International Journal of Science and Healthcare Research
Vol.5; Issue: 4; Oct.-Dec. 2020
Website: ijshr.com
Original Research Article *ISSN: 2455-7587*

Effectiveness of Progressive Muscle Relaxation Therapy on Physical Symptoms among Cancer Patients receiving Chemotherapy admitted in Cancer Unit of Institute of Liver and Biliary Sciences, Delhi

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ABSTRACT

Introduction: According to WHO (2018), it is estimated that cancer is responsible for about 9.6 million deaths in 2018. Chemotherapy is used to treat the advanced stage of cancer but is associated with most common side effects which are Pain, Insomnia, Fatigue, Anorexia, Nausea and vomiting.

Aim: This study aimed to evaluate the effectiveness of Progressive Muscle Relaxation Therapy (PMRT) on Physical Symptoms among Cancer Patients receiving Chemotherapy admitted in Cancer Unit of Institute of Liver and Biliary Sciences, Delhi.

Material and Method: Quasi experimental with pre-test post-test control group design was used. A total of 40 GI cancer patients were enrolled with 20 patients each in experimental and comparison groups by lottery method. Tools used namely- Universal Pain Assessment Tool to assess Pain; Insomnia Severity Index Scale to assess Insomnia; Common Toxicity Criteria for Adverse Events Version-5 to assess Fatigue, Nausea/Vomiting and Anorexia; and Karnofsky Performance Status Scale to assess Performance status.

Results: This showed that mean pre-test insomnia score was 11 which was significantly reduced to 5.17 after the PMRT in the experimental group with p value 0.02. Similarly, there was a significant difference between mean pre-test and post-test grades of fatigue in the experimental group at 0.01 level. There was a significant difference in mean post-test scores of insomnia as well as post-test grades of fatigue in the experimental group and comparison groups at 0.05 level. There was statistically significant association of performance status with gender and educational status among patients in experimental group

Conclusion: Hence, PMRT is effective in decreasing the physical symptoms of insomnia and fatigue in cancer patients receiving chemotherapy admitted in cancer of Institute of Liver and Biliary Sciences.

Keywords: PMRT, Physical Symptoms, Insomnia, Fatigue, Cancer patient, Chemotherapy

INTRODUCTION

According to WHO (2018), it is estimated that cancer is responsible for about 9.6 million deaths in 2018. [1] Chemotherapy is used to treat the advanced stage of cancer but is associated with most common side effects which are Pain, Insomnia, Fatigue, Anorexia, Nausea and vomiting. [2] People with cancer usually report limitation in Activities of Daily Living. [3] As cancer patients face many side effects of chemotherapy which can be reduced by simple action of some relaxation techniques if practiced by them regularly PMRT is a relaxation practice which helps to reduce stress, induce sleep by tensing and

then relaxing each group of muscles of body. [4]

Gupta, Kumari and Kaur (2016) conducted a study to assess the effectiveness of Progressive Muscle Relaxation Technique on physical symptoms among cancer patients receiving chemotherapy admitted in the selected hospital of Amritsar, Punjab. The results of the study showed highly significant difference in pre-interventional and post interventional physical symptoms of experimental and control group. [5]

Another study conducted in Turkey to find the effects of PMRT on sleep quality and fatigue among patients receiving chemotherapy. This study also revealed that PMRT reduced fatigue and improved sleep quality in breast cancer patients. [6]

Though most of the studies were conducted to see the effect of PMRT on mental symptoms like anxiety, depression etc. Very few studies are there which has been conducted to see the effect on body as well including physical symptoms. Therefore, this study aimed to evaluate the effectiveness of Progressive Muscle Relaxation Therapy (PMRT) on Physical Symptoms among Cancer Patients receiving Chemotherapy admitted in Cancer Unit of Institute of Liver and Biliary Sciences, Delhi.

Objectives of the Study

The primary objective was to evaluate the effectiveness of PMRT on physical symptoms among cancer patients receiving chemotherapy admitted in cancer unit of ILBS and the secondary objective was to find the association of physical symptoms with selected socio-demographic variables and clinical variables in the experimental group after PMRT.

Hypotheses

The following hypotheses were tested at 0.05 level of significance-

H_1: There is a significant difference between pre-test and post-test scores of physical symptoms in the experimental and comparison groups after PMRT.

