

**EFFECTIVENESS OF GREEN TEA UPON STRESS AMONG
NURSES**

By

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**A DISSERTATION SUBMITTED TO THE TAMILNADU DR.MGR .MEDICAL
UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER
OF SCIENCE IN NURSING**

APRIL 2012

EFFECTIVENESS OF GREEN TEA UPON STRESS AMONG NURSES

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DECLARATION

I hereby declare that the present dissertation entitled “**Assess the Effectiveness of Green Tea upon Stress among Nurses**” is the outcome of the original research work undertaken and carried out by me, under the guidance of **Dr Latha Venkatesan M.Sc (N), M.Phil, P.h.D**, Principal, **Mrs. Anuradha,C** Associate professor, Psychiatric Nursing, Apollo College of Nursing, Chennai. I also declare that the material of this has not formed in anyway the basis for the award of any degree or diploma in this university or any other universities

M.Sc, (N), II Year

SYNOPSIS

A Quasi Experimental Study was conducted to Assess the Effectiveness of Green Tea upon Stress among Nurses Working in Selected Hospitals, Chennai.

Objectives of the Study

1. To assess the level of stress in control and experimental group of nurses before and after administration of green tea.
2. To evaluate the effectiveness of green tea by comparing the level of stress in control and experimental group of nurses before and after administration of green tea.
3. To find out the association between selected demographic variables and level of stress in control group of nurses before and after administration of green tea.
4. To find out the association between selected demographic variables and the level of stress in experimental group of nurses before and after administration of green tea.
5. To determine the level of satisfaction among experimental group of nurses regarding administration of green tea.

The conceptual framework of the study was based on Roy's adaptation model, which was modified for the present study. The study variables were stress and green tea and hypothesis were formulated. With intensive review of literature and guidance by experts, laid the foundation to the development of demographic variables of nurses, professional life stress scale, rating scale for assessing level of satisfaction on green tea and validity of the tools.

A quasi experimental research design was selected to conduct the study. The study was conducted at Apollo hospitals, Chennai, 30 nurses in each control and experimental group who were selected by purposive sampling technique.

The researcher used a demographic variable proforma and professional life stress scale for collection of data in control and experimental group of nurses. Level of satisfaction was assessed on green tea among experimental group of nurses after administration of green tea. After the pilot study, the data collection of the main study was done by using self administered structured questionnaire method.

Green tea was administered for the participants in the experimental group for 30 days. Green tea was prepared by adding one teaspoon (1.5g) of green tea leaves per one cup (120 ml) of boiled water for 2 minutes and administered once per day after breakfast with sugar (1.5g). Green tea was given in break time according to their work schedule.

The collected data were tabulated and analyzed using descriptive and inferential statistics. The data was presented in aspects of frequency and percentage distribution of level of stress, mean, standard deviation of stress scores and association between level of stress and demographic variables in control and experimental group of nurses before and after administration of green tea.

The Major Findings of the Study

- Majority of nurses in control and experimental group were between the age of 25 to 30 years (70%, 60%) with mean age of 29 years and 30 years, females (63%, 97%) and belongs to nuclear family (97%, 80%) respectively.
- Most of the nurses in control group and experimental group were Hindus (60%, 57%), married (57%, 63%), studied B.Sc. Nursing (60%, 53%), designated as staff nurse (70%, 63%), working in ICU (67%, 43%) and were having 2 to 5 years of working experiences (60%, 50%) respectively.
- Mild level of stress (97%) was found in control group of nurses before and after administration of green tea.
- Experimental group of nurses had mild level of stress (97%) before administration of green tea whereas after administration of green tea, mild level of stress reduced to (57%) and normal level of stress (43%).

- The mean and standard deviation of stress scores in the experimental group of nurses were ($M = 23.5 \pm 4.84$, 17.5 ± 4.36) before and after administration of green tea which is statistically significant ($p < 0.001$). So null hypothesis H_{01} (There will be no significant difference in the level of stress of control and experimental group of nurses before and after administration of green tea) was rejected.
- There was no significant association between the selected demographic variables of nurses the level of stress in control group of nurses before and after administration of green tea. So the null hypothesis H_{02} (There will be no significant association between selected demographic variable and level of stress in control group of nurses before and administration of green tea) was retained.
- There was no significant association between the selected demographic variables of nurses and the level of stress in experimental group of nurses before and after administration of green tea. So the null hypothesis H_{03} (There will be no significant association between selected demographic variable and level of stress in experimental group of nurses before and administration of green tea) was retained.
- All the nurses (100%) were highly satisfied regarding various aspects of green tea administration.

The study demonstrated that green tea administration can help in reducing the stress experienced by nurses.

