International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Harmonizing Healing: Exploring the Efficacy of Music Therapy in Alleviating Pain Among Cancer Patients Receiving Chemotherapy at HCG Manavata Cancer Centre, Nashik

Adinath Ramesh Aghav[1], Kavita Chandrakar[2], Punitha Rani Singh[3]

[1]Nurse Educator, HCG Manavata Cancer Centre, Nashik-422002
[2]Senior Lead -Nursing Research, Corporate Nursing, Health Care Global Enterprises Limited, #3 Ground Floor, Tower Block, Unity Building Complex, Mission Road, Bangalore - 560 027
[3]Associate Vice-President, Corporate Nursing, Health Care Global Enterprises Limited, #3 Ground Floor, Tower Block, Unity Building Complex, Mission Road Bangalore - 560 027

ABSTRACT:

Cancer remains one of the most prevalent and challenging health issues globally, with nearly 18 million new cases diagnosed each year. The disease imposes a significant burden on patients, manifesting in persistent physical discomfort, fatigue, and heightened emotional distress, including anxiety and depression. Conventional cancer treatments often focus on managing disease progression and alleviating physical symptoms but may not fully address the multifaceted needs of patients.

In recent years, there has been growing interest in integrating non-pharmacological interventions into cancer care to complement traditional treatment methods. Music-based therapies, particularly music therapy, have emerged as promising adjuncts. Music-based interventions are categorized into 'music medicine,' which involves passive listening to recorded music, and 'music therapy,' a more interactive approach led by trained therapists. This study focuses on the latter, employing recorded instrumental music that combines traditional Indian raga with contemporary tunes.

Employing a quasi-experimental design, this research includes 120 participants divided equally into an experimental group receiving music therapy and a control group. The primary objectives are to assess baseline and post-treatment pain intensity levels, evaluate the effectiveness of music therapy, and compare pain scores between the two groups.

Inclusion criteria for the study involve cancer patients undergoing chemotherapy who are willing to participate, while exclusion criteria rule out those with cognitive impairments, hearing deficits, or those receiving concurrent pain management therapies. Pain levels are measured using numerical pain scales before and after therapy sessions.

The results indicate a substantial reduction in pain among the experimental group, with mean pain scores decreasing significantly from 4.37 to 2.35 ($p < 0.00001$). In contrast, the control group showed no significant change in pain levels (pre-test mean 4.45, post-test mean 4.5). These findings are consistent with existing literature, which supports the efficacy of music therapy in reducing pain and enhancing emotional well-being for cancer patients.

Based on these results, the study recommends integrating music therapy into integrative oncology care, hospice, and oncology care settings, developing structured programs, and promoting patient education on its benefits. The study concludes that music therapy is a valuable complementary treatment for managing pain and improving the quality of life for cancer patients during chemotherapy.

Keywords: Cancer, Music Therapy, Pain Management, Chemotherapy, Integrative Oncology

INTRODUCTION:

Cancer remains one of the leading causes of morbidity and mortality worldwide, with nearly 18 million new cases diagnosed annually[1]. The disease imposes a significant clinical and socioeconomic burden, affecting patients physically and psychosocially throughout its unpredictable course[2]. Individuals with cancer often endure persistent physical challenges, such as pain and fatigue, coupled with heightened anxiety and depression[3,4]. While conventional cancer treatments primarily target disease recurrence and ongoing physical symptoms[5], there is growing interest in non-pharmacological therapies due to their safety, cost-effectiveness, and minimal side effects[6].

Among these therapies, music-based interventions have gained attention for their potential to enhance the physical and emotional well-being of patients with chronic conditions, including cancer[7,8,9,10]. These interventions are categorized into 'music medicine,' which involves passive listening to recorded music provided by healthcare professionals, and 'music therapy,' a more interactive approach facilitated by credentialed therapists[11]. The latter involves a personalized therapeutic relationship, assessment, and intervention[12].

Music-based interventions, whether passive or interactive, can be integrated into multimodal treatment programs[13,14,15]. They are known to engage complex cognitive, emotional, sensory, and motor processes in the brain, potentially reducing autonomic nervous system activity and promoting neural synchrony and brain plasticity[16]. Additionally, music can elicit strong emotional and social responses, contributing to its biological impact on both physical and mental health[17,18].

Recent systematic reviews have explored the effectiveness of music-based interventions in cancer care[19,20]. This overview aims to synthesize the available evidence from these reviews, focusing on the impact of music-based interventions on physical and psychosocial outcomes in adults with cancer. This synthesis will also address the transparency and methodological rigor of previous research, providing insight into the clinical relevance of current evidence[21,22].

OBJECTIVES:

1. To assess the baseline pain intensity levels among cancer patients receiving chemotherapy through pre-test assessment in experimental & control group.
2. To assess the pain intensity levels among cancer patients receiving chemotherapy through post-test assessment in experimental & control group.
3. To evaluate effectiveness of music therapy on the pain intensity levels among cancer patients receiving chemotherapy by comparing the pre & post level of pain between experimental & control group.

INCLUSION CRITERIA:

1. Patients diagnosed with cancer receiving chemotherapy in day care settings.
2. Patients who are willing to participate in the study and to be ready for music therapy sessions.

3. No known history of psychiatric illness or treated with psychotropic drugs.
4. Patients who are receiving chemotherapy of Oxaliplatin, Paclitaxel, Epirubicin & Adriamycin through peripheral line.
5. Patients who are receiving chemotherapy Cycles- 1 to 4.

EXCLUSION CRITERIA:

1. Patients with cognitive impairment or inability to communicate effectively.
2. Patients with hearing deficits.
3. Patients receiving concurrent pain management therapies that could confound the results.
4. Those with significant psychiatric disorders or substance abuse issues.
5. Inability to attend or participate in scheduled music therapy sessions.

