# Chinese Journal of Medical Research
## (An Open Access Journal for Medical Science Research)

# Correlation between Stress and Quality of Life in Breast Cancer Subjects

*Sampoornam. W[1], Vijayaragavan. R[2]*

**1** *Reader, Department of Mental health nursing, Tamil Nadu Dr. M.G.R. Medical University, Chennai, Tamil Nadu, India*
**2** *Research Director, Department of Research and Development, Saveetha University, Chennai, Tamil Nadu, India*

## Abstract

Breast cancer patients recurrently encounter with serious side effects which causes stress in the course of treatment admitting substantial lowering of quality of life. The study aimed at correlating the levels of stress with quality of life among breast cancer patients in arm I, II and III. Stress during cancer treatment causes severe emotional and psychological disturbances. Among all types of cancer, breast cancer has the greatest stress level due to treatment, stages, recurrence, life threat, disturbed body images, sexuality, fertility and generic sense of femininity. Diagnosis and treatment of breast cancer are stressful that affect overall functioning. Stress has many dimensions like emotional, psychological and physical strain caused by stressors. Psychological stress causes emotional pain and upset. Emotional responses are unique and may vary over time. The literature demonstrated that quality of life is altered by psychosocial stress and inadequate social support among breast cancer patients at Denizli (Turkey). As the stages of cancer progress, there is a decline in quality of life. Stress is inversely related with quality of life. When the family stressor exacerbates the quality of life tapers in breast cancer patients. Likewise negative association is noticed when the level of stress decreases and quality of life increases.

**Keywords:** Stress, Quality of Life, Correlation, Breast Cancer patients.

## INTRODUCTION

Stress is usually linked with quality of life. High stress level leads to poor quality of life. Breast cancer patients undergo emotional distress which elevates cortisol levels in blood. Cortisol is considered as a stress marker and has an impact on whole body. Stress hormone increases tumour size and rapid metastasis [1]. Many studies have shown poor quality of life in women with breast cancer. Most of the breast cancer women with low quality of life showed poor prognosis and early mortality.

**Stress connection with quality of life in breast cancer patients**

A replicated research assessed the level of quality of life and psychological distress by administering stress management intervention with patients receiving radiation therapy. Psychological distress considerably decreased only at initial level of stress elevation. The quality of life improved which shows the efficiency of stress management intervention [2]. Research studied the stress, coping and quality of life in recurrent breast cancer patients. Coping was regarded as the mediator between stress and quality of life. Ineffective coping pave the way for stress and poor quality of life. Additional analysis should be carried out on intervention with coping strategies to reduce stress and improve quality of life in breast cancer patients [3].

Review demonstrated that the course of radiotherapy for all types of cancer is the sources of stress. Elevation of stress level was observed in all types of cancer. While comparing the stress level between men and women, women showed higher level of stress. Among all types of cancer, breast cancer patients showed highest stress levels. Therefore psychological support is required to decrease the stress levels and improve quality of life in cancer patients [4]. Health stress like advanced cancer stage, long term duration of illness, treatment and social stress such as unemployment, recent immigration, older age were related with quality of life. Comparatively, social stress revealed more relationship with quality of life than health stress. Quality of life is negatively affected by both health and social stresses due to experience of perceived stress [5].

**\*Corresponding author:**
***Dr. Sampoornam W.***
Reader, Department of Mental health nursing, Tamil Nadu Dr. M.G.R. Medical University, Chennai, Tamil Nadu, India
Email:
sampoornamwebster@yahoo.in

## METHODS

**Participants:** This study was approved by Institutional Human Ethical Committee (No. 05/10/2012/IEC/SU; Dated 9-10-2012) from Saveetha University, Chennai. After obtaining written informed consent, breast cancer patients who fulfilled the inclusion criteria were recruited and enrolled in the study between May 2013 and April 2014 in Cancer Centre at Erode. The total sample size was 252 breast cancer patients. Proportionate stratification sampling was done based on I-IV stages of breast cancer in each experimental arm. Participants were assigned randomly to either experimental arm I (n=84), or II (n=84) or III (n=84) using Sequentially Numbered Opaque Sealed Envelope (SNOSE) method.