Recommendations

- The study can be conducted on larger samples to generalize the results.
- The study can be conducted among the other health care professionals who also experience stress.
- The study can be conducted in community settings among different population like old age people and menopausal women.
- A comparative study can be conducted to evaluate the effectiveness of various other interventions to help the nurses for reducing their stress and to cope up with stress in the day to day life.
- A longitudinal study with time series design can be conducted with the post test at an interval of 2, 4, 6 months to assess how long the effectiveness of this intervention.
- A comparative study can be conducted to assess the level of stress among nurses and other health care professionals.

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Research setting

Research population, sample, sampling technique,
research setting

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CHAPTER I

INTRODUCTION

Background of the Study

“Happiness is the meaning and purpose of life, the whole aim and end of human existence”

– *Aristotle*

A nurse is a health care professional who is focused on caring for individuals, families and community, ensuring that they attain, maintain or recover optimal health and functioning. Nurses are capable of assessing, planning, implementing and evaluating care independently and they provide support from basic triage to emergency surgery. Nurses may practice in hospitals, clinics, physician offices, private homes, schools, pharmaceutical companies (Usually as researchers), industry (occupational health settings), cruise ships, retirement homes, hospice facilities, long term care facility, military facility and even camps. Some nurses may also advice and work as consultants in the health care, insurance or legal industries. Nurses can work full or part time and may work on a per diem basis or as travelling nurses.

Nurses can broadly classified as licensed practical nurses (LPNs), registered nurses (RNs) and advanced practice nurses (APNs). Licensed practical nurses can administer most medications, take measurements, keep records, perform emergency life saving techniques like cardio pulmonary resuscitation

and administer basic care. Registered nurses provide direct care and make decisions on the care required for healthy, ill or injured people. They provide scientific, psychological knowledge in care of patients and families in several health care settings. Advanced practice nurses perform primary health care, provide mental health services, diagnose, prescribe, carry out research and teach the public and other medical professionals.

Stress is a feeling that is created when we react to particular events. It is the body's way of rising to a challenge and preparing to meet a tough situation with focus strength, stamina and heightened alertness.

The human body responds to stressors by activating the nervous system and specific hormones. The hypothalamus signals the adrenal glands to produce more of the hormones adrenaline and cortisol and release them into the bloodstream. These hormones speed up heart rate, breathing rate, blood pressure, and metabolism. Blood vessels open wider to let more blood flow to large muscle groups, putting our muscles on alert. Pupils dilate to improve vision. The liver releases some of its stored glucose to increase the body's energy. And sweat is produced to cool the body. All of these physical changes prepare a person to react quickly and effectively to handle the pressure of the moment.

Long-term stressful situations can produce a lasting, low-level stress that's hard on people. The nervous system senses continued pressure and may remain slightly activated and continue to pump out extra stress hormones over an extended period. This can wear out the body's reserves, leave a person feeling

depleted or overwhelmed, weaken the body's immune system and cause other problems.

All health care professionals are highly stressed due to various reasons. Among all health care professionals nurses contribute the majority of population. Globally, more than 70% of hospital staff population is constituted by nursing professionals. In Apollo hospitals more than 900 nurses were working.

Among employed registered nurses 66% rated their general health as very good to excellent. However, 44% also reported chronic health conditions. With respect to psychological health, in general, registered nurses are reporting exhaustion a good part of the time or almost always and 59% report frustration a good part of the time or almost always. American Organization of Nurses Executives conducted a survey nurses in 246 hospitals. They conducted survey mainly in sources of stress, influence of pay to offset stress and outcome of stress. They suggested that stress was related to the nursing shortage and 59% of registered nurses reported that nursing job is so stressful and they felt burnout (AONE, 2007).

Kana (2006) conducted a study in Maharashtra, among 346 nurses working in different hospitals. Samples were selected through random sampling technique. The aim of the study was to assess the job stress among nurses working in different hospitals. The study result shows that 60% of nurses were having moderate level of stress and the main reason for stress is due to poor

working condition, lack of supplies and equipments, staff shortage and overcrowding of patients.

Nurses are more stressed due to various reasons. Age, nursing role status, length of time since graduation, job tenure, area of nursing and interpersonal need associated with various dimensions of stress. Other causes like a particular relationship between the person and the environment also leads to stress. That is appraised by the nurses as taxing or exceeding his or her resource and endangering his or her wellbeing. Stress is not inherently deleterious. Each individual's cognitive appraisal, their perception and interpretation gives meaning to events that determines whether events are viewed as threatening or positive. Personality traits also influence the stress equation because that may be over taxing to one person may be exhilarating to another.

Stress has been categorized as an antecedent or stimulus, as a consequence or response and as an interaction. The stress among nurses is also caused by their working area. The amount of stress experienced may be similar across all departments, but it sources varied. The theatre nurse experience less stress through patient's death and dying. Other factors which influence both the level and source of stress include post qualification training, number of children and partnership status.