MATERIALS AND METHODS:

- Research approach- Evaluative approach
- Research design- Quasi Experimental study
- Setting- HCG Manavata Cancer Centre, Nashik
- Population- Patients diagnosed with cancer receiving chemotherapy
- Sample and sample size- 120 Patients (60 patients in Experimental & 60 patients in Control Group)
- Sampling technique- Convenient Sampling technique
- Tools/Instruments used in the study- Numerical pain scale

OPERATIONAL DEFINITIONS:

- **Efficacy**- Effectiveness in this study is operationally defined as the degree to which music therapy interventions lead to a reduction in reported pain levels among cancer patients, as measured by changes in pain scores before and after the therapy sessions.
- **Music Therapy-** A therapeutic intervention was conducted involving recorded instrumental music featuring Veena and Flute, combining the traditional Indian raga Ananda Bhairavi, believed to have therapeutic effects, with modern contemporary tunes. The intervention included a pre-test assessment 30 minutes after starting chemotherapy, followed by a 20-minute music therapy session administered via ear pods, and a post-assessment 20 minutes after the therapy to evaluate the reduction in pain levels among cancer patients.
- **Pain:** Pain is operationally defined as the subjective experience of discomfort or unpleasant sensation reported by cancer patients, measured using standardized numerical pain assessment tool.

RESULTS:		N=120
Age in years (N=120)	Control group (n=60)	Experimental Group (n=60)
	Percentage	Percentage
< 24	0	2
> 24 -34	13	10
> 34 -44	20	22
> 44 -54	28	18
> 54 -64	28	30

> 64 -74	10	18
Total	100	100

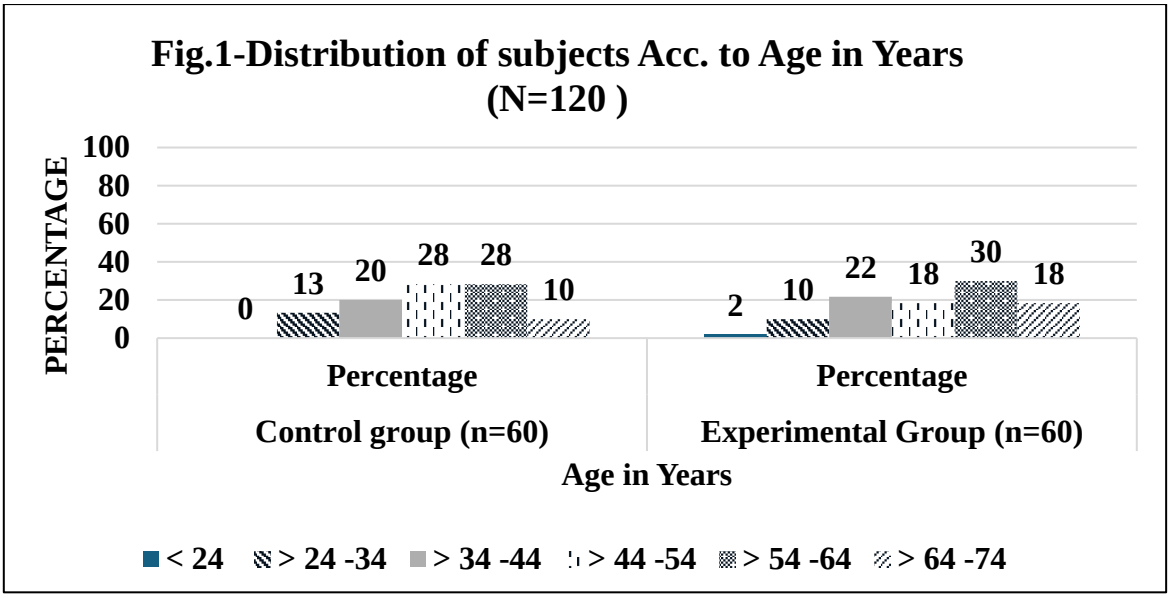

Table-1, Figure- 1: - The age distribution reveals that the majority of participants in the experimental group are older, with 30% aged 54-64 years and 18% aged 64-74 years. In comparison, the control group has a younger demographic, with 28% aged 44-54 years, 20% aged 34-44 years, and 13% aged 24-34 years.

		N=120
Gender (n=120)	Control group (n=60)	Experimental Group (n=60)
	Percentage	Percentage
Male	38	38
Female	62	62
Total	100	100

