

**Systematic Review****Impact of Quran Therapy as a Complementary and Alternative Medicine in Cancer**Imrana Khan^{1*} and Huma Shareef²¹Biochemistry Department, Jinnah Sindh Medical University, Karachi, Pakistan²Research Department, Jinnah Sindh Medical University, Karachi, Pakistan

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ABSTRACT

Cancer patients suffer from the deleterious effects of the disease and its treatment. Quran Recitation therapy has been used as Complementary and Alternative Medicine (CAM) by Muslims for multiple diseases including cancer. **Objective:** To find the impact of Quran recitation therapy as CAM in the management of cancer. **Methods:** The study included full-text original research articles from a 10-year pooled data (2013 to 2023). The studies were divided into three categories i.e., cancer cell cultures, animal models and cancer patients. **Results:** Quran recitation on cancer cell cultures revealed an inhibition of cancer cell viability, proliferation and migration. Animal studies revealed increased T lymphocyte activity among the cancer cells and human studies revealed a significant reduction of anxiety, stress, depression, pain, nausea and vomiting during cancer management. Thus, the addition of Quran recitation therapy as a complementary medicine along with the standard medical treatment improved the prognosis and reduced the side effects of cancer treatment. **Conclusions:** Based on this evidence, Quran recitation can be used as a safe, non-pharmacological treatment to improve the management of cancer.

INTRODUCTION

Cancer has been defined as any disease in which there is uncontrolled growth of abnormal cells which can invade the surrounding tissues and spread to other parts of the body through the vascular and lymphatic systems but histopathological grading and biomarkers have made it easier to predict the prognosis [1]. Cancer is one of the leading causes of death globally [2]. According to estimates from the World Health Organization (WHO) in 2019, cancer was the first or second leading cause of death before the age of 70 years [3]. However, the cost of cancer treatment like Chemotherapy, Surgery and Radiotherapy is very high and is going on increasing even more [4]. Besides the cost, there are multiple complications of the disease

and side effects of Chemotherapy. Anxiety, stress, depression, tiredness, pain, hair loss, nausea and vomiting are experienced by more than 80% of patients [5]. Hence less costly, safe and effective treatment options are needed. The use of Complementary and Alternative Medicine (CAM) has been increasing steadily in the last 30 years and has been found to have a significant impact on the health of the patients [6]. This consists of Complementary medicine which is used along with the Standard Medical therapy to improve the overall prognosis whereas Alternative Medicine is used in place of the Standard Medical treatment [7]. Many types of CAM are being widely used by Cancer patients to improve the

prognosis and reduce the side effects of cancer treatment such as aromatherapy, acupuncture, dietary supplements, spiritual healing etc7. CAM is being used by more than half of cancer patients specially those who are highly educated and have a higher income [8]. Among the Muslim countries like the Middle East the use of CAM is highly prevalent. The most frequent types of CAM were Zamzam (holy water) and Ruqya (Quran reading), use of honey, black seed and cupping therapy [9]. One of the most commonly used Complementary therapy among Muslim patients is listening to Quran recitation[10]. This is a noninvasive, safe, freely and easily available CAM. Listening to the Quran stimulates alpha brain waves which cause relaxation [11, 12]. Thus, listening to Quran recitation reduces anxiety and stress [13, 14]. This spiritual relaxation causes the psycho neuro immunological axis to come into play in which an interaction between the Nervous, Endocrine and immune systems is brought about by the Hypothalamic, Pituitary, Adrenal axis which acts on the immune system to beneficially alter the course of the disease [15]. Quran recitation therapy has thus shown significant improvement of mental and physical conditions [16]. This study was undertaken to evaluate the efficacy of Quran recitation therapy as CAM in the management of Cancer from a pooled data of previous 10-year studies (2013 to 2023).

METHODS

This study is based on a descriptive Literature Review design. It was carried out between April to May 2023. The articles were searched using Google Scholar, PubMed, Wiley online library, and Mendley. The search terms used were Quran recitation therapy and Cancer. The inclusion criteria were all original research articles published in the last 10 years (2013 to 2023) showing the impact of Quran recitation in cancer whereas the exclusion criteria were other diseases besides cancer. Only full-text articles were used for the review. The articles which met the inclusion criteria were divided into 3 categories, studies on Cancer cell cultures, animal studies and studies on cancer patients.

RESULTS

The search on the databases yielded 49 original research articles published from 2013 to 2023. But 3 duplicate articles were removed. Further 36 articles were also removed due to the exclusion criteria because they dealt with the impact of Quran therapy on other diseases besides cancer. One more study was excluded because it did not specify which Quranic text was recited as therapy. Now 10 studies remained for evaluation and were included in the review. This is depicted in the PRISMA flowchart in Figure 1. The 10 studies were divided into 3 groups:1. Studies on

cancer cell cultures; 2. Studies on Animal models of cancer and 3. Studies on human cancer patients.

