

Let Us Get in Touch: Clay Used as a Medium in Art Therapy Sessions with Cancer Patients Undergoing Chemotherapy

A Systematic Literature Review

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Abstract—Clay art therapy is a form of art therapy that uses clay as a medium for creative expression and emotional exploration. Clay art therapy may have positive effects on the psychological and physical well-being of cancer patients undergoing chemotherapy. However, the evidence on the effects and benefits of clay art therapy for this population has not been systematically reviewed and synthesized. This project aims to conduct a systematic review of the existing literature on the use of clay as a medium in art therapy sessions specifically for cancer patients undergoing chemotherapy.

A comprehensive and systematic search of the literature was conducted from two free databases and sources. 10 Studies were included in the review using the inclusion and exclusion criteria discussed in the methodology. The results and findings of the selected studies were tabularized, synthesized, and compared using qualitative methods.

The studies varied in terms of sample characteristics, intervention protocols, and outcome measures. The review found that clay art therapy was generally well-accepted and enjoyed by cancer patients undergoing chemotherapy. The review also found that clay art therapy was effective in reducing psychological distress, improving quality of life, and enhancing coping skills among cancer patients. **Conclusions**—Clay art therapy is a promising and effective intervention that can improve the psychological and physical well-being of cancer patients undergoing chemotherapy. Clay art therapy should be offered as an optional and voluntary intervention for cancer patients undergoing chemotherapy who are interested in or willing to try this form of therapy.

Keywords—Clay, Art therapy, Cancer, chemotherapy, quality of life, well-being.

I. INTRODUCTION

Cancer is considered one of the leading causes of death worldwide. Cancer is a major health concern in India, with over 800,000 deaths due to the disease each year (WHO, 2021). The projected cancer burden in India for 2021 was 26.7 million DALY_{SAMI} (Disability Adjusted Life Years) and is expected to increase to 29.8 million in 2025. (Kulothungan et al., 2022) Whereas in another study in 2022, it was

estimated that there would be 14,61,427 new cases of cancer in India, with a crude rate of 100.4 per 100,000 people. This means that one in nine people in India is at risk of developing cancer during their lifetime. By 2025, the number of cancer cases in India is expected to increase by 12.8% compared to 2020. (Mathur et al., 2023).

II. CANCER EPIDEMIOLOGY AND TREATMENT

A press release on 18 August 2020 by The Indian Council of Medical Research (ICMR) and the National Centre for Disease Informatics & Research (NCDIR), declared The National Cancer Registry Programme Report 2020 (NCRP). According to the NCRP, in India, the most productive age group of 35-64 years is the most affected age group by cancer. The most common cancers in men in India were lung, mouth, stomach and oesophagus. Breast and cervical cancer were the most common among women. Most registries showed a significant increase in breast cancer rates in women and lung and head & neck cancers in both genders. Generally, in India, for breast and head & neck cancers, a combination of surgery, chemotherapy, and radiation therapy is used as a multimodality treatment. Cervical cancer was mainly treated with radiotherapy and chemotherapy. (ICMR, 2020, August 18).

Chemotherapy is a widely used treatment for various types of cancer, aiming to eliminate or control cancer cells in the body. While it can be effective in combating cancer, chemotherapy is often associated with a range of physical side effects. (Bosman et al., 2020) However, it is also important to recognize the impact of chemotherapy on the mental health of cancer patients.

A. Impact of Chemotherapy on the Mental Health of Cancer Patients

Cancer patients encounter various psychological challenges such as stress, anxiety, and depression. They also experience physiological side effects like hair loss, pain, tiredness, nausea, and vomiting. Furthermore, they may face

social side effects such as social isolation and the loss of their roles and functions. Ultimately, all these factors contribute to a diminished quality of life. (Üstündag & Zencirci, 2015). Various studies conducted in 2015, 2017 and 2020 observed that cancer patients undergoing chemotherapy experience significant impacts on their mental health and overall quality of life. The following factors were listed from the review of four studies, (Lewandowska et al., 2020; Ramasubbu et al., 2020; Üstündag & Zencirci, 2015; Uwamahoro, 2017)

B. Quality of life (QOL)

The reviews revealed a low mean score of QoL among cancer patients undergoing chemotherapy. This indicates that patients experience compromised well-being in various domains, including functional, physical, emotional, and social aspects of life. These factors contribute to a diminished overall quality of life.

C. Emotional Wellbeing

Cancer diagnosis and chemotherapy can have a profound impact on the emotional well-being of patients. Patients reported experiencing fear of cancer recurrence and related depressive symptoms, which significantly affect their ability to cope with the disease and recovery process. The stress and upheaval associated with cancer identification, chemotherapy cycles, and cancer relapses can further contribute to emotional challenges for both patients and their families.

D. Psychological Distress

The emotional burden of cancer, coupled with the stigma and fear associated with the disease, can lead to psychological distress among patients. The stigma of having cancer, fear of discrimination, and the denial of fundamental welfare rights can result in social exclusion. Malignancy-related myths and stigma may also affect the diagnosis and treatment process. The fear of death and the physical changes resulting from treatment, such as hair loss and physical deformities, can make patients feel undesirable, unaccepted, and vulnerable to social separation.

E. Financial Strain

Cancer diagnosis and treatment impose a significant financial strain on patients and their families. This financial burden can lead to increased stress and anxiety, affecting the mental well-being of patients. The financial difficulties may also impact the emotional well-being of patients as they perceive a loss within their families due to the challenges faced in managing the financial aspects of cancer care.

It is evident that cancer patients undergoing chemotherapy experience a range of mental health challenges, including emotional distress, psychological burden, and reduced overall QoL. These findings emphasize the importance of comprehensive support systems, including psychological counselling, social support, and educational programs for healthcare professionals, to address and improve the mental well-being of cancer patients throughout their treatment journey. (Lewandowska et al., 2020; Ramasubbu et al., 2020)

Cancer patients turn to complementary therapies as a means to enhance their quality of life. The presence of cancer and the use of chemotherapy exacerbate the decline in quality

of life and intensify the demand for complementary therapies. (Paltiel et al., 2001)

III. ART THERAPY AS A COMPLEMENTARY THERAPY

In recent years, there has been increasing interest in complementary therapies, such as art therapy, in managing symptoms in cancer patients. (Wood et al., 2011)

Art therapy is a form of psychotherapy that involves the use of creative techniques such as drawing, painting, and sculpting to help individuals explore their emotions and express themselves. Art therapy is based on the belief that the creative process involved in artistic self-expression helps individuals to resolve conflicts, develop interpersonal skills, manage behaviour, reduce stress, and increase self-esteem, and self-awareness. It is effective in treating a variety of mental health conditions and can be used as an adjunct to traditional treatments. (American Art Therapy Association, 2023)

Research has shown that as a complementary therapy, art therapy can be an effective form of treatment for a wide range of mental health conditions, including depression, anxiety, trauma, and eating disorders. Art therapy can help patients rebuild their sense of self-worth by allowing them to create something meaningful and beautiful (Malchiodi, 2012).

IV. EFFICACY OF ART THERAPY ON ADULTS WITH CANCER

Art therapy involves the use of various art media to express oneself and improve mental health. Cancer patients require effective psychological interventions to manage the burden of the disease, including the physical, emotional, and spiritual aspects. Art therapy is a promising alternative for cancer patients to reduce anxiety, depression, distress, and other psychological symptoms associated with the disease and its treatment. (Bosman et al., 2020)

Bosman et al. (2020), Geue et al. (2010), Jiang et al. (2020) and Wood et al. (2011) conducted a systematic review to evaluate the research evidence for art therapy in managing symptoms in adults with cancer. The following significant positive effects of art therapy were observed during various systematic literature reviews done to study the effect of art therapy in adults with cancer. Art therapy was found to enable cancer patients to freely express their feelings and develop constructive coping strategies. The interventions in art therapy contributed to personal growth and positive results related to social interaction. Patients undergoing art therapy placed special emphasis on communicating their feelings and searching for meaning through their artwork. Art therapy demonstrated consistent positive effects on reducing anxiety levels in multiple studies. Depression levels decreased significantly in all studies. Coping mechanisms varied among patients, with some experiencing decreased hopelessness and fatalism, while others showed no change in coping styles. Patients' coping resources in social areas and overall coping scores improved in certain studies. Quality of life assessments using different measures consistently showed significant improvements, particularly in global scores and social functioning. (Bosman et al., 2020; Geue et al., 2010; Jiang et al., 2020).

As per a study by Monti et al. (2006), art therapy can help cancer patients to develop a sense of control, self-esteem, and empowerment, enhance their communication with others,

and facilitate their coping mechanisms. Moreover, art therapy can improve the overall well-being of cancer patients by boosting their immune function, increasing positive affect, and reducing negative emotions (Aguilar, 2017; Stuckey & Nobel, 2010).