Nurses' stress and burn out commonly leads health related problems that results in significant organizational consequences. Stress related physical illness

include heart disease, migraine, hypertension, irritable bowel syndrome, muscle, back pain, joint pain and duodenal ulcers. All of these can directly contribute towards absenteeism, decreased work performance and ultimately less or no quality of nursing care.

Nurses encountering ongoing stress are more likely to eat poorly, smoke cigarettes, abuse alcohol and drugs. All of which can lead to negative health condition affecting personal well being, the quality and efficiency of patient care.

A study was conducted in hospitals of Carolina with 463 nurses working in day, after noon, night and rotating shifts. It was suggest that shift influences physical and mental depression of nurses. Shift work's disturbance of the body's circadian rhythm would exert a direct effect of nurse's physical health and mental well being which in turn would then affect other aspects of the nurses lives (Skipper 2000).

Stress is manageable using pharmacological measures using anti anxiety drugs and using non-pharmacological measures like relaxation therapy, yoga, meditation, music therapy, dance therapy and progressive muscle relaxation etc. Now a day's, alternative medicine also help to reduce stress among people. In this green tea became more effective with fewer side effects.

Green tea is made from the *Camellia Sinesis* plant which is significantly high in an amino acid called *Theanine*. *Theanine* can cause the release of

neurotransmitters, such as dopamine and GABA and lead to a calming effect on the body. Today tea is the most widely consumed beverage in the world, second only to water. Hundreds of millions people drink tea around the world and studies suggest that green tea in particular has many health benefit including reduction of stress level.

The health benefits of green tea for wide of ailments including different types of cancer, heart disease and liver disease. Many of these beneficial effects of green tea are related to its catechin, particularly epigallocatechin-3-gallate content. The catchiness and theanine present in green tea helps in reducing blood cortisol level, thus helps in reducing stress level.

Public is started to use green tea recently only. Compared to western countries green tea use for stress reduction in India is very less. So the researcher is more interested to study the effectiveness of green tea upon stress among nurses.

Need for the Study

Virtually everyone experience stress. The term stress has been commonly applied these days, being attached with sensations of discomfort; the number of people who define themselves as stressed, or who consider others in different circumstances as stressed, increases day after day. Nursing is a stressful occupation and this fact is related directly to the work with suffering patients and

who require abundant attention, compassion and sympathy. Whenever nurses face situations like these, they may eventually become irritable, depressed and disappointed.

Nursing is a rewarding and satisfying profession. But at the same time it can be extremely stressful. Nurses in India are overburdened as the nurse to patient ratio is low. They are responsible along with other health care professionals for the treatment, safety and recovery of acutely or chronically ill, injured, health maintenance, treatment of life threatening emergencies, medical and nursing research. Nurses not only assume the role of care givers but also administrators and supervision. The multiple work rules contribute to significant amount of stress among nursing staff.

Hurley (2007) stated that the common related stressors of nurses are failure to meet patients' needs or self-expectations, workload, and personal issues. The ANA (2007) reported that the four most frequent responses concerning the survey "how nurses felt as they left their jobs each day," were; exhausted and discouraged (50%); discouraged and saddened (44%)(I couldn't provide for my patients); powerless to affect change necessary for safe, quality patient care (40%); and frightened for patients (26%). These are the emotions experienced by nurses on a daily basis. Recognizing that occupational stress is rooted in such intense emotional experiences is integral to specifying the facets of the work environment in ways that can improve nursing outcomes.

Working nights as well as working rotating shifts can be equally strenuous. Because of the nature of their work, nurses are at risk for emotional exhaustion that a study reports 43% of nurses who reported high levels of stress said that they intended to seek employment elsewhere within the next 12 months (Erickson and Grove, 2007).

A study was conducted to investigate the stress level among the women nurses in Coimbatore city TamilNadu.500 nurses were randomly selected from a total of 253 hospitals located in Coimbatore city. The result suggests that 52 % of the respondents are having moderate stress towards torture of the higher authority and conflict with supervisor, 48.6 % were having moderate stress towards disturbance at work due to overcrowding and shift problem, and 40 % were having moderate stress towards unpredictable scheduling and fear of making a mistake (Easwari and Meera, 2006).

Occupational stress can negatively affect nurses' physical, psychological health and their ability to do their jobs; therefore, nurse should practice stress reduction techniques and utilize the resources offered by employer to keep their stress under control. The top two priorities for hospital to address the retention issues are improving nursing management and taking steps to reduce on the job stress. Stress in nurses is an endemic problem. It contributes to health problems in nurses and decreases their efficiency.

