Chapter V

DISCUSSION

This chapter deals with the discussion of the results of the data analysed based on the objectives of the study and hypotheses. The present study has been conducted “to assess the effectiveness of selected interventions on reduction of holistic symptoms and prognosis of patients with head and neck cancer in selected hospital, Kanyakumari District”. This study was conducted among patients with head and neck cancer admitted at the International Cancer Centre, Neyyoor. The main aim of the study was to evaluate the effectiveness of selected interventions in reduction of holistic symptoms and prognosis.

Head and neck cancer affects some of the most fundamental functions of life, like communication, eating, and social interaction. Oral cancer is the most prevalent form of head and neck cancer in India. There is a need for finding out the holistic symptoms which affects the quality of life, so that strategy could be developed to assist these patients. Treatment like surgery, radiation therapy
chemotherapy, or combination of therapies can have functional and cosmetic effect on the patient’s life. So it will exhibit as physiological, psychological, social and spiritual symptoms. These symptoms can alter the patient’s self-esteem, limit their activities, employment potentialities and their social interactions.

A diagnosis of head and neck cancer, like any cancer diagnosis, is often accompanied by much fear and uncertainty. In addition, patients with head and neck cancer face difficulties in eating, chewing, drinking, breathing, speaking as well as changes in appearance. Simultaneously the burden of head and neck cancer is often manifested in psychosocial dysfunction, which can have a negative impact on quality of life. Though a phenomenon well recognized, little is known about many factors that influence or impact psychosocial dysfunction in individuals with head and neck cancer. Even less is known about the effective management of psychosocial dysfunction.

Todate, there is an evidence to suggest that psychosocial interventions generally provide an overall positive effect. Moreover, some intervention studies, such as education alone, have failed to achieve the desired results. In addition, some studies suggested an
advantage of cognitive behavioral therapy over other forms of psychological treatment. With the growing impetus to investigate factors associated with psychosocial dysfunction, and considerable advancement in the development and validation of many global and disease specific measures three is an opportunity for further research to develop an appropriate clinical intervention program for such patient (Margiotta, 2001)

Music is the most powerful catalyst, bringing people together, breaking through isolation and generating positive social energy. Music therapy is the prescribed use of music by a well qualified person to effect positive changes in the holistic system that is physical, psychological, cognitive and social functioning of individuals with health emotional or educational problems. It is used successfully with children, adolescents, adult and the elderly with mental health needs, develop disabilities.

Healing with sound has become increasingly popular and well documented as an effective holistic treatment. There are seven glandular systems in the human body, seven colors in spectrum and seven notes in the musical scale. Every color and note has unique vibration that stimulates the energy centers of the mind and
subsequently, the body when exposed to pure vibrations the neuroendocrine and immune systems are strengthened and purified.

The pleasure center in the brain is also prompted to produce endorphins, the body’s natural pain killer. In hospice patients a study found that music therapy improved comfort, relaxation, and pain control. Another study found that quality of life improved in cancer patients who received music therapy, even as it declined in those who did not receive music therapy, but no difference were seen in survival between the two groups (American Cancer Society, 2009).

Hence the present study was aimed to evaluate the effectiveness of selected interventions on reduction of holistic symptoms and prognosis among patients with head and neck cancer with the following objectives.

**Objectives**

- To assess the holistic symptoms and quality of life of patients with head and neck cancer in Group I and Group II before interventions.

- To assess the effect of counselling, financial support, and oral care in patients of Group I.
To assess the effect of music therapy, counselling, financial support, and oral care in patients of Group II.

To compare the holistic symptoms and quality of life of patients between Group I and Group II after interventions.

To associate the holistic symptoms and quality of life with demographic and clinical variables of patients with head and neck cancer.

The study was conducted at International Cancer Centre, Neyyoor over a period of thirteen months from November 2007 to November 2008. The research design chosen for the present study was pre-test post-test control group design.