V. CLAY AS A MEDIUM IN ART THERAPY

Patricia Sherwood (2004) quoted in her book, 'The Healing Art of Clay Therapy' that,

"Clay brings many gifts to the therapeutic process including responsiveness to human feelings, expressiveness of the inexpressible, tangibility of the intangible, knowingness of the unknowable, visibility of the invisible and apprehensibility of the inapprehensible." (pg.5-6)

According to Malchiodi (2012), clay provides a tactile and sensory experience that can help clients access their emotions and express themselves in a nonverbal way. It can also facilitate the exploration of personal themes, such as relationships, identity, and self-esteem. Clay is a versatile medium used in art therapy that can promote self-expression, relaxation, and creativity (Malchiodi, 2012).

VI. THERAPEUTIC USE OF CLAY IN ART THERAPY

The ability of humans to perceive various phenomena relies on sensory activity. In addition to the individual senses, the collective capacity to sense as a whole is referred to as "sense-ability" by Tagar (1999). It is through the senses that experiences are formed and embedded within the subtle bodies' resonance fabric. By engaging in a sense, all aspects of these embedded experiences can be explored, accessed, and brought back into conscious awareness. Clay material serves as an ideal medium for this process, allowing the exploration of someone's experience and capturing it in a visible, tangible, and concrete form. (Sherwood, 2004b) Clay art therapy can provide a sense of control for cancer patients by allowing them to create and manipulate the medium in their own way (Kaimal et al., 2016). This sense of control can help alleviate feelings of helplessness and enhance feelings of empowerment and self-efficacy. In addition, clay art therapy can provide a means of emotional expression and communication for cancer patients who may struggle to express their feelings in words (Monti et al., 2006). Clay art therapy can help patients explore their emotions, work through difficult experiences, and gain insight into their psychological processes.

VII. OPERATIONAL DEFINITIONS OF IMPORTANT TERMS

A. Art Therapy

It is a form of psychotherapy that uses art materials and the creative process to explore and express emotions, reduce anxiety, and promote personal growth and healing (American Art Therapy Association, 2023).

B. Cancer

It is a disease characterized by the uncontrolled growth and spread of abnormal cells in the body (National Cancer Institute, n.d.).

C. Chemotherapy

It is a treatment that uses drugs to kill cancer cells or slow their growth (American Cancer Society, n.d.).

D. Stress

It is the body's response to a real or perceived threat, challenge, or change, and can include physical, emotional, and behavioural reactions (U.S. Department of Health and Human Services, n.d.)

E. Anxiety

It is a feeling of unease, such as worry or fear, that can be mild or severe and can interfere with daily activities (National Institute of Mental Health, 2020).

F. Well-being

It refers to the state of being healthy, happy, and fulfilled, and can encompass physical, emotional, and social dimensions (World Health Organization, 2021).

Clay is a versatile medium used in art therapy that can be moulded, shaped, and textured to create a variety of forms and expressions (Malchiodi, 2019).

G. Quality of life

It refers to a person's overall well-being and satisfaction with their daily life, including physical health, social relationships, and sense of purpose (World Health Organization, n.d.)

H. Depression

It is a mood disorder that causes persistent feelings of sadness, hopelessness, and loss of interest in once-enjoyable activities (National Institute of Mental Health, n.d.)

VIII. PURPOSE AND JUSTIFICATION OF THE PROJECT

My work inspired my purpose and intention for studying this topic with individuals diagnosed with cancer. As an intern art therapist at Noble Hospital and Research Centre, I conducted art therapy sessions for cancer patients who opted to be part of Noble Mangaldeep Cancer Foundation wellness sessions. My participation in these wellness sessions as a facilitator revealed to me how art therapy could promote personal growth and help one gain insight into their inner experiences. A variety of art materials and interventions were used with cancer patients. Clay was offered as one of the materials with a directive of making a transition object for themselves. After a brief introduction to handling clay, patients were free to create what they wanted using the material. I watched patients smiling automatically as they handled the clay. I observed how they shaped the clay into creative sculptures with unique meanings. Most of them shared how easily they could mould the material into the form they desired. The clay gave form to thoughts and emotions which were never expressed. It offered authentic expression of their inner voices. Later in sharing and discussion session patients expressed how they loved working with clay and how it was a relaxing experience for them. This clay art therapy session experience made me curious to know more about the use of clay as a medium in an art therapy session and its effects on the mental health of cancer patients. My curiosity about the effect of clay art therapy on cancer patients led me to this topic. Patients undergoing chemotherapy were specifically considered as a population as most of the time this is the critical stage in a cancer patient's journey to cure.

IX. BENEFITS OF SYSTEMATIC LITERATURE REVIEW

A systematic literature review was considered a capstone project for multiple benefits.

A systematic literature review was done for several reasons listed below.

A. *Comprehensive Overview*

A systematic review allows for a thorough and unbiased assessment of existing literature on a specific topic. It provides a comprehensive overview of the available evidence, ensuring that no relevant studies are overlooked.

B. *Minimize Bias*

By following a predetermined set of criteria and methodology, a systematic review minimizes bias in the selection and evaluation of studies. This reduces the risk of subjective judgment and increases the reliability of the findings.

C. *Reliable Evidence Synthesis*

By systematically assessing and synthesizing multiple studies, a systematic review provides a more robust and reliable evidence base. It can identify patterns, inconsistencies, and gaps in the existing research, leading to more accurate conclusions and recommendations.

D. *Identify Research Gaps*

Systematic reviews help identify areas where further research is needed. By examining the limitations and gaps in the current literature, researchers can identify important unanswered questions and directions for future studies.

E. *Inform Decision-Making*

Systematic reviews play a crucial role in evidence-based decision-making. They provide policymakers, clinicians, and researchers with a comprehensive and reliable summary of the available evidence, aiding in informed decision-making and the development of guidelines or interventions.

F. *Reduce Duplication of Efforts*

A systematic review helps to avoid unnecessary duplication of research efforts. By summarizing existing knowledge, researchers can determine whether a specific topic has already been extensively studied or if there are gaps that require further investigation.

Overall, conducting a systematic literature review ensures a rigorous and transparent approach to evidence synthesis, promotes evidence-based practice, and contributes to the advancement of knowledge in a particular field. (Mallett et al., 2012; Petticrew, 2001)

X. RESEARCH OBJECTIVE

The objective of this capstone project is to conduct a systematic review of the existing literature on the use of clay as a medium in art therapy sessions specifically for cancer patients undergoing chemotherapy.

XI. ETHICAL CONSIDERATIONS

While conducting the following systematic literature review, several ethical considerations were taken into account, including:

A. *Plagiarism and Intellectual Property*

In order to respect the intellectual property rights of authors and researchers whose work is included in the review, proper citation and referencing are followed to give credit to the original authors and avoid plagiarism.

B. *Confidentiality and Anonymity*

If the review involves unpublished or sensitive data, maintaining confidentiality and anonymity is crucial. The data and information are handled with care, ensuring that individual identities or sensitive details are not disclosed without appropriate consent or legal permissions.

C. *Inclusion and Exclusion Criteria*

To ensure fairness and to prevent bias in the selection of studies for the review, inclusion and exclusion criteria were clearly defined and transparently applied. The criteria are based on objective factors and are relevant to the research question.

D. *Conflict of Interest*

Researchers should disclose any potential conflicts of interest that could influence the review process or findings. This includes financial, personal, or professional conflicts that may affect the objectivity or integrity of the review. No such conflict of interest was faced.

E. *Rigour and Transparency*

Conducting a systematic literature review requires adhering to rigorous and transparent methods. Therefore, clear documentation of the search strategy, selection process, and data extraction methods is done to allow for scrutiny and reproducibility. Any deviations from the planned methods are justified and transparently reported.

F. *Ethical Approval*

Although ethical approval may not always be required for a literature review, if human subjects or sensitive data are involved, it may be necessary to seek ethical approval from a relevant research ethics committee or institutional review board. No such requirement arose during this literature review.

G. *Data Synthesis and Reporting*

Researchers should present the findings accurately and objectively, avoiding selective reporting or misrepresentation of data. Therefore, transparency in reporting is maintained to ensure the integrity and reliability of the review. Tables were also made for reporting results.

H. *Authorship and Acknowledgment*

Proper recognition is given to individuals who significantly contributed to the review process. Authorship criteria is followed, and all contributors are acknowledged appropriately.

By adhering to these ethical considerations, I have ensured the integrity, transparency, and responsible conduct of the systematic literature review process.