**Data collection procedure:** Participants were interviewed before intervention by assessing background variables. The level of stress was assessed by P.Herschbach Questionnaire on Stress in Cancer Patients (QSC-R23). Two millilitres of blood sample was collected from 30 breast cancer patients who were selected randomly by adopting random number table, 10 in each experimental arm during evening at 6.00 pm and transported to Hitech Diagnostic Centre (NABL accredited laboratory) at Erode, where radioimmunoassay method was used to measure the level of serum cortisol. Ferrell QOL instrument- Breast Cancer Patient Version was used to determine the quality of life. Immediately after pretest, the participants received emotional support focused nurse directed intervention which comprises of one to one session detailed in Chapter IV. The session schedule was as follows-

In Experimental Arm I, the participants were made to express their thoughts and feelings through verbal face to face confrontation with subsequent administration of informational support. Likewise in Experimental Arm II the participants were made to write down their thoughts and feelings with subsequent administration of informational support and in Experimental Arm III the participants were made to express thoughts and feelings through telephone with subsequent administration of informational support. The intervention was given twice a week with duration of 30-45 minutes, in which early 20-30 minutes was spared to express thoughts and feelings of the participants and subsequent 10-15 minutes were given for informational support and later followed up for a period of 1 month. Posttest was conducted by using the same assessment techniques.

**Statistical methods:** The data were coded and entered into excel sheet, condensed and analysed by applying statistical package for social science, PCT version 17(SPSS Inc, Chicago). Karl Pearson's Correlation coefficient was carried out between stress and quality of life.

## RESULTS

**Correlation between stress and physical well being of quality of life:** Stress and physical well being in experimental arm I showed no significant negative correlation (r= -0.109). Correlation between stress and physical well being was not statistically significant (r= -0.052) in experimental arm II. Experimental arm III showed no significant negative correlation (r= -0.019) between stress and physical well being (Figure 1).

**Correlation between stress and psychological well being of quality of life:** Experimental arm I showed no significant negative correlation (r= -0.138) between stress and psychological well being. Stress and psychological well being correlated negatively, non significant (r= -0.057) in experimental arm II. Experimental arm III showed no significant negative correlation (r= -0.060) between stress and psychological well being (Figure 2).

**Correlation between stress and social concerns of quality of life:** Experimental arm I showed no significant negative correlation (r= -0.133) between stress and social concerns. In experimental arm II, no significant negative correlation (r= -0.037) was found between stress and social concerns. In experimental arm III, no significant negative correlation (r= -0.005) was observed between stress and social concerns (Figure 3).
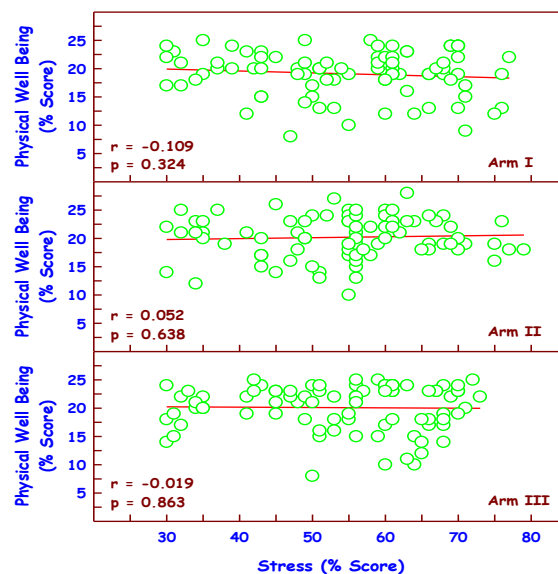


**Figure 1:** Correlation of stress and physical well being in breast cancer patients. Arm I= Verbal; Arm II= Written; Arm III= Telephone
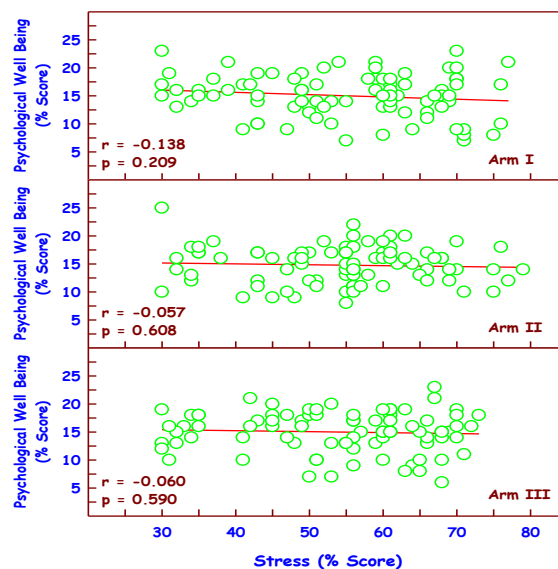


**Figure 2:** Correlation of stress and physical well being in breast cancer patients. Arm I= Verbal; Arm II= Written; Arm III= Telephone

**Correlation between stress and spiritual well being of quality of life:** Correlation between stress and spiritual well being showed no significant negative correlation (r= -0.205) in experimental arm I. In experimental arm II, no significant negative correlation (r= -0.009) was found between stress and spiritual well being. In experimental arm III, no significant negative correlation (r= -0.083) was observed between stress and spiritual well being (Figure 4).