H_2: There is a significant difference between post-test scores of physical symptoms in the experimental and comparison groups after PMRT.

H_3: There is a significant association between physical symptoms of experimental group with selected socio-demographic variables after PMRT.

H_4: There is a significant association between physical symptoms of experimental group with clinical variables after PMRT.

MATERIAL AND METHODS

Research E sign Design: Quasi experimental with pre-test post-test control group design was used

Study Duration: The data was collected from the Months of September, 2019 to March, 2020, in the Cancer unit, ILBS, New Delhi.

Research Setting: Oncology day care and oncology O.P.D of ILBS, Delhi

Inclusion criteria: 1. GI cancer patients receiving chemotherapy in cancer unit of ILBS. 2. Patients attending Cancer Unit of ILBS at the time of data collection. 3. Cancer patients suffering from any of the physical symptoms (Pain, Insomnia, Fatigue, Nausea/Vomiting, Anorexia and Performance Status). 4. Patients who can understand/read/write Hindi or English. 5. Patients of age group ≥ 18 years. 6. Patients who are planned for any chemo cycle between 3 to 8 cycle. 7. Patients who are scheduled for next chemo cycle in 3 weeks period of time.

Exclusion criteria: 1. Critically ill cancer patients. 2. Patients with visual impairments. 3. Patient who have any physical deformity or physically handicapped. 4. Patient who receives any other alternative therapy like Yoga, Meditation etc. 5. Patient who had undergone any recent surgery. 6. Patient on palliative chemotherapy and radiation therapy.

Sampling: Convenient sampling technique was used in this study with random assignment of the group to experimental or comparison arm.

Study Population: GI cancer patients undergoing selected chemotherapeutic agents in cancer unit.