Berney and Kovner (2005) stated that low job satisfaction, controversial issues related to mandatory overtime and poor staffing pattern creates stress in nurse's life. The consequences of these conditions can have a significant impact on individual nurses and the ability to accomplish task specifically poor decision making, lack of concentration, apathy, decreased motivation and anxiety may impair job performance, possibly resulting in lethal threats to patient safety.

Nowadays it is important to concentrate on stress reduction among nurses to improve their job satisfaction, reduce stress related health problems, and improve patient satisfaction and professional development. There are different measures to reduce stress pharmacologically and non-pharmacologically. Green tea one among stress reduction measure used safely with less side effect.

Green tea is made from the *Camellia Sinesis* plant which is significantly high in an amino acid called *Theanine*. *Theanine* can cause the release of neurotransmitters, such as dopamine and GABA and lead to a calming effect on the body. Today tea is the most widely consumed beverage in the world, second only to water. Hundreds of millions people drink tea around the world and studies suggest that green tea in particular has many health benefit including reduction of stress level.

Drinking of a nice hot cup of green tea can almost always make us feel better. A growing body of evidence indicates that both green tea *Catechines* and *Theanine*, an amino acid found in green tea can bring about positive changes to both body and mind.

The health promoting effects of green tea are mainly attributed to its polyphenol content, particularly flavanols and flavonols which represent 30 % of fresh leaf dry weight. Recently many of the beneficial effects of green tea were attributed to its most abundant catechin, epigallocatechin-3-gallate.

Erba, Rizo and Bordoni (2005) conducted a study to find out the anti oxidant activity of green tea. Two groups of healthy volunteers consuming a controlled diet participated in the study. Drinking green tea for 42 days cause a significant increase in plasma total anti oxidant activity and significant decrease in plasma peroxide levels and induced DNA oxidative damage due to the lymphocytes. The result indicated that green tea improves overall anti oxidative status and to protect against oxidative damage in humans and protect them from ill effects of stress.

Green tea is more effective in reducing stress, it is cheaper, available everywhere, with less side effects and no extra time is needed to practice it daily. Even though green tea is very beneficial there is paucity of research in this area especially for nurses. Thus the investigator is interested to assess the effectiveness of green tea on stress among nurses.

Statement of the Problem

A Quasi Experimental Study to Assess the Effectiveness of Green Tea upon Stress among Nurses Working in Selected Hospitals, Chennai.

Objectives of the Study

1. To assess the level of stress in control and experimental group of nurses before and after administration of green tea.
2. To evaluate the effectiveness of green tea by comparing the level of stress in control and experimental group of nurses before and after administration of green tea.
3. To find out the association between selected demographic variables and the level of stress in control group of nurses before and after administration of green tea.
4. To find out the association between selected demographic variables and the level of stress in experimental group of nurses before and after administration of green tea.
5. To determine the level of satisfaction among experimental group of nurses regarding administration of green tea.

Operational Definitions

Effectiveness

In this study effectiveness refers to the significant reduction in the level of stress after administration of green tea in experimental group as measured by professional stress scale developed by British Psychological Society.

Green Tea

Green tea is made solely with the leaves of *Camellia Sinensis* plant. It is prepared by adding one teaspoon (1.5gms) of green tea leaves per one cup (120ml) of boiled water for 2 minutes and administered once per day (morning) after breakfast with sugar (1.5g) for 30 days.

Stress

In this study stress refers to alteration in the function of mind due to changes in physical, psychological, emotional and social aspects of individual as measured by professional stress scale developed by the British Psychological Society.

Nurses

Health care professional qualified with GNM or of B.Sc. Nursing and currently working in selected hospitals with minimum one year of experience.

Assumptions

- Any one at any time may become stressed in their life time.

- Nurses are stressed due to work condition.
- Stress is manageable.
- Prolonged stress will lead to poor health conditions like physiological, psychological and socio cultural disturbances.
- Green tea is a medicinal plant, contains amino acids and antioxidants like theanine.
- Theanine works in the body to reduce blood cortisol level.

Null Hypotheses

H₀₁

There will be no significant difference in level of stress of control and experimental group of nurses before and after administration of green tea.

H₀₂

There will be no significant association between selected demographical variables and level of stress in control group of nurses before and after administration of green tea.

H₀₃

There will not be any significant association between selected demographical variables and level of stress in experimental group of nurses before and after administration of green tea.

Delimitations

- The study was limited to nurses who were working in Apollo hospitals Chennai.
- The study was limited to nurses who had mild and moderate level of stress at the time of data collection.
- The study period was limited to 5 weeks duration.