XII. METHODOLOGY

The research objective of this project is to conduct a systematic review of the literature on the use of clay as a

medium in art therapy sessions with cancer patients undergoing chemotherapy. To achieve this objective, a comprehensive literature review was conducted to study prior research on the subject and summarize its key findings. In order to select the data to be used for the systematic review, specific inclusion and exclusion criteria were applied.

A. Eligibility Criteria for Selection of Studies

The following study characteristics were used to decide whether a study was eligible for inclusion in the review:

1) Population

There were no restrictions applied.

2) Intervention

Art therapy interventions like drawing, painting, sculpting/clay, collage, etc.

3) Comparison

Studies that include a comparison group or a control group will be included, but studies that do not have a comparison group will also be considered.

4) Outcome

Studies that report psychosocial outcomes, quality of life, anxiety and depression outcomes will be included.

5) Study design

Both randomized controlled trials and observational studies were included.

6) Setting

Studies conducted in any setting clinical or non-clinical, including hospitals, clinics, or community settings, were included.

7) Language

Studies published in English were included.

8) Publication date

Studies between 2005 to 2023 were included.

9) Minimum duration of follow-up

There were no restrictions applied for selecting studies with a minimum duration of follow-up.

10) Report status

Only published studies in peer-reviewed journals were eligible for inclusion.

11) Ineligible studies

Studies were considered ineligible if the outcomes of interest were not measured or if the results for the outcome of interest were not reported.

B. Rationales for Notable Restrictions

No notable restrictions were imposed on study eligibility criteria. However, certain limitations of the available evidence may have impacted the review's findings, such as the limited number of high-quality randomized controlled trials and the lack of consistency in outcome measures used across studies. However, the decision to exclude studies if the outcomes of interest were not measured or reported helps ensure that the studies included in the review are relevant to the research question and provide meaningful information

about the use of art therapy with cancer patients. By excluding studies that do not measure or report on the outcomes of interest, the review can focus on studies that have the potential to provide important insights into the effectiveness of this therapy.

The use of English language criteria was necessary to ensure efficient screening and data extraction, and to avoid language barriers.

Overall, the inclusion and exclusion criteria for this review were broad enough to capture a range of studies that examine the use of clay as a medium in art therapy sessions with cancer patients undergoing chemotherapy, while also being specific enough to ensure that the studies meet certain methodological and outcome criteria.

C. Search Strategy

For this systematic review, a search strategy was developed to identify relevant literature. This search strategy was tailored to two electronic bibliographic databases, websites and search engines, Google Scholar and PubMed as these databases had free access. Search terms used were the following, "art therapy", "cancer and or oncology", "chemotherapy", "clay". All databases were searched from 2005 until April 2023 using keywords and subject headings relevant to the research question. The search included journal articles, review papers, research reports, published in English only. The reference lists of all included studies and relevant systematic reviews were examined.

D. Data Collection Process

1) Data Selection

Only one reviewer selected relevant data from the included studies. Research papers, articles or book chapters including two or more of the following keywords, "art therapy", "cancer and or oncology", "chemotherapy", "clay" was shortlisted for the systematic literature review. Later search was limited to all keywords in title and such 45 papers were found. Further the abstract of the selected researches was read to decide the inclusion. 24 research papers were finalized to be reviewed using the inclusion and exclusion criteria. Later 14 studies were excluded and 10 studies were selected for systematic literature review. The papers included were more specific and similar to the research objective of this project.

2) Data Extraction

The full text of 10 selected papers was read for data extraction. The following data will be extracted from the selected studies:

Study characteristics (authors, year, country, study design)

Participant characteristics (sample size, age, gender, cancer type)

Intervention characteristics (type of art therapy, duration, frequency)

Outcome measures (psychosocial outcomes, quality of life, anxiety, depression)

Results (statistical significance, effect sizes, qualitative findings)

3) Data Organizing

The extracted data was then organized by grouping the literature based on the themes or categories that emerged from the research objective.

- a) Art therapy + cancer patients + chemotherapy = 4 papers
- b) Clay + Art therapy = 5 papers
- c) Clay + Art therapy + cancer patients = 1 paper

4) *Data Summarizing*

Organized data was summarized in a descriptive way using bullet points such as the source of information including the title, author, date, research objective, research gap addressed, participants details, method, results or findings, strength, limitations, practical implications and future research recommendation.

5) *Data Analysing*

Summarized data was used to make overview table. The descriptive summary and overview table were studied to analyse and to evaluate the results.

The literature was analysed to identify the key trends and patterns in the research and to understand the strengths and limitations of each study and compare and contrast them with one another.

6) *Data Synthesis*

The analysed data was synthesized to study the current state of knowledge on this project's research question. The results of the studies will be generated using a narrative synthesis approach which involves summarizing the findings of the studies in a descriptive manner to identify implications or suggestions for future research.

For the conclusion, all 10 literature summaries, analyses and syntheses were considered to write the key findings and contributions of the paper. The future research directions and research gaps were discussed in the conclusion based on the systematic literature review.

XIII. RESULTS

A. *Overview of Articles*

An overview of the selection strategy can be found in Fig. 1. Keywords searched in the free database resulted in 1533 articles after excluding the duplicates. Further using the inclusion criteria that a title should include at least two keywords 1488 were excluded. A total of 45 articles were available with the inclusion criteria of title including the keywords 'art therapy', 'cancer', 'chemotherapy' and 'clay'. All identified articles were published between February 2005 and April 2023. To check the relevance abstract was read of all available 45 papers. 24 articles were shortlisted. Out of which 14 articles were available in full text of which 4 articles were excluded because they did not meet the inclusion criteria, for instance, they did not focus only on art making or were not in the English language. Hence, **10** articles were suitable for further analysis. These 10 articles were analysed and tabularized in Table 1 and Table 2 as study results in Part 1 and Part 2 respectively.

XIV. DESCRIPTIVE ANALYSIS OF THE INCLUDED STUDIES

A. *Study 1*

The study by Bar-Sela et al. (2007) had a research objective to determine whether improvement in depression, anxiety, or fatigue in cancer patients during chemotherapy treatment following anthroposophy art therapy intervention is substantial enough to warrant a controlled trial. The study aimed to address the research gap in the literature regarding the effectiveness of anthroposophical art therapy in the treatment of cancer patients with depression or fatigue during chemotherapy treatment. The study design for this paper is a quasi-experimental design, specifically a pre-post intervention design without a control group aimed to determine whether improvement in depression, anxiety, or fatigue in cancer patients during chemotherapy treatment following anthroposophy art therapy intervention is substantial enough to warrant a controlled trial.

The study involved 60 cancer patients on chemotherapy who were willing to participate in once-weekly art therapy sessions. The participant group comprised 41 patients who participated in ≤ 2 sessions, while the intervention group consisted of 19 patients who participated in ≥ 4 sessions. The patient population included both men and women, with a median age of 54 years. The most common cancer diagnoses were breast cancer (n=23), lung cancer (n=10), and colon cancer (n=6). The study did not report any significant differences in participant demographics between the intervention and participant groups.

In the study by Bar-Sela et al. (2007), the art therapy intervention involved weekly individual art therapy sessions for 1 hour each. The art therapy sessions were conducted by a trained and certified art therapist and included various forms of art expression, such as painting, drawing, sculpting, and collage-making. The therapy sessions were tailored to the individual needs of the patients, and the patients were encouraged to express their feelings, emotions, and experiences through art. The art therapist provided support, guidance, and feedback to the patients during the sessions. The art therapy intervention also involved a group art therapy session that was conducted once a month. The group sessions were facilitated by the art therapist and provided an opportunity for the patients to share their artwork, express their thoughts and feelings, and receive feedback and support from their peers.

The study by Bar-Sela et al. (2007) investigated the effectiveness of art therapy in reducing depression and fatigue levels in cancer patients undergoing chemotherapy. Analysis showed the difference in depression, anxiety, and fatigue scores in the Intervention Group before and after four art therapy meetings. The mean and standard deviation (SD) of the scores, as well as the median and p values are shown. The study was conducted to evaluate the benefits of an art therapy service for oncology patients at Rambam Medical Centre. 60 eligible patients participated in the study, with only 19 patients (31%) participating in four or more sessions and comprising the Intervention Group.