Two hundred patients who fulfilled the inclusion criteria were selected for the study. To allot the patients to Group I (100 patients) and Group II (100 patients) random allotment of weeks was followed. Patients admitted in 1st and 3rd week were allotted to Group I and patients admitted in second and fourth week were allotted to Group II. All the available samples during the data collection were selected.

For patients in Group I on the day 1 demographic and clinical data were collected, holistic symptoms, pain, sleep and physiological parameters, quality of life and oral mucositis were
assessed. Counselling was given by the investigator on the day 1 and day 7. Financial support was given by religious financial support group called as Pallathakin Leeli. Oral care was given every Q2H with Tantum solution.

The patients selected for Group II also had assessment and intervention like Group I. In addition to that music therapy was given for half an hour from 8.30 – 9.00 pm after finishing their routine care.

Data was entered into a master code sheet and then entered in the computer using EXCEL software and it was transferred to Statistical Package for Social Sciences version II for windows computer programme with P<0.05 considered significance for further analysis.

The following tools were used to collect the data from the participants. The final tool consisted of 6 sections such as

**Section 1** - Socio Demographic and Clinical Data - prepared by the investigator.

**Section 2** - Symptoms Check List - prepared by the investigator.
Section 3 - Universal Pain Assessment Scale - Standard tool.

Section 4 - Sleep Assessment Scale - prepared by the investigator.

Section 5 - Modified University of Washington Quality of Life Questionnaire - Standard tool modified by the investigator.

Section 6 - Radiation Mucositis Scale - Standard tool.

The first objective was to assess the holistic symptoms and quality of life of patients with head and neck cancer in Group I and Group II before intervention.

The most commonly reported physiological symptoms in Group I on day one were, severe difficulty to swallow (95%), severe loss of sleep (91%), severe loss of speech (88%), severe disfigurement (94%), severe difficulty in chewing (94%), mild palpitation (66%), mild fatigue (58%), severe oral mucositis (78%), and severe loss of appetite (86%) (Table 5).

The most commonly reported physiological symptoms in Group II on day one were, severe difficulty to swallow (100%), severe loss of sleep (97%), severe loss of speech (98%), severe disfigurement (55%), severe difficulty in chewing (90%), severe
palpitation (82%), severe fatigue (89%), severe oral mucositis (91%), and loss of appetite (95%) (Table 5).

The most commonly reported psychological symptoms in Group I on day 1 were severe impaired concentration (73%), severe irritability (77%), severe anxiety (65%), mild forgetfulness (60%), and severe worry (85%) (Table 6).

The most commonly reported psychological symptoms in Group II on day 1 were mild irritability (41%), severe anxiety (89%), severe forgetfulness (42%) and severe worry (93%) (Table 6).

The Perception of patients in Group I about their health status on day 1 were: had severe pain not controlled by regular medication (93%); significantly disfigured appearance and limited activities (85%); tired and activities slowed down still getting out (67%); limitation to recreation outside (62%); ability to swallow liquid food, but feels goes wrong way (41%); able to chew only soft solids and not semi solids (51%); ability to make only relatives and friends to understand the speech (42%); do their hobbies with limitation (26%); ability to taste only limited foods (48%); too little saliva (50%); little depressed about by cancer (31%); very anxious about cancer
(48%); sleep 3-4 hours (55%); worried about finance (58%); social groups gives half support (41%); no peace (42%); counselling not at all useful (55%) and overall perception of quality life very poor (49%) (Table 8 - 27).

The Perception of patients in Group II about their health status on day 1 were had severe pain not controlled by regular medication significantly (67%); disfigured appearance which limit activities (59%); tired and activities slowed down still getting out (85%); severe limitations to outside recreation (51%); only swallow liquid foods (54%); chew soft solids but cannot chew semi solids (54%); able to make only relatives and friends to understand (55%); pain or weakness in shoulder change work or hobbies (49%); taste only limited foods (56%); little saliva (33%); little depressed about cancer (24%); little anxious about cancer (38%); sleep 3-4 hours (36%); worried about their finance (26%); never had social support (45%); no peace (63%); counselling not at all useful (68%) and overall perception of quality of life poor (59%) (Table 8 - 27).