Method of Collection of Data

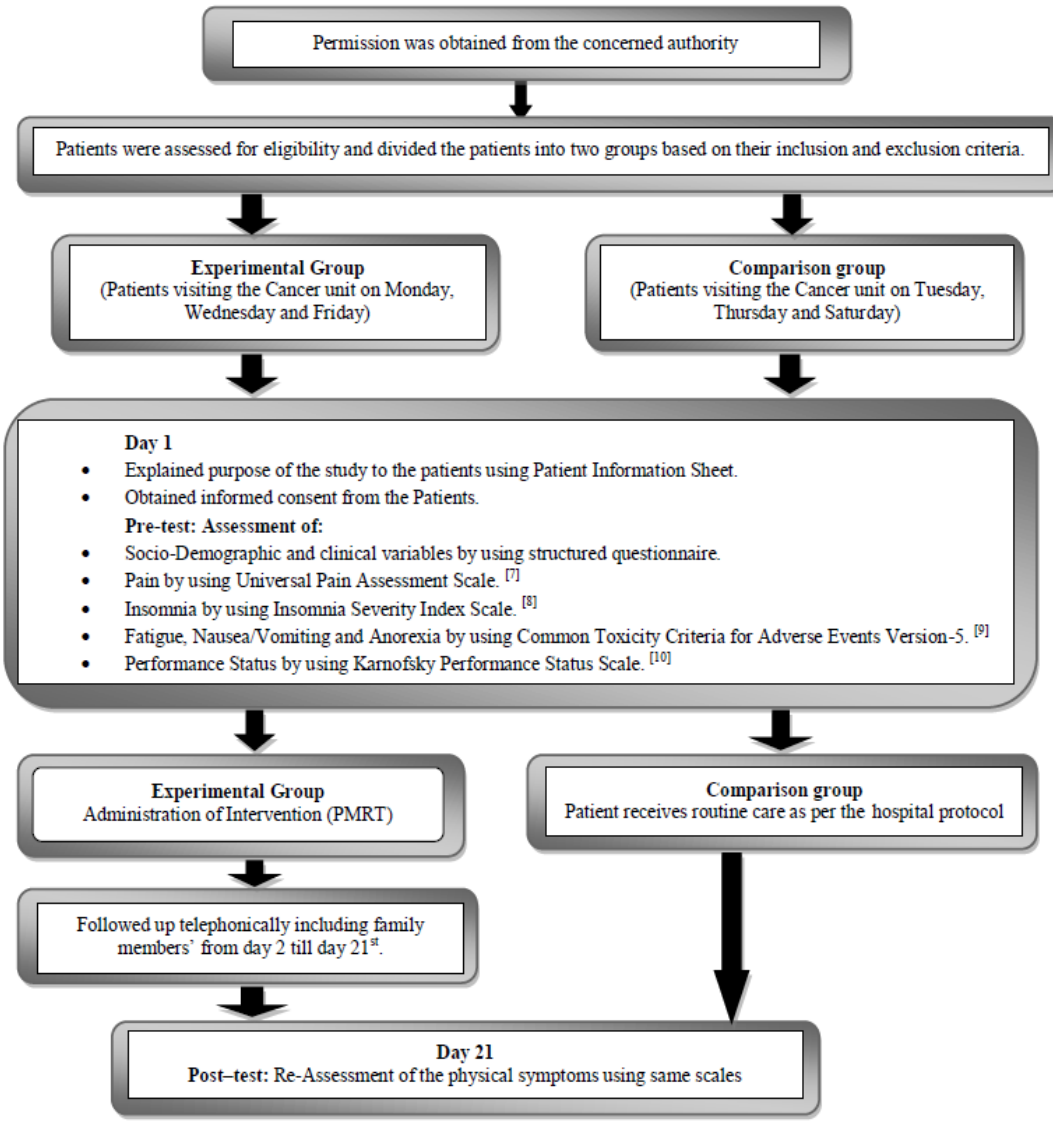

Figure 1: Schematic diagram showing procedure of data collection

Statistical Method: Descriptive and Inferential statistics were used for the data analysis with the help of SPSS version 22. Frequency, percentage, Mean, Standard deviation, t-test, Chi-square, Fisher's exact and ANOVA tests were applied.

RESULTS

Section-1: Description of Socio-Demographic and Clinical Variables.

Table 1 and 2 illustrates the distribution of patients according to their socio-demographic variables. It can be inferred that no statistically significant difference was found between the experimental and comparison group in relation to any of the socio demographic variables. Thus, it is inferred that both the groups were statistically homogeneous in terms of distribution of their socio demographic variables.

Table 1: Frequency and Percentage Distribution of the patients as per their Socio-Demographic variables .....$n_1+n_2=20+20$

Socio-Demographic variables	Experimental group f (%)	Comparison group f (%)	$\chi 2$/Fisher's exact test	p value
Age (in years)			3.02	0.22
18-35 years	02(10)	-		
36-53 years	8(40)	12(60)		
≥54 years	10(50)	08(40)		
Gender			0.10	0.70
Male	10(50)	9(45)		
Female	10(50)	11(55)		
Marital status			1.02	0.31
Married	19(95)	20(100)		
Unmarried	1(5)	-		
Educational Status			2.63	0.45
No formal education	02(10)	03(15)		
Upto 10th Standard	04(20)	07(35)		
Upto 12th Standard	03(15)	04(20)		
Graduation or above	11(55)	06(30)		
Occupational Status			1.35	0.71
Private Service	04(20)	03(15)		
Government service	04(20)	07(35)		
Business	06(30)	04(20)		
Dependent	06(30)	06(30)		

p≥0.05; Not Significant

Table 2: Frequency and Percentage Distribution of the patients as per their Socio-demographic variables .....$n_1+n_2=20+20$

Socio-Demographic variables	Experimental group f (%)	Comparison group f (%)	$\chi 2$/Fisher's exact test	p value
Monthly family income (in Rs.)			1.71	0.63
Above 70,000	01(5)	02(10)		
50,001-70,000	5(25)	03(15)		
30,001-50,000	08(40)	06(30)		
Less than 30,000	06(30)	09(45)		
Nature of work			**1.53**	**0.46**
Sedentary	16(80)	15(75)		
Moderate	03(15)	05(25)		
Heavy	01(5)	0(0)		
Dietary habits			**0.10**	**0.74**
Vegetarian	12(60)	11(55)		
Non-vegetarian	08(40)	09(45)		
History of Substance used			**3.47**	**0.17**
Tobacco and Alcohol	04(20)	02(10)		
Alcohol consumption	01(5)	05(25)		
None	15(75)	13(65)		
Treatment modality				
Chemotherapy	20(100)	20(100)	-	-
Family history of cancer			**0.47**	**0.49**
Present	07(35)	05(25)		
Absent	13(65)	15(75)		

p≥0.05; Not Significant

Table 3: Frequency and percentage distribution of the patients as per their clinical variables .....$n_1+n_2=20+20$