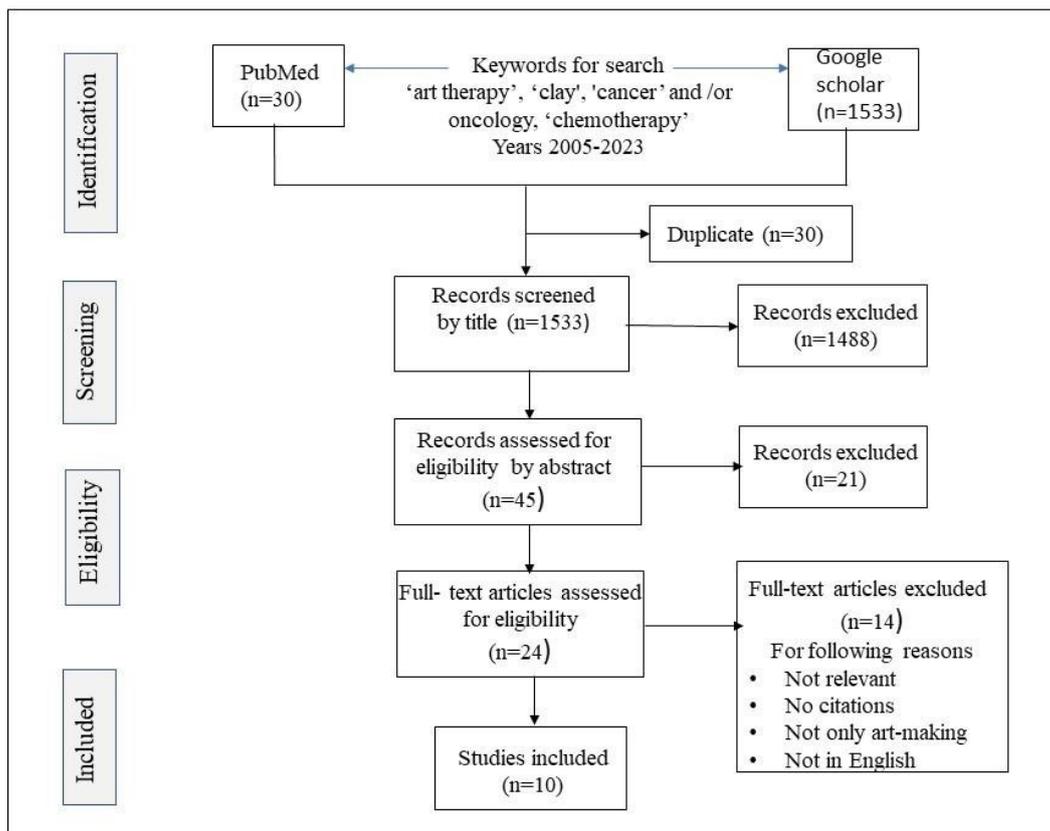


Fig.1.Selection Strategy

TABLE 1 Study Results in Part 1

NO.	Reference Author,Year, Country	Study design	Number of participants				Intervention types for		
			Total	IG	CG	Population Meanage (SD)	IG*	CG*	Type
STUDY 1	Bar-Selaetal. (2007) Israel	Quasi- experimental	60	19	41	Cancer patients 55(11.9)	Painting	WI*	Individual
STUDY 2	Bozcuk et al. (2017) Germany	RCT-3-group comparative study	97	65	32	Cancer patients 50.6(11.0)	Painting	WI	Individual
STUDY 3	De Feudis et al. (2019) Italy	Non-randomized pre-post	115	59	56	Cancer patients 56.5 (11.5)	Painting, clay	WI	Group
STUDY 4	Wiswell et al. (2019) USA	non-randomized pre-post	24	16	-	Gynecologic cancer 61.4 (11.5)	Draw, collage printing	-	Individual
STUDY 5	Aydin et al., (2021) Turkey	RCT	60	29	27	Older adults 72.56(1.01)	Clay	WI	Group
STUDY 6	Sholt & Gavron, 2006 Israel	A systematic literature review	-	-	-	All ages in various studies	Clay	-	-
STUDY 7	Nan & Ho, 2017 Hong Kong	RCT	106	53	48	MDD 46.1(10.5)	Clay	Visual art	Group
STUDY 8	Kimport & Robbins,2012 UK	RCT	102	51	51	College students 22.3, (7.0)	Clay	Stress ball	Group
STUDY9	Akhan et al., 2017 Turkey	one group, pre- and post-test design.	50	17/ 33	-	Neurology inpatients	Clay	-	Group
STUDY 10	Timmons & MacDonald, 2008, UK	Qualitative phenomenologic al approach.	6	6	-	Cancer and others	Clay	-	Individual

*IG-Intervention Group, CG-Control group, WI-Without interventio

TABLE 2 Study Results in Part 2

NO.	Intervention in the experimental group			Outcomes measured	Instrument*	Main findings
	Frequency	Total session	Duration			
STUDY 1	weekly	4 weeks	Chosen freely (from a few mins to 1 hour)	Anxiety Depression Fatigue	1. HADS 2. BFI	A significant difference was found between the groups after, in favour of the IG for depression score with ($p=0.021$). Median BFI score changed from 5.7 to 4.1 ($p=0.24$), which was not statistically significant. No significant changes were seen in anxiety levels.
STUDY 2	—	12 weeks	—	Anxiety Depression Quality of life	1. HADS 2. EORTC QLQ-C30	Art therapy, specifically watercolor painting, can significantly improve quality of life (QoL) in cancer patients receiving chemotherapy.
STUDY 3	Bi-weekly	once	1 hour	Anxiety Distress Fatigue	1. STAI-Y 2. ESAS-R 3. Open ended question-2 about satisfaction	significant reduction in anxiety and psychosomatic distress symptoms in the intervention group compared to the control group.
STUDY 4	6 times	18 weeks	40–50 min	Quality of life- Physical /social/family /emotional/ functional – Well -being	1.(FACT-G) 2.Open ended question	There was no statistically significant difference in overall quality of life (QOL) scores before and after art therapy intervention, as measured by the FACT-G questionnaire.
STUDY 5	weekly	6 weeks	60–90 min	Loneliness and hopelessness levels	1. Loneliness Scale (UCLA-LS) 2. Beck Hopelessness Scale (BHS).	A significant difference was found between the groups after the group art therapy using clay, in favour of the IG ($t=-3.579$, $p < .05$; $t=-7.919$, $p < .05$)
STUDY 6	–	–	–	Anxiety Distress emotional healing and growth	–	The use of clay has been shown to help individuals express themselves more freely, to reduce anxiety and stress, and to promote emotional healing and growth.
STUDY 7	Weekly	6 weeks	2.5 hrs	Depression Distress Holistic body-mind-spirit health	1. BDI-II-C 2. GHQ-12 3. BMSWBI	Significant decrease in depressive signs compared to nondirective verbal art therapy (VA) ($p < 0.01$, $\eta^2 = 0.051$). Differences between the two groups were also observed in general health ($p < 0.01$, $\eta^2 = 0.055$) BMS well-being ($p < 0.05$, $\eta^2 = 0.043$). The combined effect on the interrelated outcome variables was also significant ($p < 0.001$, $\eta^2 = 0.464$).

STUDY 8	Once	Once	45 min	Negative mood (Tension, Depression, Fatigue, Confusion, Anger, and Vigor)	1. POMS 2. STAI	The four groups did not differ in overall levels of negative mood across the two time points and did not show differential levels of mood change, but there was a significant main effect of Time (POMS: $F(1, 98) = 67.8, p < .001$; STAI-S: $F(1, 98) = 101.6, p < .001$).
STUDY 9	4 days per week	10 weeks	30 min	Hopelessness level	1.BHS	Mean BHS scores of neurology patients before clay therapy (11.36 4.29) were found to be statistically significantly higher when compared to scores after clay therapy (7.24 2.97, $p = .000, T$
STUDY 10	-	-	-	Well being	-	Ceramics can be a beneficial leisure pursuit for promoting subjective well-being and successful adaptation to ill health for people living with chronic illness or disability.

*Hospital Anxiety and Depression Scale (HADS)
Brief Fatigue Inventory (BFI)
European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire-EORTC QLQ-C30
Functional Assessment of Cancer Therapy- General (FACT-G)
State-Trait Anxiety Inventory-Form Y (STAI-Y)
Edmonton Symptom Assessment Scale-Revised (ESAS-R)
Beck Depression Inventory-II, Chinese version (BDI-II-C)
The 12-Item General Health Questionnaire (Chinese version; GHQ-12)
The Body-Mind-Spirit Well-Being Inventory (BMSWBI)
The Profile of Mood States (POMS)
The State-Trait Anxiety Inventory (STAI)
Beck Hopelessness Scale (BHS).

At baseline, both the Intervention and Participation Groups had high levels of depression, with a median score of 9, representing a moderate mood disorder. The level of anxiety was in the normal range for both groups. Baseline fatigue was moderate in the two groups, with a median score between 4 and 6, but tended to be higher in the Participation Group.