Conceptual Framework of the Study

The conceptual framework for research study presents reasoning on which the purposes of the proposed study are based. The framework presents the perspective from which the investigator views the problem. The conceptual framework deals with inter-related concepts that are assessable together in some rational schemes by virtue of their relevance to a common theme (Polit & Beck,2004)

In the mental health field, a number of proponents have put forward various theories. These frameworks throw light on to the basic principles on which the lifestyle practices need to be based for an effective healthful living and

also when there is a failure, how the entire homeostasis is affected. Keeping these views in mind an attempt has been made to conceptualize, how nurses with mild and moderate stress coping with day to day life by using Roy's Adaptation model.

Input

Input referred as information. Living systems are more complex than mechanical systems .It consists of external stimuli and internal stimuli.

External stimuli

Low family and social support, working area, work load, support from other staff

Internal stimuli

Fear, physical discomfort, poor health status

Process

Process refers to the contra mechanisms that a person uses as an adaptive system. Process includes the coping mechanism. That is mainly two types, regulators and cognators.

Regulators

Regulators are the subsystem of coping mechanism which responds automatically through neural, chemical and endocrine process.

Cognators

Cognators are the subsystem of coping mechanism which respond through complex process of perception and information processing, learning, judgment and emotion.

Effectors

The regulator and cognator mechanisms work within the four adaptive modes are effectors of physiological function, self concept, and role function and inter dependence.

Physiological functioning

These are the ways of dealing with regard to body function.

Self concept

Self concept composite of beliefs and feeling.

Role function

Role function is how the person perform the roles.

Interdependence

It is the relationship with significant others.

Output

Output is the outcome of the person.

The condition of nurses or their state of coping is that person's adaptation level which will determine whether a positive response to internal or external stimuli will be elicited. When total stimuli fall within the person's zone of adaption. An adaptive response or output results when the total stimuli fall outside individual's zone of adaption, ineffective behavior or response occur leading the person to end up with depression.

Summary

This chapter has dealt with the background, need for the study, statement of the problem, objectives, operational definitions, null hypotheses, assumptions, delimitations and conceptual framework of the study.

Organization of the Report

Further aspects of the study are presented in the following five chapters.

- In Chapter-II** : Review of literature.
- In Chapter-III** : Research methodology- which includes research approach, design, setting, population, sample and sampling techniques, tool description, content validity and reliability of tools, pilot study, data collection procedure and plan for data analysis.
- In Chapter-IV** : Analysis and interpretation of data.
- In Chapter-V** : Discussion.
- In Chapter-VI** : Summary, conclusion, implications and recommendations.

CHAPTER II

REVIEW OF LITERATURE

A review literature involves the systematic identification, location, scrutiny and summary of written materials that contains information on the research problem. (Polit and Hungler, 2007)ss

The task of reviewing literature involves the identification, selection, critical analysis and reporting of exciting information on the topic of interest. A review acquaints the researcher with what has been done in the field and it minimizes possibilities of un-intentional duplication. It justifies the need of replication, provides the basis of future investigation and help to relate the findings of one study to another.

This chapter deals with the review of published and unpublished research studies and from related materials for present study. The review helped the researcher in building the foundation of studies.

This review of literature is presented under the following headings.

- I. Literature related to stress among nurses.
- II. Literature related to stress reduction strategies.
- III. Literature related to effectiveness of green tea.
- IV. Literature related to green tea on stress.

I. Literature Related to Stress among Nurses

Bonnie (2011) explained that stress has been categorized as antecedent or stimulus as a consequence or response and as an interaction. Author conducted the study in Poland and collected the samples through simple random sampling. Shift length 8 hours verses 12 hours was explored in relation to both burn out and role stress. In a random sample of Michigan nurses, RNs working 12 hour shift

(n=105) reported significantly high level of stress than RNs working 8 hour shift (n=99). However when differences in experience were controlled, stress was similar in both groups.

In 2011 Yang conducted a study to assess the physiological relationship between the salivary cortisol levels and work stress in emergency department nurses (n=300) in different hospitals Japan. The samples were selected through simple random sampling. He analyzed the blood cortisol level of nurses working in emergency department to assess the stress. The study finding shows that they have high levels of work stress as indicated by morning salivary cortisol levels.

A study was conducted to assess the stress among nurses and its causes. The study was conducted in Thailand with a sample size of 256 nurses and they were selected through purposive sampling technique. The nurses experienced a moderate frequency of perceived job stress, those who worked full-time, particularly in public hospitals, were the most susceptible to job stress, a heavy workload was the most significant contributor to job stress, the nurses aged 20 to 30 years experienced the highest frequency of perceived job stress and those over 60, the least and, no significant differences in the frequency of perceived job stress were found according to the specific type work performed (Ditzel 2009).

In public hospitals of Newzeland a qualitative study was undertaken using hermeneutic phenomenology involving a representative sample of 25 emergency nurses. The samples were selected through simple random sampling technique, to

assess the causes of work related symptoms. The results showed that work related stress symptoms are associated with poor social support, staff to staff support and supervisors or managerial support (Anders 2006).