Clinical Variables	Experimental group f (%)	Comparison group f (%)	$\chi 2$/ Fisher's exact test	p value
Site of GI cancer			2.06	0.55
Bile duct	04(20)	06(30)		
Pancreas	05(25)	07(35)		
Gall bladder	08(40)	04(20)		
Others	03(15)	03(15)		
Staging of cancer			0.53	0.46
Stage II	04(20)	06(30)		
Stage III	16(80)	14(70)		
Duration of illness			0.12	0.74
<6 months	12(60)	13(65)		
6-12 months	08(40)	07(35)		
Total cycles of chemotherapy			1.55	0.21
5-6	05(25)	02(10)		
7-8	15(75)	18(90)		

Table no. 3 continued				
Current cycle status				
Cycle 3	09(45)	09(45)	0.31	0.95
Cycle 4	05(25)	04(20)		
Cycle 5	04(20)	04(20)		
Cycle 6	02(10)	03(15)		
Presence of any co-morbidity				
Hypertension	04(20)	03(15)	0.28	0.96
Diabetes mellitus	03(15)	04(20)		
Others	01(05)	01(05)		
No co-morbidity	12(60)	12(60)		
Chemotherapy regimen ¶				
Single regimen	09(45)	10(50)	0.10	0.75
Double regimen	11(55)	10(50)		

p≥0.05; Not Significant

Chemotherapy regimen: Single regimen: Either Gemcitabine or Oxaliplatin and **Double regimen:** Gemcitabine in combination with either carboplatin, cisplatin or nab paclitaxel

Table 4: Frequency and percentage distribution of the patients as per their Clinical variables .....$n_1+n_2=20+20$

Clinical Variables	Experimental group f (%)	Comparison group f (%)	$\chi 2$/ Fisher's exact test	p value
Pain				
Absent	05(25)	06(30)	0.12	0.72
Present	15(75)	14(70)		
Insomnia				
Absent	02(10)	04(20)	0.66	0.33
Present	18(90)	16(80)		
Fatigue				
Absent	03(15)	03(15)	1.0	0.66
Present	17(85)	17(85)		
Nausea/Vomiting				
Absent	07(35)	05(25)	0.47	0.49
Present	13(65)	15(75)		
Anorexia				
Absent	11(55)	11(55)	0.00	0.49
Present	09(45)	09(45)		
Use of Analgesics				
No	18(90)	15(75)	1.55	0.21
Yes	02(10)	05(25)		
Use of Anti-emetics				
No	10(50)	08(40)	0.04	0.52
Yes	10(50)	12(60)		
Use of Sedatives				
No	19(95)	20(100)	1.02	0.31
Yes	01(05)	-		
Appetizer				
No	15(75)	17(85)	0.62	0.42
Yes	05(25)	03(15)		
On any steroids				
No	20(100)	20(100)	-	-

p≥0.05; Not Significant

Table 3 and 4 illustrates the distribution of patients according to their clinical variables. It can be inferred that no statistically significant difference was found between the experimental and comparison group in relation to any of the clinical variables. Thus, it is inferred that both the groups were statistically homogeneous in terms of distribution of their clinical variables.

Section-2 Effectiveness of Progressive Muscle Relaxation Therapy

This section deals with the Effectiveness of Progressive Muscle Relaxation Therapy in terms of physical symptoms (pain, insomnia, fatigue, nausea/vomiting, anorexia and performance status) of cancer patients receiving chemotherapy.

This section is subdivided into three subsections.