The study found that anthroposophical art therapy is worthy of further study in the treatment of cancer patients with depression or fatigue during chemotherapy treatment. The study reported that the median HADS score for depression in the intervention group decreased from 9 at the beginning to 7 after the fourth appointment ($p=0.021$). However, the median BFI score changed from 5.7 to 4.1 ($p=0.24$), which was not statistically significant. The study also found that BFI scores were higher in the participant group ($p=0.06$). The anxiety score was in the normal range from the beginning till at the end of the fourth session. According to the baseline score, patients in the Intervention Group did not have anxiety disorders.

In general, patients were grateful for moments of quiet on the busy day of their chemotherapy treatment. Many gave the impression that they could set their emotions free and felt "lighter" after the art therapy sessions. Overall, the study suggests that art therapy can provide moments of quiet and emotional release for cancer patients undergoing chemotherapy, which may help improve their psychological well-being. Additionally, the findings highlight the potential for art therapy to be used as a complementary therapy to standard cancer treatments, such as chemotherapy and radiotherapy. (Bar-Sela et al., 2007)

B. Study 2

The study by Bozcuk et al. (2017) design was a comparative study conducted in Turkey, which aimed to evaluate the effect of art therapy on the quality of life of cancer patients undergoing chemotherapy. The article examined the use of watercolor painting as an art therapy intervention, and compared the outcomes of the intervention to a control group. The article is valuable in providing insights into the potential benefits of art therapy in improving the quality of life of cancer patients undergoing chemotherapy, and highlights the importance of non-pharmacological interventions in managing the psychological impact of cancer and its treatment.

Total 97 participants were included in the study. There were three groups of participants in this study. The first group consisted of 34 cancer patients having chemotherapy who were enrolled in the painting art therapy program (PATP) with previous exposure to PATP. The second group consisted of 31 cancer patients having chemotherapy who were enrolled in the painting art therapy program (PATP) with no previous exposure to PATP. The third group was a control group of 32 cancer patients who did not have any PATP activity during the study period. 65 participants in the intervention group (IG) and 32 patients in the control group (CG) were studied. The mean age of participants was 50.6 years, and the gender distribution was inclined towards a female component with 56%. Cancer diagnoses varied and were distributed between the two groups.

The methods used in this paper involved offering cancer patients having chemotherapy in the day unit of a medical oncology department of a university hospital to take

part in a painting art therapy program (PATP). The PATP consisted of a professional painting artist facilitating and helping patients to perform painting during their chemotherapy sessions while they were in the day unit, as well as supplying them painting material for home practice. The changes in quality-of-life domains of EORTC-QLQ-C30 questionnaire and in Hospital Anxiety and Depression Scores (HADS) were assessed before and after the PATP. These results were contrasted with a reference group of cancer patients on chemotherapy but not taking part in the PATP. In order to adjust for multiple comparisons of quality-of-life parameters between patient groups, the Bonferroni correction was utilized.

The results of this study showed that painting art therapy provided by a dedicated professional painting artist improved the quality of life and depression scores in cancer patients having chemotherapy. The improvement was more pronounced in patients without any previous experience in painting art therapy. Specifically, there was a significant improvement in global quality of life and depression scores in the group of patients who participated in the painting art therapy program compared to the group of patients who did not participate in the program.

The main findings of the study by Bozcuk et al. (2017) are that art therapy, specifically watercolor painting, can lead to significant improvements in quality of life, social and emotional functions in cancer patients receiving chemotherapy. Additionally, the number of watercolor paintings made during the intervention was found to have a significant positive correlation with the improvement in QoL. These findings suggest that art therapy can be a beneficial complementary therapy for cancer patients undergoing chemotherapy, and may help improve their emotional and social well-being.

The given quantitative data reports the effect of painting art therapy program (PATP) on quality of life, anxiety, and depression in patients. All patients participating in PATP reported that they liked or enjoyed it to some extent. The change in global quality of life (GQOL) and depression scores differed significantly among the three groups (PATP with previous exposure, PATP without previous exposure, and no PATP group) with an F value of 7.87 and a P value of 0.001 for both. The change in scores for global quality of life in the PATP group with previous exposure, PATP group without previous exposure, and the no PATP group were 8.3, 25.5, and -11.5, respectively. The change in depression scores for the same groups were -0.2, -2.6, and 1.5, respectively. Univariate analysis revealed that the predictors of change in GQOL were participation in PATP and baseline GQOL scores. On the other hand, participation in PATP and baseline depression scores were found to be significant correlates of change in depression. Multivariate analysis further confirmed that participation in PATP and baseline GQOL scores were significant predictors of the magnitude of change in GQOL. Similarly, participation in PATP and baseline depression scores were found to be significant correlates of change in depression. Overall, the data suggests that PATP had a positive impact on the quality of life and depression scores of patients.

However, the study had some limitations, including a relatively small sample size, which may limit the statistical power of the study. The study was conducted in a single centre, which may limit the generalizability of the findings to other settings and the study did not have a long-term follow-up, which may limit the ability to assess the durability of the intervention effect. (Bozcuk et al.,2017)

C. Study 3

The objective of the study by De Feudis et al. (2021) was to investigate the feasibility and effectiveness of a single 90-minute art therapy session in reducing anxiety and distress levels in adult cancer patients before chemotherapy. The study aimed to fill the research gap in the literature on the usefulness of a brief psychosocial intervention, such as art therapy, for adult cancer patients to counteract the stress of accessing their treatment session. The study included 59 patients in the intervention group (IG) and 56 patients in the control group (CG). The median age of participants was 59 years, and the gender distribution was inclined towards a female component. However, they were evenly distributed in the two groups. Cancer diagnoses varied and were distributed between the two groups. The two groups (IG vs. CG) were similar in terms of their socio-demographic and clinical characteristics, including age, gender, residency, education, marital status, employment status, type of cancer, metastasis, having surgery, present treatments, and personality characteristics regarding anxiety. The study indicates that the IG and CG were well-matched in terms of their baseline characteristics, which is important for ensuring that any differences observed between the two groups can be attributed to the intervention and not to other factors.

The intervention used in this study was a single group session based on art therapy (AT) for adult cancer patients. The aim of the intervention was to reduce anxiety and distress by providing a creative outlet for patients to express their emotions and experiences related to cancer. The session was held biweekly and lasted for one hour. Each participant only took

part in a single session. The AT session was facilitated by a trained art therapist and included

various art materials such as paints, pastels, and clay. The therapist encouraged patients to

create art that reflected their feelings and experiences related to cancer. The patients were

also given the opportunity to discuss their artwork and share their thoughts and feelings with the group.

The effectiveness of the intervention was assessed by measuring anxiety and

psychosomatic distress symptoms using standardized scales. The quantitative study investigated the effectiveness of art therapy (AT) intervention on anxiety and psychosomatic distress symptoms of cancer patients receiving chemotherapy. The results showed that there was a significant reduction in anxiety levels after the intervention ($p = .027$), and this reduction occurred only in the intervention group (IG), not in the control group (CG). Furthermore, there was a significant reduction in shortness of breath, other problems, and anxiety levels ($p < .05$) for all participants at post-intervention. The two-way interaction

was significant for tiredness and drowsiness measures, and simple effect analyses showed that the intervention significantly improved tiredness and drowsiness levels only in the IG. The main effect of the group was not significant for any psychosomatic distress symptoms. Therefore, the study suggested that AT intervention can be an effective complementary therapy for cancer patients undergoing chemotherapy to reduce anxiety and improve some psychosomatic distress symptoms.

The results showed that the art therapy intervention was feasible and well-tolerated by the participants. The intervention group reported a significant reduction in anxiety and distress levels compared to the control group. The study suggests that art therapy can be a useful supportive intervention for cancer patients to manage their emotional distress.

However, the limitation of this research is that it used a single-group pre-test-post-test design, which may not be as robust as a randomized controlled trial. The lack of blinding and the absence of a control group receiving a different type of intervention also limit the

generalizability of the findings. Additionally, the study only included a small sample size of

adult cancer patients from a single centre, which may limit the generalizability of the findings

to other populations. Finally, further research is needed to confirm the findings of this study and to explore the long-term effects of art therapy on cancer patients' emotional well-being. (De Feudis et al., 2021)

D. Study 4

Wiswell et al., (2019) conducted a randomized controlled trial for "The effect of art therapy on the quality of life in patients with gynecologic cancer receiving chemotherapy.". The study was conducted in the United States. The study enrolled 24 patients, but 8 of them did not complete the study due to various reasons, leaving 16 evaluable patients. The majority of the patients were Caucasian and married, with a mean age of 61.4 years. Most patients were being treated for uterine or ovarian cancer, and 17 patients received some combination of platinum and taxane chemotherapy. Additionally, 4 out of 16 patients who completed the study and 3 out of 8 patients who did not complete the study had a history of prior chemotherapy. Among the patients who completed the study, 5 reported a diagnosis of depression, and 4 of them also reported a diagnosis of anxiety. During the study, patients used various complementary treatments such as massage, therapeutic touch, and meditation.