Piko (2000) conducted a study to assess whether stress amongst care professionals is currently a major concern in health policy. He conducted a study to investigate the relationship between levels of stress among nurses and some of the psychosocial and organizational characteristics of their job. The participants of the cross-sectional survey were female nurses (n=218) chosen by using simple random sampling from public hospitals in Csongrad country, Hungary. The findings suggest that the frequency of common psychosomatic symptoms can be read as an indicator of nurses' work-related stress level. Nurses with only primary education had the highest such levels, while those with baccalaureate – level education had the lowest.

In the year of 2008 Van conducted a descriptive study to assess the source of stress and the harmful effect of stress among nurses. Author conducted the study in Philippine general hospitals with a sample size of 246 nurses and they were selected through simple random sampling. The result shows that sources of stress included liability of working in an environment of high responsibility; family members of patients due to their behavior and demands; violent patients; commuting; floating to other nursing units; and mismanagement. Some registered nurses mentioned that pay could play a role in offsetting stress. Another registered nurse mentioned that sufficient income would lead to walking away if the stress was excessive. Outcomes of stress included adverse effect on general health and elective early retirement. The combination of stress at home and stress

at work was more than could be handled. One registered nurse indicated there was a need for ways to help reduce stress. Employer programs in stress reduction and management strategies to reduce stress were recommended.

A study was conducted in a private hospital Poland. The study participants were selected through simple random sampling. The results illustrated that nurses working 12 hour shift (n=96) compared unfavorably in several aspects to nurses working 8 hour shift (n=30). Although the type of nursing personal involved was unclear, the nurses on 12 hour shift experienced significantly more chronic fatigue, cognitive anxiety and emotional exhaustion. Greater endocrine reactions have been shown during and after the handling of patient in direct life threatening situation during morning hours compared to the handling of patients who are not in direct life threatening situations in study done to investigate the neuroendocrine reactions in emergency care givers during emergency situation (Sluiter 2003)

Mark and Vidar (2003) conducted a quantitative and qualitative study in a hospital at Botswana. The study was included 75 nurses working in emergency departments, and the samples were selected through purposive sampling technique. The aim of the study was to assess the nurses' burnout. They used the Maslach- Burnout inventory to assess the burn out .The study results concluded that stress and burn out have far reaching effects both for nurses in their clinical practice and their personal life.

In the year of 2003 John have elucidated the current and future roles of the emergency nurses, using a descriptive study among 146 emergency nurses working in different hospitals at Warsawie and samples were selected through simple random sampling method. The results were highlighting the need to improve the emergency nurses to patient ratios, staff scheduling, increasing nurses wages, recognizing contributions of emergency nurses with financial reward, developing inter relationship for nurses new to emergency nursing and to invest in nursing education.

In a general hospital at Korea, a descriptive study was conducted to assess the role of work stress. A sample of 332 nurses was selected through simple random sampling for the study. The data were collected through self administered questionnaire. The study elucidated the role of work stresses and shown that depersonalization and reduced personal accomplishment are too important dimensions of nurse burn out (Sabine 2001).

A retrospective written survey of all 163 emergency department employees working at an urban inner city tertiary care center in Vancouver had selected through simple random sampling technique. The aim of the study was to assess the stress burn out and the harmful effects of stress burn outs. The study was conducted through survey method by collecting data through self administered questionnaire. The results show that such burn outs even results in violence and verbal abuse in the workplace (Christopher 1999).

II. Literature Related to Stress Reduction Strategies

Jenning (2011) stated that humor is one of the greatest and quickest devices for reducing stress. He conducted a study among people residing in a city at China. He selected 500 people by simple random techniques and provided humor therapy for them for a period of 15 days. The study results shows that humor works because laughter produces helpful chemical in the brain. Humor also gets brain thinking and working in a different way – it distracts people from having a stress mind set. Distraction is a simple effective de-stressor- it takes people's thoughts away from the stress, and thereby diffuses the stressful feelings. Therefore most people will feel quite different and notice a change in mind set after laughing and being distracted by something humorous.

In the year of 2011 Scalzi conducted a study to assess the methods of stress reduction. Author selected 250 people in a hometown at Japan and made them to walk regularly in the morning time for a period of 30 days. The samples were selected through simple random sampling. The results of the study stated that going for a short quick really brisk walk outside will reduce stress. That is leaving the building, change the environment, breath in some fresh air and smell the atmosphere stimulate people senses with new things. Of course disease daft, but the daftness reduces the stress by removing people from the stress in mind and body.