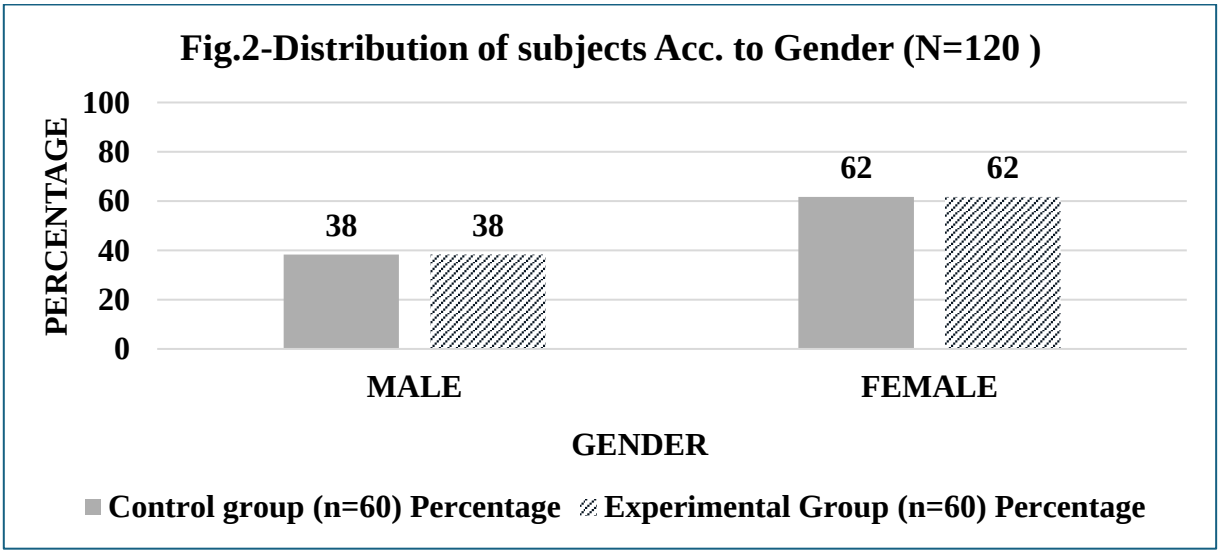

Table-2, Figure-2: - The gender distribution shows that in both the control and experimental groups, females are the majority, comprising 62% of each group, while males make up 38%.

This consistent gender distribution across both groups ensures a balanced comparison in terms of gender representation.

		N=120
Education Status (N=120)	Control group (n=60)	Experimental Group (n=60)
	Percentage	Percentage
No formal Education	8	3
Primary Education	12	15
Secondary Education	15	12
Higher Secondary	15	20
Graduation and above	50	50
Total	100	100

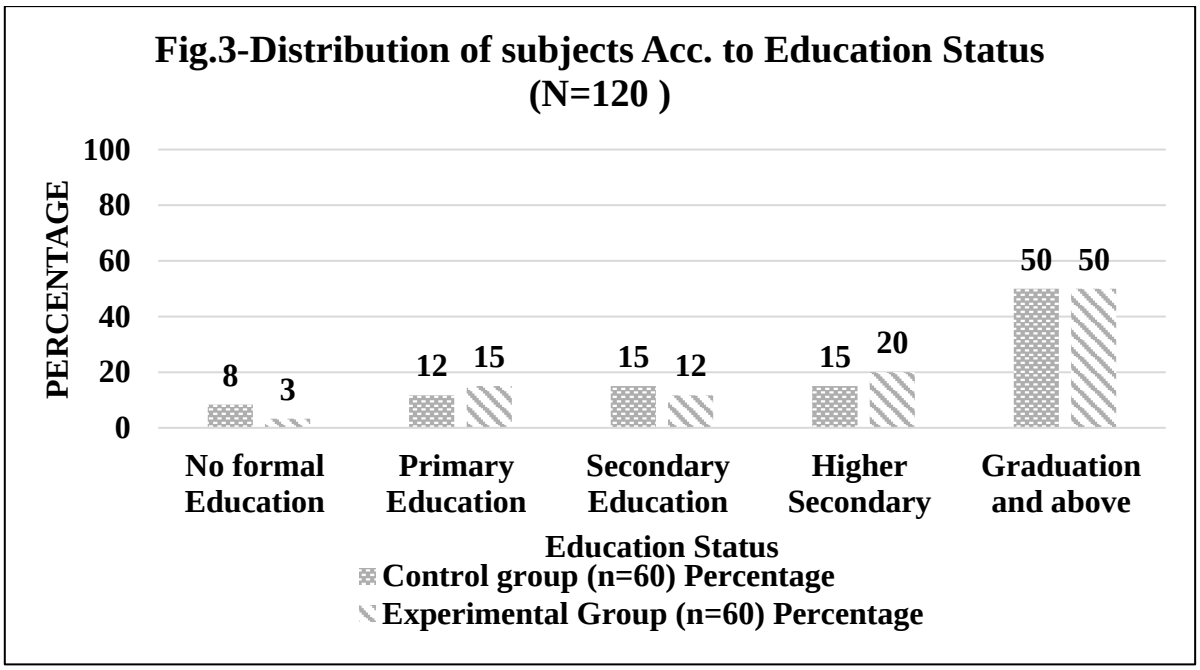

Table-3, Figure-3:- The education status distribution indicates that both the control and experimental groups are largely composed of participants with graduation and higher education, each at 50%. The experimental group, however, has a higher proportion of participants with higher secondary education at 20%, while the control group has more participants with no formal education at 8%.

		N=120
Marital Status	Control group (n=60)	Experimental Group (n=60)
	Percentage	Percentage
Married	92	98
Unmarried	8	2
Total	100	100

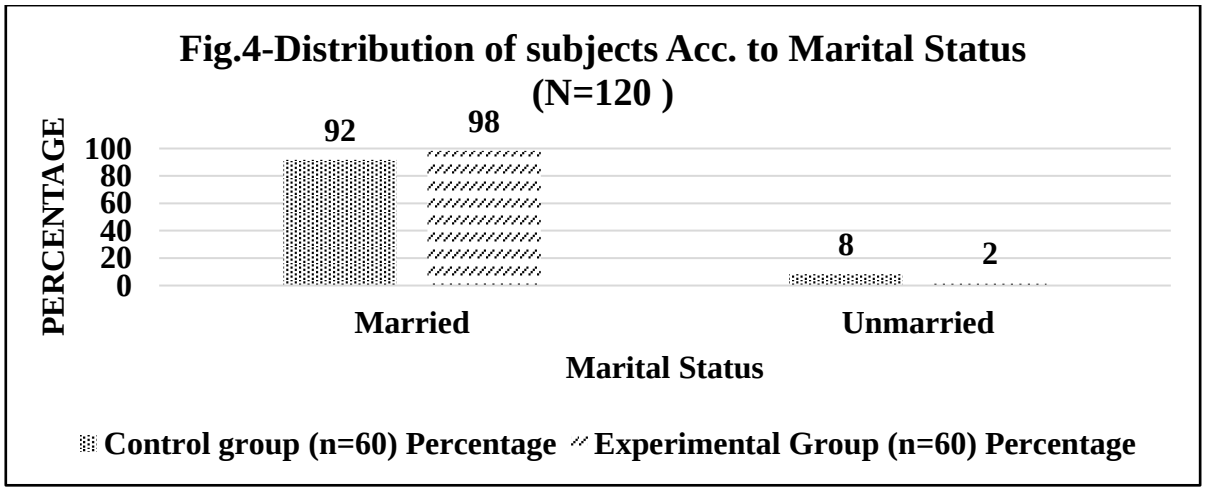

Table-4, Figure-4:- The marital status distribution shows that the majority of participants in both the control and experimental groups are married, with 92% in the control group and 98% in the experimental group. A smaller percentage of participants are unmarried, with 8% in the control group and 2% in the experimental group.