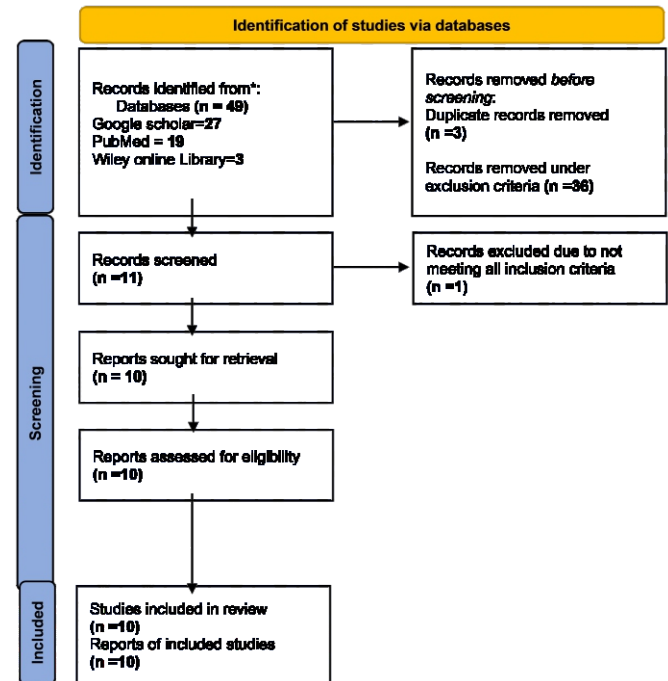


Figure 1: PRISMA Flowchart

Three studies were done to find the impact of Quran recitation on different cancer cell cultures as shown in table 1. In a study published in 2018 by Mehrafsar *et al.*, the impact of cisplatin and Quran recitation was studied on the viability, migration and expression of *BCL2L12* gene in PC3 (prostate cancer) cells [17]. The cell cultures were divided into 4 groups, PC3 cells, PC3 cells treated with cisplatin, PC3 cells exposed to Quran recitation and PC3 cells treated with cisplatin and exposed to Quran recitation. The Quran chapter chosen was Surah Fateha which was repeated 70 times. Significant inhibitory effect was found on Cell proliferation, migration and expression of the *BCL2L12* gene expression in the cells exposed to both cisplatin and Quran recitation compared to the cells exposed only to cisplatin. Cell viability reduced to 43.8%, cell migration was reduced by 18.6% and *BCL2L12* messenger RNA level was reduced by a ratio of 0.2 compared to the control group. Thus, Quran recitation combined with cisplatin significantly reduced cell proliferation, migration and caused down regulation of *BCL2L12* gene expression. In 2019, a study was reported by Mutiah *et al.*, the effect of Quran recitation combined with cisplatin was studied on growth inhibition and cell cycle modulation on HeLa cells (Cervix adenocarcinoma cells) [18]. Quran therapy consisted of 30 minutes exposure to Surah Al Fateha. It was found that the combination of cisplatin and Quran recitation decreased the viability of the HeLa cells to 64.3% compared to 69.9% with cisplatin alone and caused

apoptosis in the M5 phase and inhibition of the cell cycle in the S, G₂ and M phase. In a study reported by *Bidin et al.*, in 2020, the effect of Ruqyah Sharriyah (Selected verses of healing from the Quran) was studied on the proliferation of Breast Cancer Line (MCF-7 cells) in an experimental group against a control group of MCF-7 cells [20]. The experimental group was exposed to 12 hours and 24 hours of recitation of the Ruqyah Sharriyah verses. At the end of

both time periods, the cell proliferation percentage had reduced compared to the control group but this reduction was not significant. The shortcoming of this study is that the result has not been stated in numbers, tables or figures. The authors have accepted that the insignificant result may be due to the short duration of exposure, so a longer duration of exposure may be needed for more accurate results.

Table 1: Studies on cancer cell cultures

First Author and Publication Year	Sample	Groups	Quran Text Used	Time Duration	Outcome
Mehrafsar et al., 2018 [17]	Human Prostate adenocarcinoma Cell Line (PC3)	1.PC3 cells 2.PC3 cells exposed to cisplatin 3.PC3 cells exposed to Quran 4.Pc3 cells exposed to Quran and cisplatin	Al Fateha	2 Hours	Significantly more inhibition on proliferation (43.8%) and migration (18.6%) of PC3 cells treated with Quran and cisplatin compared to only cisplatin. Significant down regulation Of BCL2L12 gene expression (ratio 0.2) by Quran and cisplatin compared to control
Mutiah et al., 2019 [18]	HeLa cells from Cervix adenocarcinoma	1.HeLa cells 2.Hela plus Quran r ecitation 3.Hela plus Cisplatin 4.Hela plus Cisplatin and Quran recitation	Al Fateha	30 Minutes	Decreased viability of HeLa cells Quran=80.1% cisplatin= 69.9% Quran plus cisplatin= 64.3%
Bidin et al., 2020 [19]	Breast Cancer Cell line (MCF 7)	1.Control 2.Treatment	Ruqyah Sharriyah	12 Hours and 24 Hours	Reduction of Cell Proliferation in the Experimental group compared to the Control group

