization (43.8%), aerobic exercises (39.6%), Energy conservation techniques (ECT) (37.5%), and compression bandaging (35.4%). The least commonly used treatments were compression garments (25.0%) and warm-up (16.7%), cool-down (14.6%) and compression pumps (12.5%). In addition to these interventions, many therapists were using gait training, prosthetic training balance training as a part of cancer rehabilitation.

The most commonly used interventions for the lung cancer patients were breathing techniques (100%), chest clearance techniques (90%) and HEPs (60%), while ECTs (43.3%), aerobic exercises (36.7%) and patient education (33.3%) were moderately used. Likewise for the skeletal cancer patients (60%), HEPs (89.7%), stretching (72.4%), ROM

Graph 4: Most Commonly Reported Monitoring Methods



Graph 5: Most Commonly Reported Functional Outcomes Measures



techniques (69%), and strengthening (55.2%) were commonly used and scar mobilization (37.9%) was used less commonly. For the leukaemia sufferers, energy conservation techniques and home exercise programs (both at 43.3%), Breathing techniques and patient education (both at 33.3%) were only used that too in a moderate rate. For nervous system cancers, mostly strengthening (78.6%), HEPs (64.3%), patient education (61.1%) and moderately stretching (46.4%) were used in the rehabilitation. For the breast cancer rehabilitation, mostly MLD (77.8%), HEPs (72.2%), compression bandaging and stretching (both at 63.9%), patient education (61.1%) were used while scar mobilization (52.8%), compression garments (41.7%), strengthening (38.9%), ROM techniques (36.1%), breathing techniques (33.3%), chest clearance techniques (25%). For lymphoma sufferers, patient education (83.3%), MLD and compression bandaging (72.2%), HEPs (66.7%), ECT (50.0%) were mostly used. For gastro-intestinal tract (GIT) cancers, most commonly HEPs (62.5%) and less commonly breathing techniques (33.3%) were used. Finally for the HNC rehabilitation, mostly stretching (60%), ROM techniques (52.1%), and patient education (55.8%) were used.

The most commonly used modality for the cancer pain relief was TENS (77.1%), followed by cryotherapy (37.5%), moist heat pack and

Interferential Therapy (both at 27.1%), while UST (14.6%), and hydrotherapy (6.3%) were least commonly used. In addition to these modalities, mirror box therapy also was used as pain relieving modality by few of the respondents. The most commonly used modality for the improvement of ROM as a treatment of hypo-mobility after the cancer treatment were assisted exercises (70.2%), followed by active exercises (66.7%), and passive mobility exercises (43.8%). In addition to these modalities, hold-relax technique and mobilization techniques also were used as modality for the improvement of ROM by few of the respondents.

The most commonly used modality for the lymphedema management among the cancer patients were limb elevation and compression bandaging (both at 64.6%), followed by ROM exercises (56.3%), MLD technique (47.9%), while pneumatic compression pump (33.3%), and faradic stimulation (25.0%) were least commonly used. One of respondent reported that none of these modalities were used for the lymphedema management. The most commonly used modality for the fatigue management among the cancer patients was ECT (56.3%), followed by relaxation techniques (52.1%), and stress management (27.1%), while exercises (20.8%), referral to nutritionist (16.7%) and advising rest (14.6%) were least commonly used. However, 7

Table 4: Therapists' Response towards the Practice Pattern/Approach

Sl. No	Practice pattern	Always	Often	Sometimes	Never
1	I follow patient and family centred approach during rehabilitation	22 (53.7)	15 (36.6)	4 (9.8)	-
2	Goal of rehabilitation is set in accordance with the expected prognosis of medical problem	18 (43.9)	18 (43.9)	4 (9.8)	1 (2.4)
3	Patient and care giver education is encouraged	25 (61.0)	11 (26.8)	4 (9.8)	1 (2.4)
4	Interdisciplinary approach is encouraged during rehabilitation	18 (43.9)	17 (41.5)	6 (14.6)	-
5	Reassessment and follow up care is done	20 (48.8)	16 (39.0)	3 (7.3)	2 (4.9)
6	Imparting physiotherapy care to patient suffering from oncological pathologies improve confidence and satisfaction in my profession	21 (51.2)	12 (29.3)	7 (17.1)	1 (2.4)