Mean quality of life score of patients on day 1 in Group I was 26.68 and in Group II it was 34.09 (Table 28).
The following studies are in line with the present study finding. A study was conducted by Pruyn (2006) on physical as well as psycho-social problems. Physical problems identified were swallowing, chewing, speech and physical appearance. Psychosocial problems identified were anxiety, depression, loss of self esteem and uncertainly about the future.

Another study conducted by Riechelmann (2007) identified that most frequent and severe symptoms among patients with advanced cancer were fatigue, pain and lack of appetite.

One more study was conducted by Williams (2006) on self reported symptoms on chemotherapy primarily for leukemia, lymphomas or breast cancer or radiation therapy for head and neck cancer or lung cancers. Those on chemotherapy reported fatigue, eating, nausea, pain, numbness in finger and toes, hair loss and constipation. Those on radiation therapy reported severe symptoms on eating, fatigue, skin changes and constipation.

Eting (2007) conducted a study on risk outcome and costs for radiation induced oral mucositis among patients receiving radiotherapy to head and neck primary cancer. Oral mucositis
occurred in 91% of patients, among that 66% it was severe (Grade 3.4). Oral mucositis was more common among patients with oral cavity or oropharynx primaries.

Goldberg (2004) conducted a study on patient’s perception on chemotherapy and reported oral mucositis, 7% rating it very severe, 18% severe, 36% moderate and 29% mild. Findings showed that more distressing complications were oral mucositis, fatigue, hair loss, nausea, anxiety and heartburn.

The second objective was to assess the effect of counselling, financial support and oral care in patients of Group 1.

The third objective was to assess the effect of music therapy, counselling, financial support and oral care in patients of Group II.

Hundred patients in Group I received counselling, financial support and oral care and patients in Group II received music therapy in addition to counselling, financial support and oral care.

To assess the effect of interventions the holistic symptoms, quality of life, pain and oral mucositis were assessed among Group I and Group II on day 7.
Improvement in physiological symptoms after interventions on day 7: severe restlessness decreased from 26% to 11% in Group I and in Group II it decreased from 11% to 2% (Table 30).

Severe difficulty in swallowing decreased from 95% to 55% in Group I and in Group II it decreased from 100% to 32% (Table 31).

Severe loss of sleep decreased from 91% to 66% in Group I and in Group II it decreased from 97% to 15% (Table 32).

Severe loss of speech decreased from 88% to 38% in Group I and in Group II it decreased from 98% to 46% (Table 33).

Severe disfigurement decreased from 94% to 48% in Group I and in Group II absence of disfigurement increased from 23% to 34% (Table 34).

Severe difficulty in chewing decreased from 94% to 48% in Group I and in Group II it decreased from 90% to 21% (Table 35).

Severe palpitation decreased from 33% to 24% in Group I and in Group II it decreased from 82% to 19% (Table 36).
Severe fatigue decreased from 42% to 24% in Group I and in Group II it decreased from 89% to 23% (Table 37).

Severe oral mucositis decreased from 78% to 27% in Group I and in Group II it decreased 91% to 18% (Table 38).

Severe loss of appetite decreased from 86% to 61% in Group I and in Group II it decreased 95% to 24% (Table 39).

Improvement in psychological symptoms after intervention on day 7: severe impaired concentration decreased from 73% to 49% in Group I and in Group II absence of impaired concentration increased from 71% to 88% (Table 42).

Absence of irritability increased from 3% to 9% in Group I and in Group II it increased 35% to 76% (Table 43).

Severe anxiety decreased from 65% to 43% in Group I and in Group II it decreased 89% to 12% (Table 44).

Severe forgetfulness in decreased from 25% to 9% in Group I and in Group II absence of forgetfulness increased from 28% to 52% (Table 45).
Absence of worry increased from 3% to 7% in Group I and in Group II it increased from 1% to 16% (Table 46).

Severe spiritual distress decreased from 93% to 11% in Group I and in Group II it decreased from 96% to 7% (Table 47).