Religion (N=120)	Control group (n=60)	Experimental Group (n=60)
	Percentage	Percentage
Hindu	73	55
Christian	12	17
Muslim	12	22
Other	3	7
Total	100	100

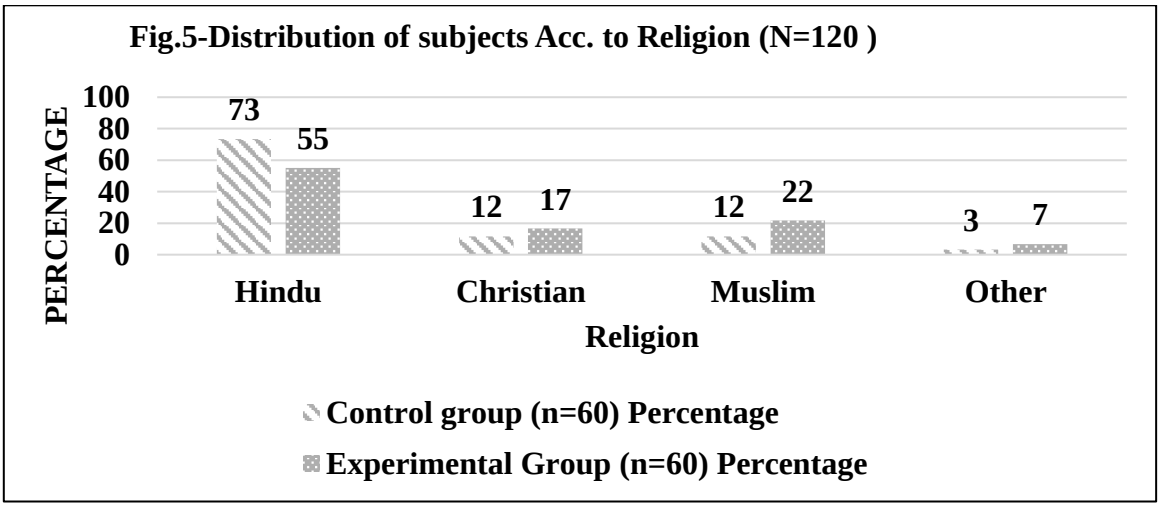

Table-5, Figure-5: - The religion distribution shows that the control group has a higher percentage of Hindu participants at 73%, compared to 55% in the experimental group. The experimental group has a greater representation of Muslims at 22% and Christians at 17%. Additionally, 7% of the experimental group belongs to other religions, compared to 3% in the control group.

Diagnosis (N=120)	Control group (n=60)	Experimental Group (n=60)
	Percentage	Percentage
Organ Cancer	100	100
Blood cancer	0	0
Total	100	100

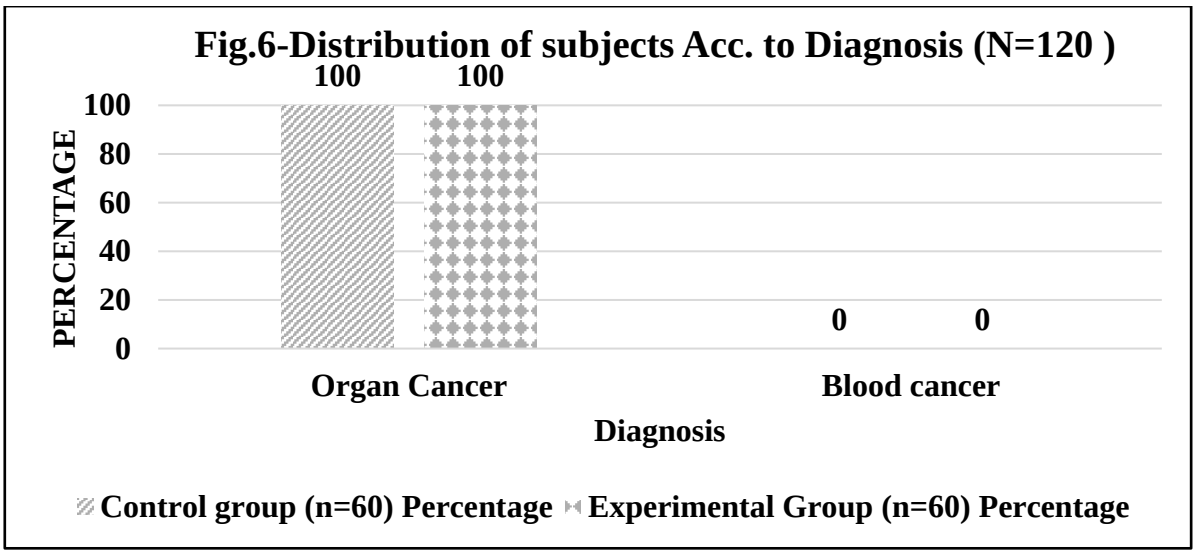

Table-6, Figure-6: - The distribution of cancer types indicates that all participants in both the control and experimental groups have organ cancer, with no participants having blood cancer.