The intervention in this study was art therapy, which consisted of five sessions conducted by a certified art therapist. The sessions were scheduled during chemotherapy infusions, and each session lasted between 40-50 minutes. The first session was an introductory session that included education and baseline assessments. The subsequent sessions were focused on specific art tasks. The second session was a "Your Door" collage, where patients created a doorway that introduced themselves to others. The third session was a "Feelings" printmaking session, where patients identified 4-6 feelings they experienced and expressed them through

colours and brush strokes. The fourth session was a Mandala, where patients decorated a circle starting from the centre and working out. The final session was a review session where all the created artwork was displayed, and patients were guided to share their thoughts and feelings about the art therapy and their treatment. The bridge drawing, completed during the first session, was used as an assessment tool for the art therapist to determine the order of the three additional art interventions.

The study used validated measures to assess the effectiveness of art therapy in improving the quality of life of patients undergoing chemotherapy. The FACT-G questionnaire was used to measure four domains of the quality of life (QOL): physical well-being, social/family well-being, emotional well-being, and functional well-being. The overall FACT-G scores ranged from 0 to 100, with established cut points for minimally important clinical differences.

The study found that the mean FACT-G overall score before art intervention was 82.3 (95% CI: 75.5, 89.2) and decreased slightly to 78.6 (95% CI: 71.7, 85.5) after the intervention. However, the mean change in quality of life was not statistically significant (-3.7 points, 95% CI: -10.7, 3.2, $p = 0.27$). Similarly, the mean pre- and post-art intervention scores for each of the four domains did not show a significant change.

Despite the lack of statistically significant change in the FACT-G scores, the supplemental questionnaire given after each session of art therapy showed that 15 out of 16 patients felt that art therapy was beneficial (score > 5) at each session. The study used paired t-tests to examine the differences between the pre-intervention and post-intervention scores. The statistical analyses were based on traditional two-sided tests, and the alpha error was set at 5%. The study included 16 evaluable patients who completed the study, and there were no differences in demographics, clinical characteristics, and other complementary treatments between patients who completed the study and those who did not. The patients rated the sessions as highly beneficial, with a mean score of 8.9 to 9.6 out of 10. The one patient who did not find art therapy beneficial at the first two sessions rated the later sessions with higher scores.

In conclusion, the quantitative results of the study suggest that art therapy did not significantly improve the quality of life of patients undergoing chemotherapy as measured by the FACT-G questionnaire. However, the patients reported high levels of benefit from the art therapy sessions, indicating that qualitative measures may capture a more nuanced understanding of the impact of the intervention. There are several limitations to this study. The study only included 16 patients, which is a relatively small sample size. This limits the generalizability of the findings. The study did not include a control group, which makes it difficult to determine whether the observed changes in quality of life were due to art therapy or other factors. There can be a potential for selection bias as patients who agreed to participate in the study may have been more motivated or optimistic about their treatment, which could have influenced the results. The study relied on self-reported measures, which are subject to bias and may not accurately reflect the patients'

experiences. The study only assessed changes in quality of life up to the completion of the sixth chemotherapy session. It is unclear whether the effects of art therapy on quality of life would be sustained over a longer period of time. And the study was conducted at a single institution with a specific patient population, which may limit the generalizability of the findings to other settings or populations. (Wiswell et al., 2019)

E. Study 5

Aydin et al. (2021) conducted a study that was a randomized controlled trial. The research objective of this study is to address the research gap in the literature regarding the effectiveness of therapy using clay art therapy for reducing loneliness and hopelessness levels among older adults living alone. Participants were randomly assigned to either the experimental group (group art therapy) or the control group (no intervention). The population for this study was older adults (aged 65 years and older) living alone in the community. The study enrolled a total of 60 participants, the experimental group had 29 participants and the control group had 27 participants after 3 dropouts. Participants were recruited through flyers and announcements in community centres and senior clubs. After baseline assessments of loneliness and hopelessness, participants were randomly assigned to either the experimental or control group. Both groups were assessed again after the intervention period. The intervention used in this study was a group art therapy program using clay, which consisted of six weekly sessions. In the first session, participants introduced themselves and familiarized themselves with clay by making objects suitable for their nicknames. The second session focused on recognizing and expressing emotions, where participants were encouraged to transform their emotions into clay objects. The third session, "My Emotion Flowers," involved participants matching their emotions with colours and creating clay flowers. The fourth session was about reflecting on past emotions, and participants were asked to create an object that represented the emotion that most affected them in the past. The fifth session aimed to increase emotional awareness by focusing on the participants' current feelings about important areas of their lives, and they were encouraged to create objects with clay that represented their emotions. Finally, the sixth session focused on participants' future life and feelings, where they expressed their goals and hopes for the future using clay. The sessions were facilitated by a trained art therapist. The control group received two face-to-face interviews discussing health, social life, and financial issues, followed by the group art therapy program after the study was over. The study compared the effects of group art therapy using clay on the psychological well-being of older adults living in nursing homes. The study found no significant differences between the intervention and control groups in terms of individual and lifestyle characteristics before the intervention. However, after the intervention, the intervention group showed significant improvement in both the UCLA-LS and BHS scores compared to the control group. The authors highlight the potential benefits of non-pharmacological interventions in clay art therapy for improving mental health outcomes in older adults and they

conclude that group art therapy can be a promising intervention for reducing loneliness and hopelessness among older adults living alone. One of the strengths of this study is its randomized controlled design, which helps to minimize bias and increase the reliability of the study findings. Additionally, the study used validated measures of loneliness and hopelessness, which increases the validity of the study results. One limitation of this study is that the study did not assess the long-term effects of group art therapy on loneliness and hopelessness levels. The study findings have practical implications for healthcare professionals and caregivers working with older adults living alone. Group clay art therapy can be a low-cost and non-invasive intervention for improving mental health outcomes in this population. Future research can explore the long-term effects of group art therapy on loneliness and hopelessness levels among older adults living alone. (Aydin et al., 2021)

F. Study 6

Sholt and Gravon (2006) reported a systematic review of previous research on the use of clay work in art therapy and psychotherapy. This literature review addresses a research gap in the field of art therapy and psychotherapy by exploring the therapeutic qualities of clay work. While previous studies have explored the use of other mediums in therapy, such as paint and drawing, less attention has been paid to the use of clay. The method used in this literature review was a thorough search of various academic databases for relevant studies on the use of clay in art therapy and psychotherapy. The authors then analysed and synthesized the findings of these studies to draw conclusions about the therapeutic qualities of clay work. The participants of the various studies reviewed in this article included individuals of all ages and backgrounds who were seeking treatment for a variety of mental health issues. The interventions used in the various studies reviewed in this article included the use of clay as a therapeutic medium in art therapy and psychotherapy sessions. Participants were encouraged to use the clay to express themselves creatively and explore their emotions and experiences nonverbally. There was no control group in this review, as the focus was on exploring the therapeutic qualities of clay work rather than comparing it to other forms of therapy. The results of the studies reviewed in this article suggest that clay work can be a highly effective therapeutic tool in art therapy and psychotherapy. The use of clay has been shown to help individuals express themselves more freely, reduce anxiety and stress, and promote emotional healing and growth. The authors of this literature review discuss the various ways in which clay work can be used in art therapy and psychotherapy, including as a tool for emotional expression, as a way to promote relaxation and stress reduction, and as a means of fostering creativity and personal growth. They suggest that future research should continue to explore the various ways in which clay can be used in therapy and that clinicians should consider incorporating clay work into their therapeutic practice. One of the strengths of this literature review is the thoroughness of the search conducted by the authors, which included a wide range of academic databases and studies from various countries. Additionally, the authors provide a comprehensive

overview of the various ways in which clay can be used in therapy, which can be useful for clinicians and researchers alike. One of the limitations of this literature review is the lack of a control group in the studies reviewed, which makes it difficult to compare the effectiveness of clay work to other forms of therapy. Additionally, some of the studies reviewed had small sample sizes, which may limit the generalizability of their findings. Also, no detailed description of the studies involved is reported. The findings of this literature review have practical implications for clinicians and therapists who work with individuals struggling with mental health issues. The use of clay work can be a valuable tool for promoting emotional healing and growth and can be incorporated into a wide range of therapeutic approaches. Future Research in this area could explore the specific mechanisms by which clay work promotes emotional healing and growth, as well as the best practices for incorporating clay into various forms. (Sholt & Gavron, 2006)