Improvement in oral mucositis after the intervention on day 7 ulceration decreased from 89% to 1% in Group I and in Group II it decreased from 62% to erythema (44%) (Table 50-51).

Mean physiological symptoms score of patients after intervention on day 7 in Group I it decreased from 17.22 to 13.82 and in Group II it decreased from 17.25 to 11.20 (Table 41).

Mean psychological symptoms score of patients after intervention on day 7 in Group I it decreased from 7.98 to 6.49 and in Group II it decreased from 6.28 to 3.32 (Table 49).

Mean quality life of patients after the intervention on day 7 in Group I increased from 26.68 to 29.44 and in Group II it increased from 34.09 to 51.74 (Table 55).

Mean pain score of patients after the intervention on day 7 in Group I decreased from 7.76 to 6.28 and in Group II it decreased from 7.70 to 2.51 (Table 57).
Mean systolic blood pressure after the intervention on day 7 in Group I increased from 114.60 to 116.40 and in Group II it decreased from 115.90 to 110.02 (Table 52).

Mean diastolic blood pressure after the intervention on day 7 in Group I increased from 77.20 to 77.90 and in Group II it decreased from 75.50 to 70.90 (Table 52).

Mean pulse after the intervention on day 7 in Group I had no change from 77.21 and in Group II it decreased from 81.50 to 77.10 (Table 53).

Mean duration of sleep after the intervention on day 7 in Group I increased from 4.13 to 4.41 and in Group II it increased from 4.48 to 7.02 (Table 54).

The following studies support the present study findings. A study was conducted by Olson (1998) on disability and rehabilitation in head and neck cancer patient after laryngectomy. Nine methods of rehabilitation were assessed with regard to frequency of utilization: surgical therapy, rehabilitation nursing, occupational therapy, vocational rehabilitation, rehabilitation counselling, and social service. In all cases, the following areas in which disability could
occur were identified and explored. Physical appearance, speech, deglutination, mastication, salivation, sensory deficits, pain, nutrition, activities of daily living, psycho-social functioning, vocational status, environmental parameters, and delayed complications. Forty three percentages had moderate or severe disability in five to nine areas.

Nilsson (2008) conducted a study on the anxiety and pain reducing effects of music interventions. Musical interventions have been used in health care settings to reduce patient’s pain, anxiety and stress. This article provided a systematic review of 42 randomized controlled trials of the effect of music interventions in pre-operative settings. Music intervention had positive effect on reducing patient’s anxiety and pain.

Clerk (2006) administered music therapy for 30 minutes for 27 adults who receive mechanical ventilation using cassette tape players and head phones. Music contained lyrics, was designed to be relaxing and had 60-80 beats/minute. Results showed reduction of anxiety.
Guetin (2009) reported music therapy deemed useful for significantly reducing the medication given to Alzheimer’s disease patients and it showed reduction of anxiety, depression and aggressiveness in patients.

Watkins (1997) conducted a study and reported that music reduced the stress response including decreased anxiety levels, decreased blood pressure, heart rate and changes in plasma stress hormone levels.

Byers and Smyth (1997) conducted a study on effect of a music intervention on noise annoyance, heart rate and blood pressure in cardiac surgery patients. Results of this study showed use of a music intervention with cardiac surgery patients during the first postoperative day decreased noise annoyance, heart rate, and systolic blood pressure, regardless of the subjects noise sensitivity.

Robb (2000) reported following effects of a music intervention.

- relieve stress, apprehension and fear
- improve mood
- lower heart rate, blood pressure and breathing rate
- relieve depression
- relieve sleeplessness
- relieve muscle tension and provide relaxation

Chan (2003) reported the alleviation of oral mucositis and the associated symptoms through promotion of an appropriate food, fluid intake and more frequent use of mouthwashes should be emphasized in oral care.

Fourth objective was to compare the holistic symptoms and quality of life of patients between Group I and Group II after intervention.