One animal study has been done by Muhammad et al., to find the impact of Quran recitation on T lymphocyte activity to induce programmed cancer cell necrosis in mice models of breast cancer. 24 female mice (*Mus Musculus*) BALB/c strain were randomly divided into 4 groups. The Negative Control (K-) were normal healthy mice, Positive Control (K+) were injected subcutaneously DMBA to induce cancer, P1 group were DMBA mice which received Quran recitation for

2.5 hours daily for 1 week. P2 were DMBA mice which received Quran recitation for 0.5 hours, 5 times daily at the prayer timings, for 1 week. Quran recitation was of Surah Fateha and Al Baqarah. After that the cancer tissue was harvested. A significant difference (P<0.05) was found in the T cell lymphocyte activity between the group given Quran therapy 5 times daily at the prayer timings, compared to the other groups.

Table 2: Studies on Animal Models of Cancer

First Author and Publication Year	Sample	Groups	Quran Text Used	Time Duration	Outcome
Muhammad et al., 2022 [20]	24 female mice (<i>Mus Musculus</i>) BALB/c strain	1.Negative control (K-) 2.Positive Control (K+) with DMBA 3.Quran once daily (P1) 4.Quran five times daily (P2)	Surah Fateha and Al Baqarah	1.- 2.- 3.Daily 2.5H for 1 week 4.Five times daily for 0.5H each for 1 week	Significant Difference (P<0.05) In t cell lymphocyte activity Between the group given Quran therapy 5 times daily compared to other groups.

Six studies were done on Human Cancer patients to find the effect of Quran recitation therapy in reducing the adverse side effects of cancer and chemotherapy. Three of these studied the effect on anxiety, one each studied the effect on stress, nausea and vomiting and pain as described in table 2. Al Jubouri et al., studied the effect of Quran recitation and music therapy in reducing the chemotherapy induced anxiety in 238 cancer patients [13]. They were randomly assigned to the Control, Quran and

Music groups. Pretest and Post test scores showed a significant difference in anxiety reduction in both the Quran and Music groups but no difference was found between the scores of these two groups. So, both methods can be added to the Chemotherapy patients to reduce their anxiety. Fahd et al., in a cross-sectional study on 1054 cancer patients, found that Quran recitation, prayer and religious practices significantly decreased the risk of anxiety and depression in these patients [21]. Rosyidul'ibad

et al., studied the effect of Quran recitation therapy on 24 Cancer patients admitted at Aisiyah Islamic Hospital, Malang, Indonesia [22]. Quran therapy was found to significantly reduce the anxiety level of these patients undergoing Chemotherapy. Ernawati *et al.*, studied 50 cancer patients by comparing the Pretest and Post test scores of the stress after three sessions of Combined Quran recitation and aromatherapy [23]. This strategy was found effective in reducing the stress level of cancer patients. Kamian *et al.*, reported the impact of hearing

Quran on nausea and vomiting on 31 cancer patients undergoing chemotherapy [24]. There was a decrease in nausea and vomiting but it couldn't reach the level of statistical significance. But Quran therapy significantly decreased the probability of higher grade of nausea. Similarly, Priyanto *et al.*, studied 36 patients of bone cancer [25]. This was a quasi-experimental study using Pre and Posttest design with a control group. Significant reduction of pain and stress was found after the Quran therapy session.

Table 3: Studies on Human Cancer Patients

First Author and Publication Year	Sample	Groups	Quran Text Used	Time Duration	Variable Studied	Outcome
Al Jubouri <i>et al.</i> , 2021[13]	238 cancer patients undergoing chemotherapy	1.Control 2.Quran 3.Music	Surah Yaseen	20 minutes	Anxiety	Significant Difference Between Pretest and Posttest Scores. *No Significant Difference In the reduction of anxiety by Music or Quran
Fahd <i>et al.</i> , 2020 [21]	1054 Cancer patients	Cross sectional study	Any part of the Quran	Any duration	Anxiety	Significant Association Between lower levels of anxiety and reciting or listening to the Quran
Rosyidul'bad <i>et al.</i> , 2021[22]	24 Cancer patients Undergoing chemotherapy	1 group Pre & Post Test design	Surah Ar Rahman	22 minutes Twice a day	Anxiety	Significant Reduction of anxiety after Quran recitation
Ernawati <i>et al.</i> , 2020 [23]	50 cancer patients	1 group Pre & Post test design	Surah Ar Rahman & Aromatherapy	3 sessions of 30 minutes	Stress	Decreased Stress Level By Both Quran recitation And Aromatherapy
Kamian <i>et al.</i> , 2019 [24]	31 patients Undergoing chemotherapy	1 group Pre & Post test design	Surah Baqarah: 1-100	30 minutes	Nausea and Vomiting	Listening to Quran significantly Reduced the probability of Higher grade of nausea
Priyanto <i>et al.</i> , 2020 [25]	36 Bone cancer patients	1.Control 2.Experimental group	Surah Ar Rahman	20 minutes	Pain	Significant Reduction of pain after Quran therapy