**Correlation between stress and overall quality of life:** Figure 5 shows non significant weak negative correlation (r= -0.161) between stress and overall quality of life in experimental arm I. Non significant weak negative correlation (r= -0.001) was found between stress and overall quality of life in experimental arm II. Non significant weak negative correlation (r= -0.043) was observed between stress and overall quality of life in experimental arm III.

**Figure 3:** Correlation of stress and physical well being in breast cancer patients.
Arm I= Verbal; Arm II= Written; Arm III= Telephone



**Figure 4:** Correlation of stress and physical well being in breast cancer patients.
Arm I= Verbal; Arm II= Written; Arm III= Telephone



**Figure 5:** Correlation of stress and physical well being in breast cancer patients.
Arm I= Verbal; Arm II= Written; Arm III= Telephone

## DISCUSSION

This study showed non-significant negative correlation between stress and physical well being, psychological well being, social concerns and spiritual well being of quality of life in arm I, II and III. Non-significant negative correlation was found between stress and overall quality of life in all arms. Previous study reported relationships between stress, coping and mental health quality of life in breast cancer patients [3]. Total life stress, economic stress and job stress had significantly associated with physical, psychological and environmental quality of life in outpatient breast cancer women receiving active therapy at Taiwan [6]. Social stress revealed more relationship with quality of life than health stress.

Quality of life is negatively affected by both health and social stresses due to experience of perceived stress [5].

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6. Yen J, Chih HK, Yen CF, Yang MJ, Wu CY. Quality of life, depression and stress in breast cancer women outpatients receiving active therapy in Taiwan, Psychi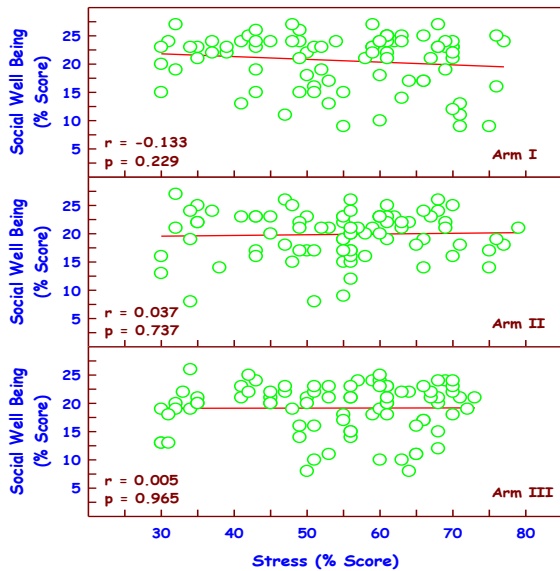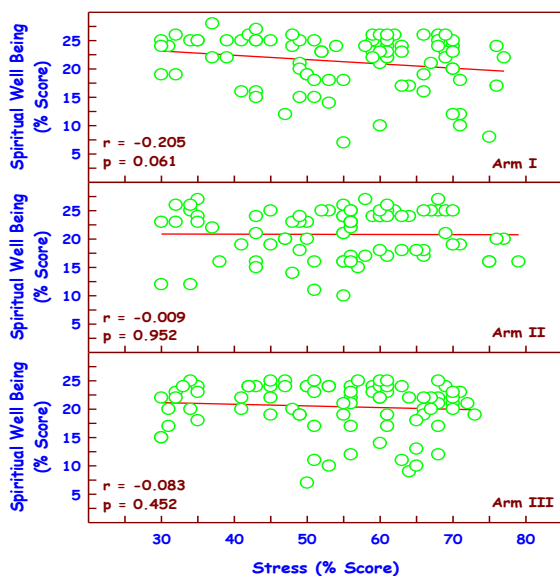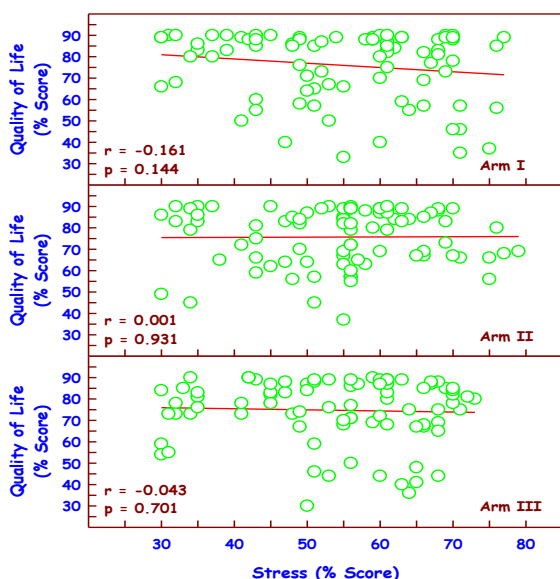atry and Clinical Neurosciences 2006; 60: 147–153.