Section 2.1 Comparison of Pre-Test Scores of Physical Symptom between the Experimental and Comparison Group

Table 5 Comparison of Mean Pre -test scores of Pain, Insomnia and Performance status between the experimental and comparison groups. .....n_1+ n_2= 20+20

Variables	Experimental group	Comparison group	t value	p value
	Mean ± SD	Mean ± SD		
Pain (15+14)	4.40 ± 1.59	4.21 ± 2.01	0.27	0.78
Insomnia (18+16)	11 ± 3.37	9.69 ± 5.26	0.87	0.38
Performance status	83.00 ± 7.32	82.50 ± 7.16	0.21	0.82

p≥0.05; Not Significant

Minimum Pain score-0 Maximum Pain score-10
Minimum Insomnia score-0 Maximum Insomnia score-28
Minimum Performance Status score-0 Maximum Performance Status score-100

Table 6: Comparison of Pre -test grades of Fatigue, Nausea/Vomiting and Anorexia between the experimental and comparison groups

Variables	Experimental group	Comparison group	χ2/Fisher's Exact test	p value
	f (%)	*f* (%)		
Fatigue	n=17	n=17	0.48	0.78
Mild	06(35)	08(47)		
Moderate	11(65)	09(53)		
Nausea/Vomiting	n=13	n=15	0.51	0.77
Mild	03(23)	03(20)		
Moderate	10(77)	12(80)		
Anorexia	n=09	n=09	0.90	0.63
Mild	04(44)	06(67)		
Moderate	05(56)	03(33)		

p≥0.05; Not Significant

Table 5 shows the comparison of mean pre-test scores of pain between the experimental group and comparison groups. The p value was found to be >0.05. Hence, it can be interpreted that both the groups are comparable in terms of pain, insomnia and performance status.

Table 6 shows the Comparison of Pre-test grades of Fatigue, Nausea/ Vomiting and Anorexia between the experimental and comparison groups. The p value was found to be >0.05. Hence it can be interpreted that both the groups are comparable in terms of fatigue, nausea/vomiting and anorexia.

Section 2.2 Comparison between the Pre-Test and Post-Test Scores of Physical Symptom in the Experimental Group

Table 7: Comparison between the mean Pre-test and post-test scores of Pain, Insomnia and Performance status in the experimental group.....n_1= 20

Variables	Experimental Group		t value	p value
	Pre Mean ± SD	Post Mean ± SD		
Pain (15)	4.40 ± 1.59	3.40±1.29	1.55	0.12
Insomnia (18)	11 ± 3.37	5.17±1.33	1.24	0.02*
Performance status	83.00 ± 7.32	84.00±6.80	1.45	0.16

p≤0.05; *Significant

Minimum Performance Status score-0 Maximum Performance Status score-100
Minimum Pain score-0 Maximum Pain score-10
Minimum Insomnia score-0 Maximum Insomnia score-28

Mean pre-test scores of pain in the experimental group was 4.40 which is reduced to 3.40 after the intervention in the post-test. Mean pre-test score of insomnia was 11.00 in the experimental group which is significantly reduced to 5.17 in the post-test after the intervention. Mean pre-test scores of performance status was 83.00 in the experimental group and it was increased to 84.00 in the post-test after the intervention in the experimental group.

Table 8 shows the comparison between the pre-test and post-test grades of fatigue, nausea/vomiting and anorexia in the experimental group. Out of 17 patients, 6 (35 percent) patients were having mild fatigue and 11 (65 percent) patients had moderate fatigue in the pre-test of experimental group. Whereas after the intervention in the post test, it is found that only 3 (17 percent) patients had moderate fatigue followed by 10 (59 percent) patients

who had mild fatigue and 4 (24 percent) patients had no fatigue. Hence it can be interpreted that there is a significant difference between pre- test and post- test grades of fatigue in experimental group.

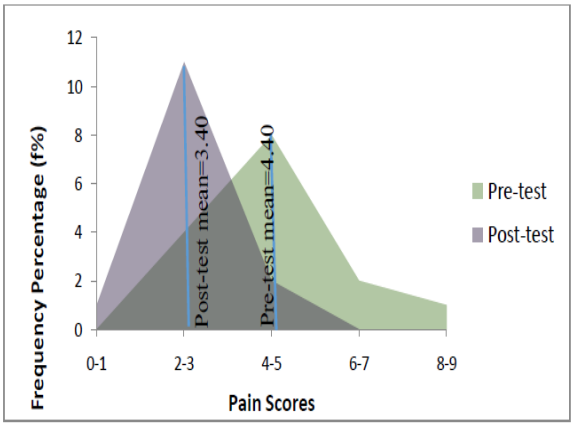

Figure 2: Area Chart illustrating Mean pre-test and post- test scores of Pain in experimental group