DISCUSSION

It is stated in the Quran: "Surely, in the remembrance of Allah do hearts find peace"; Surah Ar Raad (13:28). The potential healing power of faith has been known for a long time. Listening to the Quran generates alpha waves in the EEG of the brain which cause relaxation [11, 12]. The field of psychoneuroimmunology has shown the importance of mind-body interaction [15]. Quran recitation has been associated with better immune function by increasing the activity of T lymphocytes [20]. Thus, Complementary and Alternative Medicine (CAM) is thought to act through specific nerve pathways and molecules which remove the hormones of stress that can suppress the immune system [26]. The interaction between the Nervous, Endocrine and Immune systems influences the Hypothalamic-Pituitary-Adrenal axis causing the release of Cortisol and Epinephrine which regulate the immune system through

Somatostatin and Substance P.27 The Biochemical levels of Neurotransmitters (Serotonin), Hormones (Cortisol, Catecholamines, Endorphins), Cytokines and Peptides may influence the immune system's response to disease [28]. This could be the possible explanation for the six studies on human cancer patients where Quran recitation reduced the adverse side effects of Cancer and its chemotherapeutic management, like anxiety, stress, depression, pain, nausea and vomiting. This is in accordance with many other similar studies done for various medical conditions where Quran recitation therapy was found to be effective. In a study done on 50 insomnia patients it was found that Quran recitation therapy significantly reduced anxiety, depression and improved the quality of sleep [29, 30]. Quran therapy significantly improved the respiratory rate, heart rate and Oxygen saturation of premature infants on mechanical

ventilation in ICU [31]. In another study it was found that Quran recitation therapy improved the Functional capacity of hemodialysis patients [32] and also reduced their depression [33]. In a systematic review on the impact of Quran recitation on anxiety, 28 randomised controlled trials and quasi experiments revealed reduced anxiety in various settings after listening to the Quran [34]. The pain of coronary heart disease patients was reduced more after Quran recitation therapy than after Music therapy [35]. Similarly, the pain of childbirth was also reduced by Quran recitation therapy during the first phase of labor [36] and also the pain after Caesarian section [37]. The animal study and cell culture studies showed a decrease in cancer cell viability, migration and proliferation when exposed to Quran recitation therapy. There was also an increase in the T lymphocytes which showed enhanced immune response. But, in a study done on rabbit articular cartilage cells it was found that cell viability, growth rate and proliferation were highest in the Quran recitation group compared to the other two groups [38]. Since Chondrocytes have no blood supply so their regeneration capacity is very limited and they have very limited ability to repair themselves so injury often leads to progressive damage. Because of this lack of healing capacity any injury to chondrocytes often leads to secondary osteoarthritis [39]. Cartilage injury remains a major challenge in orthopedic surgery due to the fact that articular cartilage has only a limited capacity for intrinsic healing. However, Quran recitation therapy enhanced cell regeneration and proliferation in damaged chondrocytes [38]. This is in contrast to the effect of Quran therapy on cancer cell cultures where there was decreased cell viability and proliferation of Cancer cells as seen in these three studies done on cancer cell cultures. Extensive research has been done on individual cells or cell cultures to find the impact of sound on growth, apoptosis, immune system and protein activities and it was found that sound affects the physiological processes of cells though the results were disparate for different types of cells but the exact mechanism by which sound causes these physiological changes in the cell are still not clear [40]. Since the individual cells respond differently to Quran therapy, this may be a field for future research where the alteration in the physiological processes of the cell may be used to improve the prognosis of disease.

CONCLUSIONS

Quran recitation therapy used as a complementary therapy along with the standard medical treatment reduces the side effects of cancer and chemotherapy. Studies on animal models and cancer cell cultures show that it significantly reduces the proliferation of cancer cells. being a noninvasive, safe, cheap and easy method, it should

be used along with the standard medical treatment to improve the prognosis of cancer patients.

Authors Contribution

Conceptualization: IK

Methodology: IK

Formal analysis: IK

Writing-review and editing: IK, HS

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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