Stage of cancer (N=120)	Control group (n=60)	Experimental Group (n=60)
	Percentage	Percentage
1	10	3
2	32	35
3	42	33
4	17	28
Total	100	100

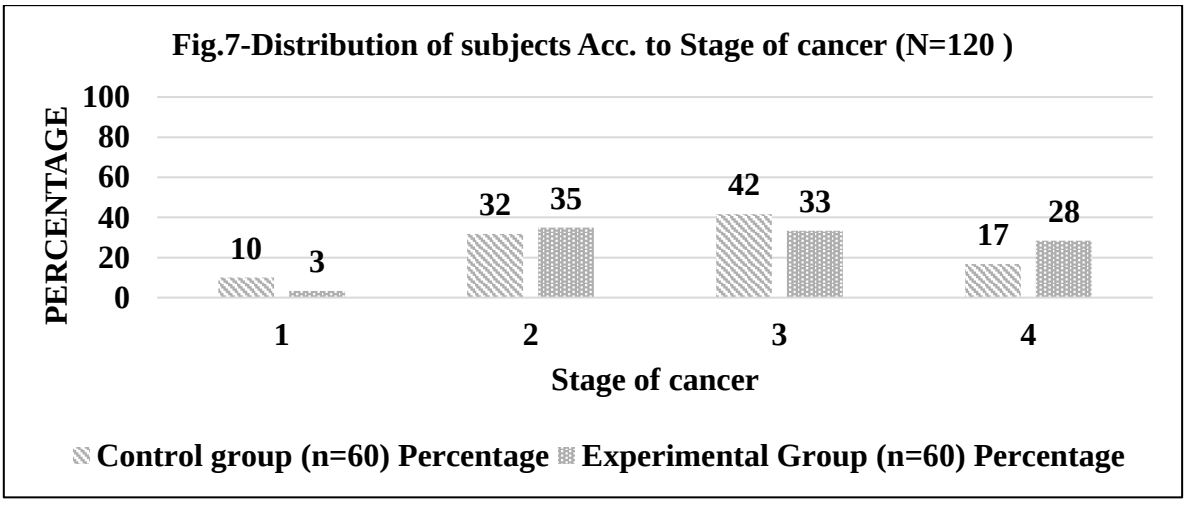

Table-7, Figure-7: - The cancer stage distribution indicates that in the control group, 42% of

participants are at stage 3, whereas 33% of participants in the experimental group are at this stage. The experimental group has a higher percentage of participants at stage 2, with 35% compared to 32% in the control group, and at stage 4, with 28% compared to 17%. Conversely, the control group has a greater proportion of participants at stage 1, with 10% compared to 3% in the experimental group.

		N=120
Chemotherapy Cycle (N=120)	Control group (n=60)	Experimental Group (n=60)
	Percentage	Percentage
1-2	52	50
3-4	48	50
Total	100	100

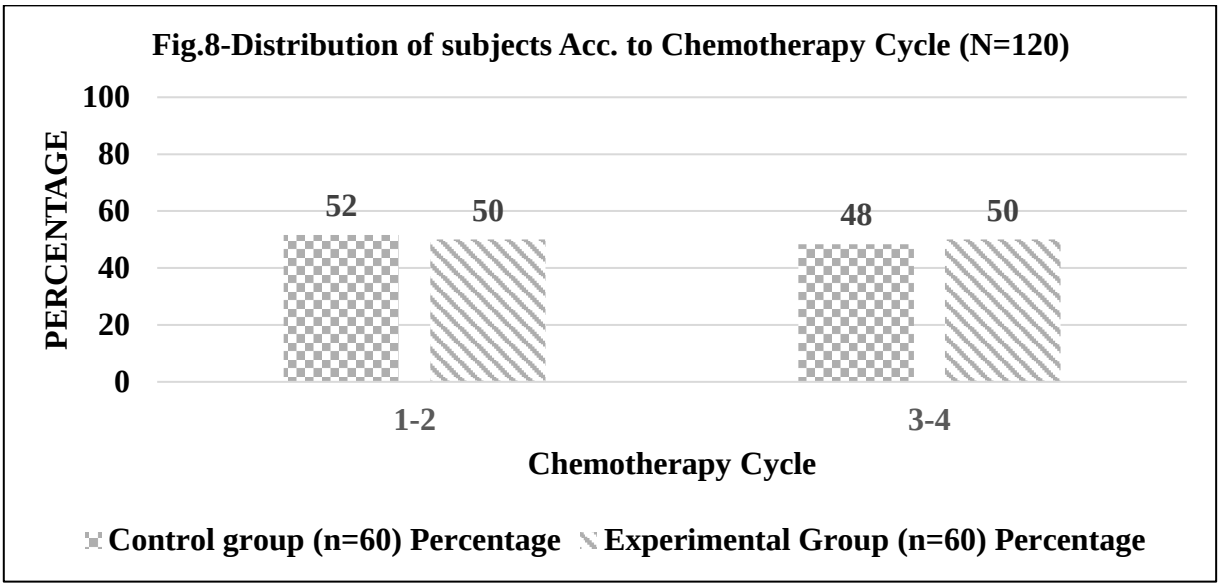

Table-8, Figure-8: The distribution of chemotherapy cycles shows that in both the control and experimental groups, the percentage of participants undergoing 1-2 cycles is similar, with 52% in the control group and 50% in the experimental group. The proportion of participants receiving 3-4 cycles is also comparable, with 48% in the control group and 50% in the experimental group.