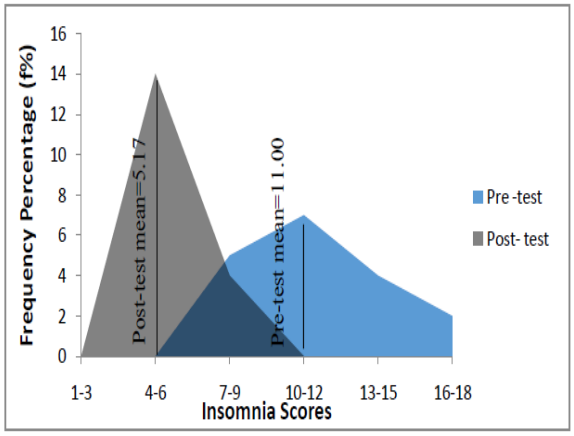

Figure 3: Area Chart illustrating Mean pre-test and post-test scores of Insomnia in experimental group.

Table 8: Comparison between the Pre-test and post-test grades of Fatigue, Nausea/Vomiting and Anorexia in the experimental group

Variables	Experimental Group		χ2/Fisher's Exact test	p value
	Pre *f* (%)	Post *f* (%)		
Fatigue (17)			7.40	0.017*
No Fatigue	0(0)	04(24)		
Mild	06(35)	10(59)		
Moderate	11(65)	03(17)		
Nausea/Vomiting (13) No Nausea/Vomiting	0(0)	02(15)	5.61	0.08
Mild	03(23)	03(23)		
Moderate	10(77)	08(62)		
Anorexia(09) No Anorexia	0(0)	02(22)	3.22	0.35
Mild	04(44)	03(33)		
Moderate	05(56)	04(45)		

p≤0.05; *Significant

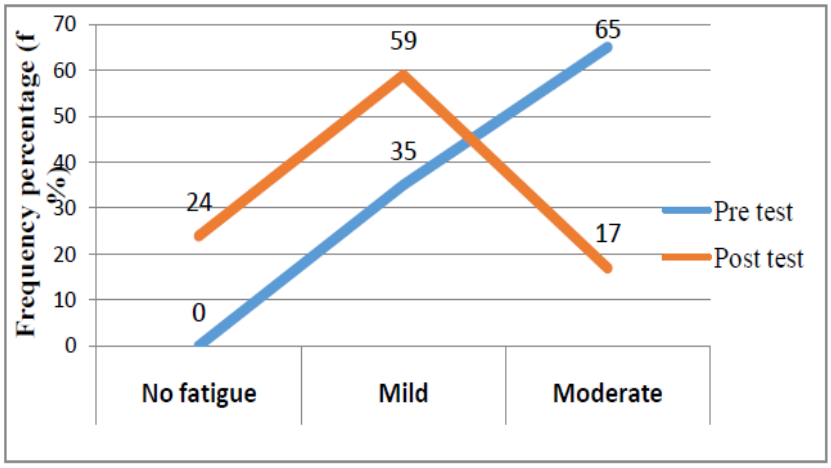

Figure 4:Line graph illustrating frequency percentage distribution of Mean pre-test and post-test grades of fatigue in experimental group.

Section 2.3 Comparison between the Pre-Test and Post-Test Scores of Physical Symptoms in the Comparison Group

Table 9: Comparison between the Mean Pre-test and Post-test scores of Pain, Insomnia and Performance status in the comparison group.....n_2=20

Variables	Pre-test	Post-test	t value	p value
	Mean ± SD	Mean ± SD		
Pain (14)	4.21 ± 2.01	4.36 ± 2.06	0.04	0.67
Insomnia (16)	9.69 ± 5.26	9.56 ± 4.14	0.17	0.86
Performance status	82.50 ± 7.16	82.50 ± 8.50	0.00	1.00

p≥0.05; Not Significant

Table 10: Comparison between the Pre-test and Post-test grades of Fatigue, Nausea/Vomiting and Anorexia in the comparison group

Variables	Pre-test	Post-test	Fisher's exact test	p value
	f (%)	*f* (%)		
Fatigue (17)				
Mild	08(47)	09(53)	0.11	0.73
Moderate	09(53)	08(47)		
Nausea/Vomiting (15)				
Mild	03(20)	03(20)	0	1
Moderate	12(80)	12(80)		
Anorexia (09)				
Mild	06(67)	06(67)	0	1
Moderate	03(33)	03(33)		

p≥0.05; Not Significant

From Table 9 and 10, it can be interpreted that there is no significant difference between pre -test and post- test grades of fatigue, nausea/vomiting and anorexia in comparison group.