After the intervention the most commonly reported physiological symptoms in the Group I were mild restlessness (71%), severe difficulty to swallow (55%), severe loss of sleep (66%), mild loss of speech (62%), mild disfigurement (50%) mild difficulty in chewing (52%), mild palpitation (76%), mild fatigue (76%), mild oral mucositis (73%), and severe loss of appetite (61%) (Table 28).

After the intervention on day 7 the most commonly reported physiological symptoms in the Group II were mild restlessness (29%), mild difficulty to swallow (68%), mild loss of sleep (85%), mild loss of speech (54%), mild disfigurement (43%), mild difficulty in chewing (79%), mild palpitation (81%), mild fatigue (77%), mild oral mucositis (82%), and mild loss of appetite (76%) (Table 58).
After the intervention the most commonly reported psychological symptoms in Group I on day 7 were mild and severe impaired concentration (46% and 49% respectively), mild irritability (71%), mild and severe anxiety (57% and 43%) respectively, mild forgetfulness (82%), and mild and severe worry (49% and 51% respectively) (Table 59).

After the interventions the most commonly reported psychological symptoms in Group II on day 7 were mild irritability (23%), mild anxiety (88%), and mild worry (84%) (Table 59).

The perception of patients in Group I about their health status on day 7 were: severe pain not controlled by regular medication (70%); significantly disfigured appearance which limited activities (55%); tired and activities slowed down still getting out (58%); limitation to have recreation outside (66%); swallow only liquid food (62%); chew soft solids and some semi solids (50%); able to understand during face to face talk (59%), no problem with shoulder (51%); taste some foods (41%); little saliva (32%); depressed very little about cancer (47%); anxious about cancer (51%); sleep 4-5 hours (39%); worried about finance (42%); social groups gives half support
(22%); have peace when seek God (52%), counselling gives support (46%); overall quality of life poor (77%) (Table 61 - 78).

The perception of patients in Group II about their health status on day 7 were: mild pain no medication (78%); change in appearance is minor (47%); not active at times can keep up old pace (91%); few limitations in recreation, still go out and enjoy life (78%); inability to swallow certain solid foods (70%); chew semi solids (52%); able to understand during face-to-face talk (63%); shoulder stiff, but not affected activity or strength (49%); taste some foods (66%); normal salivation (25%); generally good mood only occasionally affected (40%); little anxious about cancer (72%); normal sleep (58%); little worried about finance (58%); social groups gives full support (67%); have peace when seek God (49%); counselling gives more support (33%); and over all quality of life good (54%) (Table 61 -78).

The following studies are in line with the present study. Nancy (2006) conducted a study and reported music therapy has decreased anxiety levels in many medical settings. Patients who listened to self-selected music reported lower anxiety and treatment related distress, there was a decline in symptoms.
“Music has the power to ease tension within the heart and to lesson and loosen obscure emotions” (Chinese culture).

Nayak (2007) reported that music therapy is associated with a decreased depression, improved mood, reduction in state of anxiety, effects of music on quality of life, involvement with the environment, expression of feelings, awareness and responsiveness, positive associations and socialization. Additionally found that music therapy had a positive effect on social and behavioural outcomes and showed some encouraging trends with respect to mood.

Robert (2007) conducted a study and reported music therapy interventions to be effective in pain, comfort and relaxation.

Richards (2007) conducted a study on the effect of music therapy on patients perception and manifestation of pain, anxiety and patient satisfaction. An extensive review and synthesis of current research was completed to identify the clinical benefits of using music therapy in the hospital setting. It demonstrated that music therapy has the potential to improve the hospital experience of patients.
Mok and Wong (2003) conducted a study on effects of music on patient anxiety. Undergoing surgery with local anaesthesia is stressful because patients often are aware of their surroundings. The study investigated music as a method of reducing patient’s anxiety during minor surgery with local anaesthesia. Study results indicated that who listened to their choice of music during surgery experienced significantly lower anxiety levels, heart rates, blood pressure than who did not listen to music.

Richardson (2008) conducted a study on music therapy in a comprehensive cancer center. Music therapy has been found to help patients promote a better quality of life, better communicate their fear, sadness or other feelings, better manage stress, alleviating physical pain or discomfort.