N=120

Level Of Pain	**Pre-Test Percentage (Control Group)**	**Post-Test Percentage (Control Group)**	**Pre-Test Percentage (Experimental Group)**	**Post-Test Percentage Experimental Group)**
No Pain (0)	0	0	0	0
Mild (1-2)	0	0	0	55
Moderate (3-4)	48	48	55	45
Severe (5-6)	52	52	45	0
Very severe (7-8)	0	0	0	0
Worst (8-10)	0	0	0	0

Total	100	100	100	100

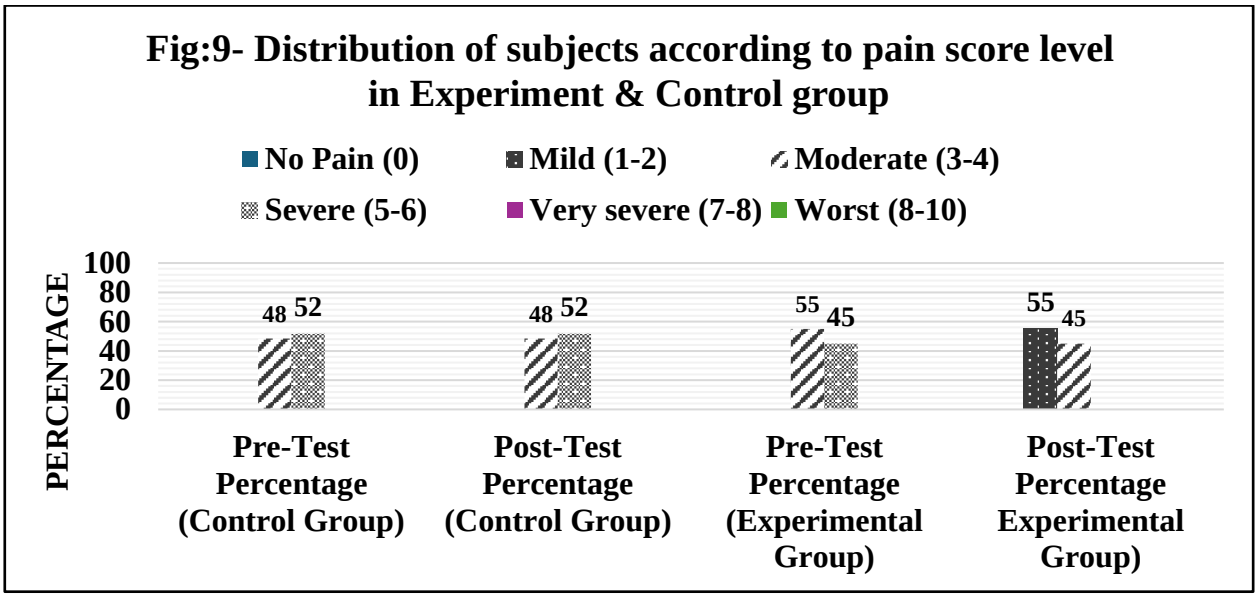

Table-9, Figure-9: The pain levels show notable differences between the control and experimental groups. In the control group, the percentages for pain levels remain consistent, with 48% experiencing moderate pain and 52% experiencing severe pain in both the pre-test and post-test. In contrast, the experimental group shows a significant shift from the pre-test to the post-test: 55% of participants report mild pain in the post-test, compared to none in the pre-test, while no participants report severe pain in the post-test, down from 45% in the pre-test. This indicates a potential reduction in pain severity among participants in the experimental group following the intervention.

EXPERIMENTAL ROUP (n)	MEAN SCORE	SD	SE	't' VALUE	Df	INFERENCE
PRE-TEST (n=60)	4.37	0.95	0.06	-33.3	59	The value of *p* is < .00001. Result is significant at p < .05.
POST-TEST (n=60)	2.35	1.04				

Table 10: 't' test analysis to evaluate the effectiveness of music therapy between pre-test and post-test level of pain scores depicts that in the experimental group, the pre-test mean score of 4.37 (SD = 0.95, SE = 0.06) demonstrates the level of pain or distress before the intervention. The calculated t-value of -33.3, with 59 degrees of freedom, and a p-value less than 0.00001, indicate a highly significant difference. This marked significance suggests that music therapy has had a substantial and effective impact on reducing pain or distress among cancer patients, as evidenced by the considerable change observed.

CONTROL GROUP (n)	MEAN SCORE	SD	SE	't' VALUE	Df	INFERENCE
PRE-TEST (n=60)	4.45	0.93	0.03	1.762176.	59	*not* significant at p < .05.
POST-TEST (n=60)	4.5	0.97				

Table 11: 't' test analysis to evaluate the effectiveness of music therapy between pre-test and post-test level of pain scores depicts that in the Control group, the pre-test mean score is 4.45 with a standard deviation of 0.93 and a standard error of 0.03. The t-value is 1.76 with 59 degrees of freedom, and the result is not significant at the 0.05 level. The post-test mean score is 4.5 with a standard deviation of 0.97. This indicates that there was no statistically significant change in pain or distress levels from the pre-test to the post-test in the control group, suggesting that the control group did not experience a meaningful reduction in pain or distress over the course of the study.

GROUP (n)	MEAN SCORE	SD	SE	't' VALUE	Df	INFERENCE
Experimental Group (n=60)	2.35	1.04	0.03	-11.74373	119	The *p*-value is < .00001. Result is significant at *p* < .05.
Control Group (n=60)	4.5	0.97				

Table 12: Unpaired t-test analysis to evaluate the comparison between the experimental and control groups. In the experimental group, the mean score is 2.35 with a standard deviation of 1.04 and a standard error of 0.03. The t-value is -11.74 with 119 degrees of freedom, and the p-value is less than 0.00001. This highly significant result at the 0.05 level indicates that the intervention, music therapy, significantly reduced pain or distress among participants in the experimental group compared to the control group.

DISCUSSION:

The present study "Harmonizing Healing: Exploring the Efficacy of Music Therapy in Alleviating Pain among Cancer Patients Receiving Chemotherapy" highlights significant pain reduction through music therapy, as indicated by a t-value of -11.74 and a p-value less than 0.00001. This finding is consistent with several studies that emphasize the effectiveness of music therapy in pain management.