Section 2.4 Comparison of Post-Test Scores of Physical Symptoms between the Experimental and Comparison Groups

Table 11: Comparison of Mean Post-test scores of Pain, Insomnia and Performance status between the experimental and comparison groups..... n_1+n_2=20+

Variables	Experimental group	Comparison group	t value	p value
	Mean ± SD	Mean ± SD		
Pain (15+14)	3.40 ± 1.29	4.36 ± 2.06	2.7	0.11
Insomnia (18+16)	5.17 ± 1.33	9.56 ± 4.14	4.22	<0.05*
Performance status	84.00 ± 6.80	82.50 ± 7.164	0.61	0.54

p≤0.05; *Significant

Hence it can be interpreted that there is a significant difference between mean post-test scores of insomnia in the experimental group and comparison groups.

Table 12: Comparison of Post-test grades of Fatigue, Nausea/Vomiting and Anorexia between the experimental and comparison groups

Variables	Experimental group	Comparison group	χ2/Fisher's Exact test	p value
	f (%)	*f* (%)		
Fatigue	n=17	n=17		
No Fatigue	04(24)	0	4.53	*0.03
Mild-Moderate	13(76)	17(100)		
Nausea/Vomiting	n=13	n=15		
No Nausea/Vomiting	02(15)	0	1.94	0.37
Mild	03(23)	03(20)		
Moderate	08(62)	12(80)		
Anorexia	n=09	n=09		
No Anorexia	02(22)	0	1.31	0.52
Mild	03(33)	06(67)		
Moderate	04(45)	03(33)		

p≤0.05; *Significant

Table 12 shows the frequency and percentage distribution of post-test grades of fatigue, nausea/vomiting and anorexia in the experimental group and comparison group. Thus, it can be interpreted that there is a significant difference between post-test grades of fatigue in experimental and comparison groups.

Section-3 Association of Performance Status with Selected Socio-Demographic and Clinical Variables in Experimental Group after PMRT

The number of patients who had reported the symptoms of pain, insomnia, fatigue, nausea/vomiting, and anorexia in the experimental group were 15, 18, 17, 13 and 9 respectively. As these numbers of study variables were less, therefore association for these variables with the socio-demographic variables was not computed and the researcher only computed the association of performance status with socio- demographic and clinical variables

Table 13: Association of Performance status) with selected socio-demographic variables after PMRT..... n_1=20

Socio-Demographic variables	Performance status (Activities of Daily Living)	F/t	p value
	Mean ± SD		
Age (in years)		F=0.14	0.87
18-35 years	85.00±7.07		
36-53 years	82.50±8.88		
≥54 years	83.00±9.48		
Gender		t=2.28	0.03*
Male	87.00±4.83		
Female	79.99±9.94		
Marital status		t=0.82	0.42
Married	82.63±8.71		
Unmarried	90.00±0.00		
Educational Status		F=4.63	0.01*
No formal education	70.00±0.00		
Upto 10th standard	77.50±9.57		
Upto 12th standard	83.33±5.77		
Graduation or above	87.27±8.46		
Nature of work		F=0.711	0.71
Sedentary	81.88±9.10		
Moderate	86.67±5.77		
Heavy	90.00±0.00		
Dietary habits		t=0.83	0.41
Vegetarian	81.67±9.37		
Non-vegetarian	85.00±7.55		

p≤0.05; *Significant

Table 13 reveals that there is a significant association between performance status scores in the experimental group after PMRT with Gender (t=2.28, p=0.03) and Educational Status (F=4.63, p=0.01) at 0.05 level of significance. The performance status score of males was higher as compared to females in the experimental group after PMRT and further Post hoc analysis was done to find the difference within the groups for educational status and it was fond that there was a significant difference between the post test performance status in patients who were graduate or above as compared with the patients who had no formal education.