A study was conducted to assess the effect of relaxation with guided imagery on surgical stress and wound healing. The study was conducted in a private hospital at Newzeland. 24 patients undergoing cholecystectomy were randomly assigned to either experimental or control group and measured against

3 indexes of recovery, anxiety and wound inflammatory responses. The relaxation and guided imagery were given to experimental group for a period of 14 days. The study results show that the relaxation with guided imagery demonstrated stress relieving outcomes closely associated with healing. (Holden 2007).

In community setting at Germany a study was conducted to assess the effect of Yoga program among distressed women. A controlled prospective non randomized study was conducted in 24 self referred female subjects. Subjects were offered participation in one of two sub sequential three months Yoga program. Women who participated in the Yoga training demonstrated pronounced and significant improvement in perceived stress. Physical well being also increased and those subjects suffering from headache or back pain reported marked pain relief. (Andrea, Ayhan and Tobias 2005)

A Meta analysis was conducted to find out the effectiveness of mindfulness based stress reduction. It was a structured new program that employs mindfulness meditation to alleviate suffering associated with physical, psychosomatic and psychiatric disorders. The program, non religious and nonesoteric, is based upon a systematic procedure to develop enhanced awareness of moment to moment experience of perceptible mental process. 64 empirical studies were found to accept the quality of mindfulness based stress reduction program. Both controlled and uncontrolled studies showed that similar effect with homogeneity of distribution. (Grossman, Neimann and Schmidt 2004)

Marcy and Moran (2004) conducted a study to assess the physiologic effect of laughter therapy. The study was conducted in an old age home at Hungary. 56 old age people were selected through simple random sampling, and administered laughter therapy. The study examined 10 unique sessions of psychodynamic psychotherapy with digital video tape and simultaneous measures skin conductivity. It suggested that laughter therapy is useful in reducing stress.

In the year of 2001 Klink conducted a study to find out the benefits of intervention for work related stress. 48 experimental studies were included in the analysis. Four intervention types were distinguished. Cognitive behavioral intervention, relaxation techniques, multi model programs and organization focused interventions. A moderate effect was found for cognitive behavioral intervention and multi model interventions, and a small effect was found for relaxation techniques.

A study was conducted to examine the effect of an 8 week stress reduction program based on training in mindfulness meditation. 126 menopausal women at Germany. The samples were selected through simple random sampling. Following participation, experimental subjects, when compared with controls, evidenced significantly greater changes in terms of reduction of overall psychological symptomatology, increase in overall domain specific sense of

control and utilization of an accepting or yielding mode of controls in their lives and higher scores on a measure of spiritual experiences (Astin 2000).

Goldenberg and Kaplan (2000) was conducted a study to assess the effectiveness of cognitive behavioral treatment upon stress reduction in fibromyalgia in a hospital at Thailand. The samples were selected through purposive sampling technique. 79 patients with fibromyalgia completed a 10 weeks medication based program that met once weekly for two hours per session. Fibromyalgia symptoms were evaluated at the beginning and at the end of the study in patients and controls by self administered visual analog states for global well being, pain, sleep, fatigue and tiredness. It was found that there was significant reduction in stress and fibromyalgia symptoms in patients who underwent cognitive behavioral treatment than control group

III. Literature related to effectiveness of green tea

Green tea is made from the *Camellia Sinensis* plant which is significantly high in an amino acid called Theanine. Theanine can cause the release of neurotransmitters such as dopamine and GABA and leads to calming effect on the body. Free radicals, damaging compounds in the body. Green tea is made from unfermented leaves and reportedly contains the highest concentration of powerful antioxidants called polyphenols. Antioxidants are substances that scavenge free radicals, damaging compounds in the body that alter cells, tamper with DNA and even cause cell death. Free radicals occur naturally in the body, but environmental toxins and also give rise to these damaging particles. Many

scientists believed that free radicals contribute to the aging process as well as the development of a number of health problems including stress.

Sun and Yang (2006) a Meta analysis to find out the effect of green tea to reduce risk of breast cancer. The combined result of four studies showed a reduced risk of breast cancer in those drinking green tea, versus those drinking the least. Those drinking the most green tea were 12% less likely to develop breast cancer.

In the year of 2006 Iso and Date conducted a study in Japan to assess the effect of green tea in reducing the risk of type II diabetes. 17413 people, aged 40 to 65 with no history of type II diabetes at studies beginning were participated. The samples were selected through random sampling technique. During five year follow up there were 444 self reported new cases of diabetes. Drinking green tea appeared to decrease the risk of diabetes. Specifically those with a daily intake of at least 6 cups of green tea were 33 % less likely to develop type II diabetes than those who drinks less than one cup per week.

A study was conducted at China in 244 people selected through simple random sampling technique to find out the effect of green tea on lung cancer. 122 people with lung cancer were matched with 122 similar people who did not have lung cancer. The volunteer's health and habits were scrutinized, looking for differences that might explain why some had developed the lung cancer while

others did not. The researcher found that drinking green tea led to a reduction in the risk of developing lung cancer(Bonner and Rothman 2005).