Xiao-Mei Li, Hong Yan, Kai-Na Zhou, Shao-Nong Dang, Duo-Lao Wang, and Yin-Ping Zhang (2011) conducted a randomized controlled trial that demonstrated significant pain relief through music therapy in breast cancer patient's post-radical mastectomy. Their study found notable reductions in Pain Rating Index (PRI-total) scores, with mean differences of −2.38, −2.41, and −1.87 across three post-tests. These results align with our study's findings, which observed a significant pain reduction in chemotherapy patients with a t-value of -11.74 and a p-value < 0.00001. Both studies highlight the effectiveness of music therapy for pain

management in oncology, suggesting its broad applicability across different cancer treatments.[23]

Bareh and D'silva (2017) investigated the impact of music therapy on pain and quality of life among cancer survivors. Their quasi-experimental study revealed significant reductions in pain levels ($p<0.05$) and improvements in quality of life, particularly in physical and psychological domains ($p<0.05$), for patients receiving music therapy compared to the control group. The study underscores music therapy's effectiveness as a complementary treatment for enhancing cancer patients' well-being.[24]

Kaliyaperumal and Subash (2010) demonstrated that music therapy significantly reduced pain in cancer patients. The study revealed a higher calculated 't' value than the tabulated value at 2.09, indicating significant differences between pre- and post-test pain scores on days 1, 2, and 3. This highlights the effectiveness of music therapy in alleviating pain, supporting its use as a non-invasive and beneficial intervention in cancer pain management. This study's findings are consistent with our results, reinforcing the positive effects of music therapy on pain management and emotional support for chemotherapy patients[25].

Finally, study by Krishnaswamy and Nair (2016) demonstrated a statistically significant reduction in pain scores after music therapy in cancer patients ($P = 0.003$), while the control group showed no significant change ($P = 0.356$). Post-intervention pain scores were significantly lower in the music therapy group compared to controls ($P = 0.034$), though anxiety reduction was not statistically significant in either group. Their research supports the notion that music therapy is a valuable adjunct to conventional pain management strategies, aligning with our study's conclusions about its efficacy in reducing pain among chemotherapy patients[26].

Overall, these studies collectively reinforce the efficacy of music therapy in alleviating pain and improving the quality of life for cancer patients, validating the significant results observed in our research.

Based on the findings from the study "Harmonizing Healing: Exploring the Efficacy of Music Therapy in Alleviating Pain among Cancer Patients Receiving Chemotherapy," the following recommendations are proposed for integrating music therapy into nursing practices across palliative, hospice, and oncology care settings:

RECOMMENDATIONS:

1. **Incorporate Music Therapy into integrative oncology Care:** Integrate music therapy as a complementary approach in palliative care to manage symptoms and enhance quality of life. Music therapy can help alleviate pain, reduce anxiety, and improve emotional well-being, providing a holistic support system for patients with serious illnesses.
2. **Implement Music Therapy in Hospice Care:** Utilize music therapy in hospice care to offer comfort and emotional support to patients nearing the end of life. Music therapy can ease physical symptoms, reduce stress, and create meaningful experiences for patients and their families, enhancing the overall end-of-life care.
3. **Integrate Music Therapy into Oncology Care Foundations**: Embed music therapy into comprehensive oncology care programs to support patients throughout their cancer journey.

Music therapy can complement standard treatments by managing treatment-related symptoms, improving emotional health, and contributing to overall patient well-being.

4. **Develop and Support Music Therapy Programs**: Establish structured music therapy programs within palliative, hospice, and oncology care settings. Ensure these programs are adequately resourced, including hiring qualified music therapists and integrating music therapy into routine care practices.
5. **Evaluate and Adjust Music Therapy Interventions:** Create mechanisms for regularly evaluating the impact of music therapy on patient outcomes in palliative, hospice, and oncology care settings. Use patient feedback and clinical observations to refine and enhance therapy programs.
6. **Promote Patient and Family Education:** Educate patients and their families about the benefits of music therapy and its role in supporting holistic care. Encourage patient and family involvement in therapy sessions to improve engagement and therapeutic outcomes.

By implementing these recommendations, nursing practice and administration can effectively incorporate music therapy into palliative, hospice, and oncology care settings, enhancing patient comfort, symptom management, and overall quality of life.

CONCLUSION:

The study concludes that music therapy significantly reduces pain in cancer patients undergoing chemotherapy, highlighting its effectiveness as a complementary treatment. The therapy not only alleviates pain but also enhances patients' overall well-being and emotional support during treatment. Incorporating music therapy into standard care practices could be a valuable strategy for improving the quality of life and comfort of cancer patients during their treatment journey.

ACKNOWLEDGEMENT:

Heartfelt appreciation goes to all those who contributed to the completion of this research. Deepest gratitude is extended to the patients who participated in the study; their willingness and cooperation were essential. Profound thanks are also due to the nursing staff for their unwavering support and dedication throughout the process. Special thanks to colleagues and mentors for their guidance and constructive feedback. Finally, acknowledgment is given to the institution for providing the resources necessary for this research. Finally, I acknowledge the support of the institution for providing the resources necessary for this research.

REFERENCES:

1. Kocarnik JM, Compton K, Dean FE, et al. Cancer incidence, mortality, years of life lost, years lived with disability, and disability-adjusted life years for 29 cancer groups from 2010 to 2019. JAMA Oncol. 2022; 8:420. doi: 10.1001/jamaoncol.2021.6987.
2. Mattiuzzi C, Lippi G. Current cancer epidemiology. J Epidemiol Glob Health. 2019; 9:217-222. doi: 10.2991/jegh.k.191008.001.
3. Evenepoel M, Haenen V, de Baerdemaecker T, et al. Pain prevalence during cancer treatment: a systematic review and meta-analysis. J Pain Symptom Manage. 2022;63: e317-e335. doi: 10.1016/j.jpainsymman.2021.09.011.