Read the values as: Frequency (percentage)

respondents (14.6%) reported that none of these modalities were used for the cancer related fatigue management. Regarding the decision making on choosing the treatment modality out of 41 respondents who answered, 68.3% of the respondents had used to discuss with the physician/surgeon regarding the evaluation and treatment and 31.7% of the respondents had used to take their own decision based on their evaluation.

Monitoring Methods

Monitoring methods used during treatment of individuals with oncology diagnoses or histories are presented in Graph 4. Out of 48 therapists 45 had used (93.7%) either of the monitoring parameters while 3 report not monitoring vital signs or laboratory values in individuals with oncology diagnoses or histories during treatment. The monitoring methods commonly used in South India included heart rates (58.3%), blood pressure (54.2%), VAS for pain and oxygen saturation levels (47.9%), temperature (39.6%), rates of perceived exertion (37.5%), spirometry (33.3%), Blood sugar (29.2%), platelets (25%), Oxygen consumption (VO₂) and White blood cell (both at 20.8%), Hematocrit and electrolytes (both at 16.7%) and dynamometer (10.4%). In addition, few of them reported that they had used haemoglobin count also as a monitoring method.

Functional outcomes measures are pictured in Graph 5. Among all respondents, 15 (31.3%) therapists reported that functional outcomes measures were not performed in individuals with oncology diagnoses or histories. Among those respondents that performed functional outcomes assessments, the most commonly reported were the 6 minute walk test (41.7%) followed by quality of life (QOL) measurement (20.8%), SF-36 questionnaire (18.8%), Functional Independence Measure (FIM) (14.6%), 12 minute walk test (8.3%) and karnofsky index (4.2%).

Professional Approach and Satisfaction

To assess the professional approach and the satisfaction towards the patient care six items were used based on likert scale scoring system. 41 responses were been registered. The results are shown in Table 4. Caregiver education (61.0%), family centred approach (53.7%) and improved satisfactions (51.2%) were most commonly rated by the respondents as always in their practice in cancer patient rehabilitation. At the same time the goal of rehabilitation, interdisciplinary approach and reassessment were followed moderately by the respondents. Only few respondents reported that they had never followed such things in their practice.

Discussion

Cancer rehabilitation in India has received relatively little research and educational efforts as compared to other areas of practice. While not all cancer survivors will be in need of rehabilitation services, a large survey of cancer survivors of developed countries indicated that the long-term health consequences of cancer are significant in the cancer rehabilitation.[6] The Physiotherapist has an extensive role to play in palliative oncology, beginning early with rehabilitation and continuing as a team member into hospice care.[33,34] As there is growing interest in recovery of physical function, health maintenance, and health promotion among the cancer survivors it was mandatory that looking into the current practice pattern of physiotherapists in cancer care. So that better plan of care can be integrated into the multidisciplinary care for the cancer survivors. Response rate in this study (18.1%) is almost similar to a previous study where they also got only 23.5% response in their survey.[29] The exact reason for the poor response rate was unclear. We have used the electronic sources for the survey and the previous study had used postal mail with reply envelop. As all the therapists are practicing either they wouldn't have got the time to fill the survey or some may be hesitant to participate in these both studies.

In this study it was found that, 58.5% of respondents never or rarely manage individuals with oncology diagnoses or histories in South India while in Michigan State the percentage was 77% even though it was a developed country.[29] Likewise, the most common response (44.7%) for caseload of 1-10% in these states indicates that only few cancer patients have benefited from the care of Physiotherapists. Likewise in previous studies also caseload percentage was of 1-10% in Michigan and 0-25% in Washington State.[28,29] So, to prevent the answering based on the knowledge rather than based on experience of treating the cancer patients, physiotherapists who have treated at least

more than 10 cancer patients till now only were allowed to fill the questions regarding the treatment for the cancer sequel.