Sarkamo (2008) found that music listening enhances cognitive recovery and mood after middle cerebral artery stroke. Results showed that recovery in the domains of verbal memory and focused attention improved significantly more in the music group than in the language and control groups.
Fifth objective was to associate the holistic symptoms and quality of life with demographic and clinical variables in patients with head and neck cancer.

Mean physiological symptoms score association on day 7 was done between both groups after adjusting with the selected demographic variables.

In Group I adjusted mean value was 13.92 and in Group II adjusted mean value was 11.09. ANCOVA result inferred that physiological symptoms were significantly influenced by age and occupation. Further analysis carried out to find out the interaction effect of these variables. Two Way ANOVA results showed that the non-significant interaction effect between the age, occupation and groups (Table 80, 81, 82).

Mean psychological symptoms score association on day 7 between both groups after adjusting with the selected demographic and clinical variables

Adjusted mean value in Group I was 6.36 and Group II was 3.45. The ANCOVA test results inferred that the psychological symptoms were significantly influenced by education, occupation and type of family of the patients. Further analysis carried out to find out the interaction effect of these variables. The two way ANOVA results showed that the non-significant interaction
effect between education, occupation, type of family and groups
(Table 83 - 86).

**Association of mean of quality of life score between both groups after adjusting with selected demographic and clinical variables**

Adjusted mean value in Group I was 34.31 and Group II adjusted mean value was 51.51. The ANCOVA test result inferred that the quality of life score was significantly influenced by marital status, income, education, type of family and number of previous hospitalization. Further analysis carried out to find out the effect of these variables. The two way ANOVA results showed that significant interaction effect between income, education and groups (Table 87, 89, 90). The non-significant interaction effect between marital status, type of family, number of previous hospitalization and Group (Table 87, 88, 91, 92).

**Association of mean pain score between groups after adjusting with the selected demographic and clinical variables**

Adjusted mean value in Group I was 6.324 and Group II was 2.466. The ANCOVA test result inferred that the pain score was significantly influenced by residence, type of family, and number of previous hospitalization. Further analysis carried out to find out the effect of these variables. The two way ANOVA result showed that
significant interaction effect between residence, type of family and groups (Table 93, 94, 95). The non-significant interaction effect between number of previous hospitalization and groups (Table 93, 96).

**Association of mean oral mucositis score between groups after adjusting with the selected demographic and clinical variables**

In Group I adjusted mean value was 2.824 and Group II adjusted mean value was 1.346. The ANCOVA test result inferred that the oral mucositis score was significantly influenced by income, education, residence, religion of the patients. Further analysis carried out to find out the interaction effect of these variables. The two-way ANOVA results showed significant interaction between education, residence and groups (Table 97, 99, 100). The non-significant interaction effect between income, religion, diagnosis and groups (Table 97, 98, 101, 102).

The following studies are in line with the present study. Madel (2007) conducted a study on effects of music therapy on health related outcomes in cardiac rehabilitation. This study tested the effectiveness of music therapy in improving health related outcomes of cardiac rehabilitation patients. Sixty eight of 103 recruited patients, 30-80 years of age completed the protocol
through post-treatment. Physiological and psychological outcomes were measured. Music therapy included music experiences, counselling and music assisted relaxation and imagery. Findings suggested that some health related outcomes may be affected positively by participation in music therapy in addition to cardiac rehabilitation.

Okada (2009) conducted a study on effects of music therapy on autonomic nervous system activity, incidence of heart failure events, and plasma cytokine and catecholamine levels in elderly patients with cerebrovascular disease and dementia. These findings suggest that music therapy enhanced parasympathetic activities and decreased congestive heart failure by reducing plasma cytokine and catecholamine levels.

Wang (2002) conducted a study on music decrease the anxiety experienced by patients before surgery. Subjects in Group I listened to a 30 minutes patient selected music session and subjects in Group II received no intervention. In conclusion patients who listened to music before surgery reported lower levels of anxiety. Physiological outcomes did not differ however, between the two study groups.