4. Ma Y, He B, Jiang M, et al. Prevalence and risk factors of cancer-related fatigue: a systematic review and meta-analysis. Int J Nurs Stud. 2020; 111:103707. doi: 10.1016/j.ijnurstu.2020.103707.
5. Raphael DB, Russell NS, Immink JM, et al. Risk communication in a patient decision aid for radiotherapy in breast cancer: how to deal with uncertainty? Breast. 2020; 51:105-113. doi: 10.1016/j.breast.2020.04.001.
6. Wang Y, Feng W. Cancer-related psychosocial challenges. Gen Psychiatr. 2022;35: e100871. doi: 10.1136/gpsych-2022-100871.
7. Niedzwiedz CL, Knifton L, Robb KA, et al. Depression and anxiety among people living with and beyond cancer: a growing clinical and research priority. BMC Cancer. 2019; 19:943. doi: 10.1186/s12885-019-6181-4.
8. Emery J, Butow P, Lai-Kwon J, et al. Cancer survivorship 1: management of common clinical problems experienced by survivors of cancer. Lancet. 2022; 399:1537-1550. doi: 10.1016/S0140-6736(22)00242-2.
9. Park S, Sato Y, Takita Y, et al. Mindfulness-based cognitive therapy for psychological distress, fear of cancer recurrence, fatigue, spiritual well-being, and quality of life in patients with breast cancer—a randomized controlled trial. J Pain Symptom Manage. 2020; 60:381-389. doi: 10.1016/j.jpainsymman.2020.02.017.
10. Wang Y, Liao L, Lin X, et al. A bibliometric and visualization analysis of mindfulness and meditation research from 1900 to 2021. Int J Environ Res Public Health. 2021; 18:13150. doi: 10.3390/ijerph182413150.
11. Wang M, Yi G, Gao H, et al. Music-based interventions to improve fibromyalgia syndrome: a meta-analysis. Explore. 2020; 16:357-362. doi: 10.1016/j.explore.2020.05.012.
12. Aalbers S, Fusar-Poli L, Freeman RE, et al. Music therapy for depression. Cochrane Database Syst Rev. 2017; CD004517. doi: 10.1002/14651858.CD004517.pub3.
13. Geyik Gİ, Doğan S, Ozbek H, Atayoglu AT. The effect of music therapy on the physical and mental parameters of cancer patients during hematopoietic stem cell transplantation. Perspect Psychiatr Care. 2021; 57:558-564. doi: 10.1111/ppc.12578.
14. Tang H, Chen L, Wang Y, et al. The efficacy of music therapy to relieve pain, anxiety, and promote sleep quality in patients with small cell lung cancer receiving platinum-based chemotherapy. Support Care Cancer. 2021; 29:7299-7306. doi: 10.1007/s00520-021-06152-6.
15. Santos MS, Thomaz Fde M, Jomar RT, et al. Music in the relief of stress and distress in cancer patients. Rev Bras Enferm. 2021;74:e20190838. doi: 10.1590/0034-7167-2019-0838.
16. Gramaglia C, Gambaro E, Vecchi C, et al. Outcomes of music therapy interventions in cancer patients—a review of the literature. Crit Rev Oncol Hematol. 2019; 138:241-254. doi: 10.1016/j.critrevonc.2019.04.004.
17. Archie P, Bruera E, Cohen L. Music-based interventions in palliative cancer care: a review of quantitative studies and neurobiological literature. Support Care Cancer. 2013; 21:2609-2624. doi: 10.1007/s00520-013-1841-4.
18. Pearson S. Why words matter: how the common misuse of the term music therapy may both hinder and help music therapists. Voices: A World Forum for Music Therapy. 2018;18. doi: 10.15845/voices.v18i1.904.
19. Dileo C, Bradt J. Medical music therapy: evidence-based principles and practices. Int Handbook Occup Ther Interv. 2009;445-451. doi: 10.1007/978-0-387-75424-6_47/COVER.

20. Pereira APS, Marinho V, Gupta D, et al. Music therapy and dance as gait rehabilitation in patients with Parkinson disease: a review of evidence. J Geriatr Psychiatry Neurol. 2019; 32:49-56. doi: 10.1177/0891988718819858.
21. Zhou Z, Zhou R, Wei W, et al. Effects of music-based movement therapy on motor function, balance, gait, mental health, and quality of life for patients with Parkinson's disease: a systematic review and meta-analysis. Clin Rehabil. 2021; 35:937-951. doi: 10.1177/0269215521990526.
22. Torres E, Pedersen IN, Pérez-Fernández JI. Randomized trial of a group music and imagery method (GrpMI) for women with fibromyalgia. J Music Ther. 2018; 55:186-220. doi: 10.1093/jmt/thy005.
23. Li XM, Yan H, Zhou KN, Dang SN, Wang DL, Zhang YP. Effects of music therapy on pain among female breast cancer patients after radical mastectomy: Breast Cancer Res Treat. 2011 May;128(2):411-419.
24. Bareh S, D'silva F. Effect of music therapy on pain and quality of life among cancer survivors. Nitte University Journal of Health Science. 2017 Sep;7(3): ISSN 2249-7110.
25. Kaliyaperumal R, Subash JG. Effect of music therapy for patients with cancer pain. Int J Biol Med Res. 2010;1(3):79-81.
26. Krishnaswamy P, Nair S. Effect of music therapy on pain and anxiety levels of cancer patients: A pilot study. Indian J Palliat Care. 2016 Jul-Sep;22(3):307-311. doi: 10.4103/0973-1075.185042. PMCID: PMC4973492. PMID: 27559260.