With the mean age 30.5 ± 4.30 years and mostly (55.9%) having experience more than 5 years after their graduation, 50% of the respondents were working in the out-patient orthopaedic setting and for a surprise only 3 therapists were working in the exclusive cancer centre. This would have been a reason for the lesser number of therapists' response as treated cancer patients. This is the situation in South India where many of the major cancer centres are running without physiotherapy departments which has given a lesser chance for the more number of physiotherapists to serve in the cancer rehabilitation. The perplexing reason why these cancer centres are not having the physiotherapists irrespective of their huge cancer patient load is unclear. Pain, general weakness, joint stiffness, and Breathing difficulty were the common symptoms for which cancer patients who either approached or been referred to them. Greater numbers of physiotherapists in South Indian states used primarily HEPs, breathing exercises, ROM exercises, chest clearance techniques, strengthening exercises and patient education. At the same time ECT, compression bandaging, compression garments and compression pumps were least commonly used.

Individuals who undergo chemotherapy or radiation treatments are at risk for developing cardiovascular and pulmonary toxicities and therefore, require vital signs and laboratory findings monitoring to assure safety during Physiotherapy interventions.[35] Observations from this study reports that cancer patients were adequately monitored during treatments. Only 6.3% of respondents did not use any of the monitoring parameters like in a previous study where 12.8% of physiotherapists did not monitor vital signs or laboratory values. (Drouin, *et al.*, 2008) Moreover, of 93.7% respondents that monitored, less than 58.3% only monitored either vital signs or laboratory values where in Michigan study also less than 53% of the

respondents only monitored.

In addition, functional outcome assessments which are used to find the progress and efficacy of Physiotherapy interventions were inconsistently performed by the therapists in South India. In this view, 31.3% of the respondents in this study had never used any outcome measure to find out the progress in their patients. Even in Michigan study most of the therapists (27%) had not used the outcome measures while six minute walk test was the only test most commonly was used (8.0%) compared to our study (41.7%). Meanwhile, FIMs, twelve minute walk test and the Karnofsky scales were least commonly used by the therapists in this study. Likewise the symptom specific management for the cancer survivors was satisfying where the pain, hypo mobility, fatigue and lymphedema were efficiently been managed by the therapists. In this regard, another group of researchers also found that 78% of therapists recommend and/or use exercise as part of the management of fatigue; 74% teach most commonly ECTs (79%).[36]

In this study we tried to find the professional approach followed by the therapists towards the cancer rehabilitation and found that almost all are following satisfying practice in oncology care. Furthermore, only few of them have not set the goal of rehabilitation in accordance with prognosis and have not followed patient and caregiver education. Likewise, only few haven't followed up the patient and haven't got the satisfaction in cancer rehabilitation. This study had some limitations in terms of low response rate (18.1%) which reduced the confidence levels, and made us too could not determine practice patterns of non-responders. Furthermore, generalizations from this study to other geographic locations are restricted as it is done only in South India.

Conclusion

It is concluded that, although individuals with oncology related functional deficits

appear to benefit from Physiotherapy interventions, only very few physiotherapists are practicing exclusively in cancer care setting, particularly in extended care or hospice settings. The commonly used treatment modalities in cancer rehabilitation approach by the physiotherapists practicing in South India were satisfying. However, monitoring physical and physiological parameters of the cancer patients during treatment and measuring functional outcomes are inconsistently performed. Furthermore, it is found that number of physiotherapists working in the cancer centres is not satisfying while considering the increasing demand of physiotherapy need for them.

Further study is warranted to determine the number of cancer patients and survivors who experience functional deficits as a result of cancer and its treatments, to assess the referral patterns for Physiotherapy interventions in oncology related conditions, and to examine the proportion of cancer patients received Physiotherapy treatment as a part of cancer rehabilitation.

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