G. Study 7

The objective of this study by Nan & Ho (2017) was to investigate the effects of clay art therapy (CAT) on adults diagnosed with major depressive disorder (MDD). The research gap addressed by this study was the lack of randomized controlled trials (RCTs) investigating the effects of CAT on individuals with MDD. There were a total of 106 participants in the study. They were randomly assigned to either the CAT group (n=53) or the VA group (n=48). The participants in the CAT group participated in six weekly sessions, each lasting 2.5 hours. At the end of each session, a brief discussion and reflection period took place to discuss the treatment process and share clay creations. The clay art-making process was led by a qualified art therapist, while an assigned activity worker at the ICCMW served as the group co-facilitator, mainly handling administrative tasks. The control group receiving VA also participated in six weekly sessions of 2.5 hours, led by social workers. These sessions were designed to resemble the recreational classes offered by the ICCMW and involved various activities such as crafting, colouring mandalas, listening to relaxation music, verbal sharing, or a combination of these activities. Results of the study comparing the effects of clay art therapy (CAT) and nondirective recreational activities (VA) on adult outpatients with major depressive disorder were in favour of CAT group. The results showed that CAT resulted in a greater decrease in depressive signs than VA, and a significant between-group difference was identified in general health and BMS well-being. The results suggest that clay art therapy could be a viable complementary therapy for adults with major depressive disorder.

The study had its own strengths like the study used standardized diagnostic criteria to identify and include participants with major depressive disorder, which enhances the internal validity of the study. The study used validated measures to assess the outcomes, which enhances the reliability and validity of the results also use the use of appropriate statistical analyses, including MANCOVA models, to compare the effects of CAT and VA on the primary and secondary outcome variables. The study has several limitations that should be considered. One limitation

is that the outcome measures used in the study were self-reported, which could be biased. Future research should include more objective measures to assess the effect of CAT on emotion regulation mechanisms. Another limitation is the short-term treatment duration. The study only examined the immediate effects of CAT, and long-term effects should be investigated. The study also had a limited sample size and included mostly middle-aged women, which may affect the generalizability of the results. Finally, the control group's activities may have been less appealing to participants, reducing their incentive for group involvement. Future studies may use a different type of control group to better understand the therapeutic and nontherapeutic elements of CAT. (Nan & Ho, 2017)

H. Study 8

The objective of this study by Kimport & Robbins (2012) was to evaluate the effectiveness of art therapy interventions on emotional functioning. The research gap addressed was the lack of randomized controlled trials (RCTs) to evaluate the claims that art therapy interventions improve emotional functioning. A sample of 102 adult participants (74 female, 28 male) between the ages of 18 and 63 years (mean age = 22.3, SD = 7.0) was employed in this study, recruited through posted sign-up sheets and individual contact, with none of the participants disclosing a diagnosed mood disorder. The study used a 2x2x3 factorial design with materials, instructions, and time as factors. Overall, the design of the study allowed the authors to investigate the effects of Materials, Instructions, and Time on the dependent variables of interest. Participants were assigned to conditions based on art training and received either clay or stress balls with or without instructions. Prior to the intervention, all groups were exposed to negative mood induction and assessed using the Profile of Mood States and State-Trait Anxiety Inventory. The researchers wanted to avoid biased samples, so they separately randomized art students and non-art students into four groups. Group A received clay and structured instructions, where the experimenter demonstrated how to make a pinch pot and then left the room for 5 minutes while participants made their own. Group B received clay and free instructions, where participants were given the same clay supplies and asked to manipulate the clay in any way they wished. Group C received stress balls and structured instructions, where participants were given two different textured stress balls and asked to hold and squeeze one in each hand, tossing the balls back and forth. The experimenter demonstrated this task for about 15 seconds. Group D received stress balls and free instructions, where participants were told to handle the balls however, they chose.

In all four groups, the experimenter gave verbal instructions and then left the room during the 5-minute intervention. It is important to note that the randomization of participants into these groups was done to ensure that any observed effects of the interventions were not due to pre-existing differences between the groups. In this research study, the authors analysed two primary outcome measures: the POMS overall score and the STAI-S score. The POMS overall score is a global measure of negative mood, while the STAI-S score is a more specific measure of anxiety. The

authors used the trait anxiety scale (STAI-T) to confirm that the groups being studied had similar levels of baseline trait anxiety. The main findings of this paper were that Clay manipulation produces more mood enhancement than stress ball manipulation. Art therapy interventions are most effective when they entail a structured task leading to a specific end result or goal state. The study isolated the use of clay as the "active ingredient" in improved mood. The study provides evidence for the efficacy of clay work for remediating negative emotional states and contributes to establishing art therapy interventions as evidence-based practices. (Kimport & Robbins, 2012)

I. Study 9

The objective of this study by Akhan et al. (2017) was to determine the effect of art therapy with clay on the hopelessness levels of patients under treatment in departments of neurology. The research gap addressed was the lack of studies on the application of art therapy with clay to neurology patients. The study was of one group, pre-and post-test design. The sample for the study comprised 50 neurology patients with diagnoses of epilepsy (17 patients) and stroke (33 patients). There was no control group. The intervention used in this study was art therapy with clay. The patients in the study were asked to create objects of clay of any shape they desired. Data for the research were collected with a sociodemographic data form and by using the Beck Hopelessness Scale (BHS). The study showed that clay therapy had an impact on the hopelessness levels of neurology patients. While BHS scores of neurology patients before clay therapy were found higher compared to the scores after therapy with clay, there was also a statistically significant difference. After clay therapy, BHS scores were lower in women, in married patients, in patients who suffered from a stroke, people who had chronic disease, people without psychological illness, and in the case of children. The study was the first to apply art therapy with clay to neurology patients both in Turkey and the world. The study was carried out only in one province, and the sample size was small. The lack of a control group also weakened the strength of the findings. Art therapy with clay may be used for rehabilitation purposes in neurology patients, both in the hospital and at home after discharge. Future research could explore the effectiveness of art therapy with clay in larger samples and in different cultural contexts. (Akhan et al., 2017)

J. Study 10

The study design of the article "‘Alchemy and Magic’: The Experience of Using Clay for People with Chronic Illness and Disability" by Timmons and MacDonald (2008) is a qualitative study, specifically a phenomenological study. The authors aimed to explore the experiences of individuals with chronic illness and disability who used clay as a form of therapy and to identify the meaning and significance of these experiences. They used semi-structured interviews to collect data and analysed the data thematically to identify key themes and patterns in the participants' experiences. There was no intervention or control group in this study. The study involved six participants, five of whom were women, aged between 27 and 73 years. All the participants were white and had long-term health problems

including two women Marilyn and Mary (pseudo names) were cancer patients. The data collection and analysis utilized interpretative phenomenological analysis (IPA). All the participants reported ways in which ceramics was beneficial to their health and contributed to their personal well-being. The ceramic process afforded opportunities for experiencing flow and creative adventure, enabled social contacts, enhanced self-worth and provided the participants with a sense of achievement, all of which appeared to promote successful adaptation to ill health. The study concludes that ceramics can be a valuable leisure pursuit for people living with chronic illness or disability. The study utilized a qualitative phenomenological approach, which allowed for a detailed exploration of the participants' experiences. The study had a small sample size, which limits the generalizability of the findings. The study did not include a control group, which limits the ability to draw causal conclusions. The study suggests that occupational therapists should consider incorporating creative leisure pursuits, such as ceramics, into their interventions for people living with chronic illness or disability. Future research could explore the experiences of a larger sample size and include a control group to draw more robust conclusions. (Timmons & MacDonald, 2008)

XV. DISCUSSION

This systematic literature review aims to provide a comprehensive and unbiased overview of the current evidence and knowledge gaps on the topic. In this paper, I have presented a systematic literature review of the use of clay as a medium for art therapy sessions with cancer patients undergoing chemotherapy. Art therapy is a form of psychotherapy that uses various forms of art expression to enhance physical, mental, and emotional well-being. Clay is one of the most commonly used materials in art therapy, as it allows for tactile, sensory, and creative exploration. Clay can also facilitate the expression of emotions that are difficult to verbalize, such as fear, anger, sadness, or hope. While selecting the articles for literature review, it was observed that (in free access databases like Google Scholar, Pub med and Science Direct etc.) there are no published peer-reviewed papers which directly deal with this research topic of the use of clay as a medium for art therapy sessions with cancer patients undergoing chemotherapy. To my knowledge, this is the first systematic review based on above mentioned topic. 10 articles were identified that met the inclusion criteria and were relevant to this review.