From Table 14 it can be interpreted as there is no significant association between performance status scores of experimental group after PMRT with Site of GI cancer (F=0.84, p=0.48), Duration of illness (t=0.30, p=0.76), Presence of co-morbidity (F=2.50, p=0.09) and Chemotherapy regimen (t=2.28, p=0.06) at 0.05 level of significance.

Table 14: Association of Performance Status with clinical variables after PMRT.....n=20

Clinical Variables	Performance Status Mean± SD	F/t	p value
Site of GI cancer			
Bile duct	82.50±9.57	F=0.84	0.48
Pancreas	80.00±1.34		
Gall bladder	82.50±8.86		
Others	90.00±0.00		
Duration of illness			
<6 months	82.50±8.66	t=0.30	0.76
6-12 months	83.75±9.16		
Presence of any co-morbidity			
Hypertension	87.50±5.00	F=2.50	0.09
Diabetes mellitus	90.00±0.00		
Others	90.00±0.00		
No co-morbidity	79.17±9.00		
Chemotherapy regimen			
Single regimen	72.50±5.00	t=2.28	0.06
Double regimen	84.00±8.94		

p≥0.05; Not Significant

DISCUSSION

In the present study, 50 percent of the patients in the experimental group were in the age group of 54 years and above, while in the comparison group 60 percent were in the age group of 36 to 53 years and 40 percent were in the age group of 54 years and above. Similar study was reported by Charalambous et.al. (2016) 41.3 percent of the patients in the experimental group were in the age group of 48 years and above, while in the comparison group 36.5 percent of the patients were in the age group of 48 years and above. [2]

In the present study, 50 percent each of the patients were male and female both in the experimental group. Charalambous et.al. (2016) reported the similar findings that 50 percent each were male and female in the experimental group. Whereas, 55 percent of the patients were female and 45 percent of the patients were male in the comparison group. [2]

In the present study, 80 percent of the patients were having Stage III cancer in the experimental group. Similar study was reported by Molassiotis, Yung, Yam, Chan and Mok (2001) that 81.6 percent of the patients were having Stage III cancer in the experimental group. [11]

In the present study, pre-test mean insomnia score was 11 which was significantly reduced to 5.17 in the post-test after the intervention in the experimental group and the p value was found to be <0.05. Similar study was reported by Kumar and Bhardwaj (2017) that pre-test mean insomnia score was 55.62 which was significantly reduced to 30.7 in the post-test after the intervention in the experimental group and the p value was found to be <0.05. [5]

In the present study, it was found that there is a significant decrease in fatigue after the PMRT in the experimental group (chi square value=7.40, p=0.017). Similar study was reported by Dikmen and Terzioglu (2019) that there is decrease in fatigue after the PMRT in the experimental group with p<0.05. [12] D Sagayamary (2016) also reported a similar study that practice of progressive muscle relaxation technique has significant effect of minimizing fatigue among cancer patients receiving chemotherapy with t value was 4.26 at 38 degrees of freedom and 0.05 level of significance which is greater than the table value (1.96). [13] Similarly, Demiralp, Oflaz and Komurcu, (2010), conducted a study with an aim to evaluate the effect of PMRT on sleep quality and fatigue In Turkish Women with breast cancer undergoing chemotherapy, the results revealed that PMRT group experienced a greater effect on their sleep quality and a greater decrease in fatigue than the control group. [14]

CONCLUSION

The present study aimed to evaluate the effectiveness of Progressive Muscle Relaxation Therapy (PMRT) on Physical Symptoms among Cancer Patients receiving Chemotherapy admitted in Cancer Unit of Institute of Liver and Biliary Sciences, Delhi as limited studies were available showing the effects of PMRT on physical symptoms including pain, insomnia, fatigue, nausea/vomiting and anorexia on cancer patients receiving chemotherapy. But Due to the extensive inclusion and exclusion criteria, enrolled less symptomatic patients in the study. Thus, it is concluded that PMRT was found be effective in significantly decreasing the physical symptoms like insomnia and Fatigue in the patients after PMRT.

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How to cite this article: Bhatia M, Verma M, Kumar R. Effectiveness of progressive muscle relaxation therapy on physical symptoms among cancer patients receiving chemotherapy admitted in Cancer Unit of Institute of Liver and Biliary Sciences, Delhi. *Int J Sci & Healthcare Res*. 2020; 5(4): 221-232.

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