Three main themes were generated to fit in these 10 identified articles

A. Theme A

Art therapy with cancer patients undergoing chemotherapy. (Study 1.2.3, 4)

B. Theme B

Clay is used as a medium in art therapy sessions on various populations (Study 5.6.7, 8, 9)

C. Theme C

Clay is used as a medium with cancer patients. (Study 10)

After the detailed analysis of selected 10 articles, it was synthesized as follows,

Theme A papers proved that art therapy is effective in reducing psychological distress among cancer patients undergoing chemotherapy. Similarly, Theme B papers concluded that Clay was beneficial for improving the quality of life in various adults including various patients and students. Clay is one of the mediums used in art therapy interventions so it leads to the conclusion that Clay used as a medium in art therapy will be beneficial for improving the quality of life among cancer patients undergoing chemotherapy.

XVI. MAIN FINDINGS

The main findings of the systematic literature review can be summarized as follows: -

- Clay art therapy was generally well-accepted and enjoyed by cancer patients undergoing chemotherapy. Participants reported that clay art therapy provided them with a relaxing and enjoyable activity that distracted them from their illness and treatment-related stress.
- Clay art therapy was effective in reducing psychological distress among cancer patients undergoing chemotherapy. Participants reported lower levels of anxiety, depression, emotional distress, and pain after participating in clay art therapy sessions compared to before or to control groups.
- Clay art therapy was beneficial for improving the quality of life among cancer patients undergoing chemotherapy. Participants reported higher levels of physical, emotional, social, and overall quality of life after participating in clay art therapy sessions compared to before or to control groups.
- Clay art therapy was helpful in enhancing coping skills among cancer patients undergoing chemotherapy. Participants reported improved problem-solving, emotion regulation, self-efficacy, and hope after participating in clay art therapy sessions compared to before or to control groups.
- Clay art therapy was also associated with other positive outcomes such as increased self-esteem, self-expression, creativity, meaning-making, and spiritual well-being.

A. Compare and contrast with other reviews

The findings of this review are consistent with other systematic reviews on art therapy for cancer patients that have reported positive effects on psychological distress, quality of life, and coping skills. For example, a meta-analysis by Jiang et al. (2020) found that art therapy significantly reduced anxiety, depression, and fatigue and improved quality of life among cancer patients undergoing chemotherapy. A systematic review by Jocko et al. (2022) found that active visual art therapy had beneficial effects on various patient outcomes across different treatment indications and settings. A systematic review by van der Vennet and Serice (2012) found that art therapy improved

emotional expression, coping, and social functioning among adult cancer patients.

However, this review also differs from other reviews on art therapy for cancer patients in some aspects. First, this review focused specifically on clay as a medium for art therapy, whereas other reviews included various forms of art expression, such as painting, drawing, sculpting, collage, or mixed media. Second, this review included 5 studies that used only clay as a medium in art therapy sessions with cancer patients undergoing chemotherapy, whereas other reviews included studies that used art therapy with cancer patients at different stages of treatment or survivorship. Third, this review included both quantitative and qualitative outcomes related to psychological distress, quality of life, coping skills, and other aspects of well-being, whereas other reviews focused on specific outcomes or used only quantitative measures. Therefore, this review contributes to the existing literature on art therapy for cancer patients by providing a more focused and comprehensive overview of the effects and benefits of clay art therapy for cancer patients undergoing chemotherapy. It also highlights the need for more rigorous and standardized research on clay art therapy as a specific form of art therapy that may have unique advantages and challenges for this population

XVII. STRENGTHS

Some of the strengths of this review are:

- It followed a rigorous and transparent protocol that was registered in PRISMA format, an international database of systematic reviews.
- It used a comprehensive and systematic search strategy that covered multiple free databases and sources of literature and used relevant keywords and combinations.
- It applied clear and predefined inclusion and exclusion criteria that ensured the relevance and quality of the selected studies for the review question and objectives.
- It discussed the implications and recommendations of the review for clinical practice, research, and policy, and identified the strengths, limitations, and gaps of the existing evidence.

XVIII. LIMITATIONS

This review has some limitations that should be acknowledged.

- The number of studies included in the review was small (n=10), which limits the generalizability and robustness of the findings.
- The quality and validity of the studies varied considerably, as most of them had high or unclear risk of bias in several domains.
- The heterogeneity of the studies in terms of sample characteristics, intervention protocols, and outcome measures made it difficult to compare and synthesize the results across studies.
- The review did not assess the long-term effects or cost-effectiveness of clay art therapy, which are

important aspects to consider for its integration into cancer care practice and policy.

XIX. IMPLICATIONS AND RECOMMENDATIONS

Clay art therapy (CAT) where clay is used as a medium for interventions of art therapy sessions can be integrated into cancer care practice and policy as a complementary and supportive intervention that can improve the psychological and physical well-being of cancer patients undergoing chemotherapy. Based on the findings of this review, some suggestions for integrating clay art therapy into cancer care are:

- CAT should be offered as an optional and voluntary intervention for cancer patients undergoing chemotherapy who is interested in or willing to try this form of therapy.
- CAT should not replace or interfere with the standard medical treatment or psychological counselling, but rather supplement and enhance them.
- CAT should be delivered by trained and qualified art therapists or researchers who have expertise in working with cancer patients and using clay as a medium.
- CAT should follow a standardized protocol that specifies the content, structure, duration, frequency, and facilitation of the sessions. The protocol should also include clear objectives, ethical guidelines, and evaluation methods.
- CAT should be tailored to the individual needs, preferences, and goals of each participant.
- CAT should allow for flexibility and creativity in the choice of materials, themes, and techniques.
- CAT should also respect the cultural and linguistic diversity of the participants and provide appropriate support and guidance.
- CAT should be evaluated for its effectiveness, feasibility, acceptability, and cost-effectiveness using rigorous and transparent methods.
- CAT should use valid and reliable outcome measures that capture the psychological, physical, social, and spiritual aspects of well-being.
- CAT should also collect feedback from the participants, facilitators, and stakeholders to identify the strengths, weaknesses, opportunities, and challenges of the intervention.
- CAT should be disseminated and implemented in various settings where cancer patients undergoing chemotherapy receive care, such as hospitals, clinics, community centres, or home-based care.
- CAT should be supported by adequate resources, infrastructure, and policies that facilitate its delivery and accessibility.
- CAT should also be promoted and advocated by health professionals, researchers, policymakers, and media to raise awareness and interest among potential participants and collaborators.

XX. FUTURE RESEARCH

Future research on clay art therapy for cancer patients undergoing chemotherapy should address these limitations and gaps. Future research should include more studies with larger and more diverse samples of cancer patients undergoing chemotherapy. Future research should also use more rigorous and standardized methods to design, conduct, and report clay art therapy interventions and outcomes. Future research should compare clay art therapy with other forms of art therapy or other complementary therapies to determine its relative effectiveness and benefits. Future research should also evaluate the long-term effects and cost-effectiveness of clay art therapy for cancer patients undergoing chemotherapy.

XXI. CONCLUSION

This systematic literature review evaluated the effects and benefits of clay art therapy for cancer patients undergoing chemotherapy. The review identified 10 studies that met the inclusion criteria and were relevant to the review question and objectives. The review found that clay art therapy was generally well-accepted and enjoyed by cancer patients undergoing chemotherapy. The review also found that clay art therapy was effective in reducing psychological distress, improving quality of life, and enhancing coping skills among cancer patients. The review discussed the implications and recommendations of the findings for clinical practice, research, and policy. The review acknowledged the limitations of the existing evidence and suggested directions for future research on clay art therapy as a specific form of art therapy that may have unique advantages and challenges for cancer patients undergoing chemotherapy. The review concluded that clay art therapy is a promising and effective intervention that can improve the psychological and physical well-being of cancer patients undergoing chemotherapy and should be integrated into cancer care practice and policy.

XXII. DISCLOSURE STATEMENT

The art therapist reported no potential conflict of interest. All ethical considerations were followed thoroughly.

ACKNOWLEDGMENT

I would like to extend my heartfelt thanks to my paper guide Dr Saoni Banerjee for her invaluable support, guidance, and expertise throughout this journey.

I want to extend my gratitude to my mentors Ms Sangeeta Prasad, Ms Susan Anand, Dr Penelope Orr, Dr Milind Dhobley, Ms Smita Deshpande and all other faculties for their guidance.

I am also grateful to my supervisors Dr H K Sale and Dr Girija Patil at the internship site for their constant encouragement, knowledge sharing, and valuable insights. I am grateful to the staff at the internship site for providing me with the opportunity to gain practical experience and knowledge.

To my dear, family members, friends, peers and, thank you for your unwavering love, encouragement, and belief in me. I extend my heartfelt gratitude to every individual who has contributed to this thesis.

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