A study was conducted among 404 people in a community at Hangzhou, China to assess the effect of green tea upon prostate cancer. Here 130 people has prostate cancer and 274 didn't have prostate cancer. The risk of prostate cancer decrease with the increasing frequency, duration and quantity of green tea consumption. Compared to the non green tea drinkers, the prostate cancer risk decreased 72 % for the tea drinkers 73 % for those drinking more than 3 cups per day, 88 % for those who had been drinking green tea for more than 40 years.(Jian, Lee and Binns 2004)

Sano and Inami (2004) conducted a study to assess the effect of green tea on coronary artery disease. The participants were 203 patients who underwent coronary angiography. The study samples were selected from a hospital at Japan and selected through simple random sampling. Here green tea consumption was compared to the incidents of coronary artery disease. Green tea consumption was significantly higher in those without coronary artery disease than those with the disease. In fact the green tea intake per day was an independent predictor of coronary artery disease.

In the year of 2003 Tseng conducted a study to assess the effect of green tea in reducing the risk of breast cancer. The study was conducted in China. The samples were selected randomly. The health and habits of 501 women with

breast cancer were compared to those of 594 women who did not have the disease. After adjusting for age, menopausal status, body size and other factors, the researcher found that green tea had a protective effect against breast cancer.

A study was conducted in UK to assess the effect of green tea upon prostate cancer. 62 men with pre cancerous prostate lesions were selected randomly; a condition that puts them at high risk of developing prostate cancer in the near future was included in the study. Only one man in the green tea catechin group had developed prostate cancer, compared to nine in the placebo group. In addition prostate symptom assessment levels were consistently lower in the green tea group while international prostate symptom scores improved significantly (Bettuzi and Brausi 2002).

A study was conducted Shanghai, China, among 1324 women, 649 of whom had lung cancer, and 675 of whom did not have the disease to assess the effect of green tea on lung cancer. The samples were selected randomly. The past consumption of green tea in those who had lung cancer was compared to the consumption of green tea increased. For smokers there was no association. The study showed that nonsmokers, drinking green tea reduced the risk of developing lung cancer by 35%- and the risk dropped as the consumption of green tea increased (Zhong and Golberg 2001).

Kono and Schinchi(1996) was conducted a study to assess the effect of green tea in lowering the levels of total cholesterol among 62 men selected randomly with hypercholestremia in Japan. The participants were examined and their blood level of cholesterol and fat were noted. The researchers found that green tea was inversely associated with total cholesterol level and bad cholesterol level. This means that the more green tea consumed, the lower the cholesterol level.

III. Literature Related to Green Tea on Stress.

Green tea is made from the Camellia Sinensis plant which is significantly high in an amino acid called Theanine. Theanine can cause the release of neurotransmitters such as dopamine and GABA and leads to calming effect on the body.

Nadine Taylor (2000) stated that drinking a nice hot cup of green tea can almost always make us feel better. Green tea contain theanine can bring about positive changes to mind. Theanine works at dose of 50mgs with effect typically being felt within 30min of ingestion lasting for 8-10hrs. One cup of green tea (120ml) contains 50mgs of theanine. A cup of green tea can drain away mental stress.

Daniells (2009) conducted a study in Japan. The author selected 1246 people who were working in different areas through simple random technique.

The aim of the study was to assess the effect of green tea upon stress among working people. Author gave a cup of green tea for all the study participants for a period of 5 weeks. The stress was assessed before and after administration of green tea. The study finding concluded that drinking a cup of green tea per day may reduce the incidence of psychological distress by 20 percent says a new study from Japan.

In the year of 2009 Autish conducted a study among 2546 men and women in Japan. The samples were selected randomly. The people participated according to their wish. Author assessed the psychological stress and administered green tea for a period of 4 weeks. Again assessed the stress level. The study reported that green tea and its extract had a positive effect on reducing psychological stress.

An open clinical study conducted in Portugal to assess the effect of green tea to reduce oxidative stress in the blood stream and red blood cells. The 34 volunteers drank 11 cups of water daily for three weeks then 11 cups of green tea daily for four weeks. After the water drinking period, the researcher measured the volunteer's blood for various indicators of oxidative stress. These values were taken again after the green tea drinking period. Consumption of green tea resulted in a significant reduction in by products of oxidation in the blood stream and in oxidative changes to the red blood cells (Paul Louis 2009).

In 2003 Brown conducted a study to find out effect of green tea to reduce oxidative DNA damage in heavy smokers. The volunteers, all heavy smokers very randomly assigned to drink four cups of green tea every day. It showed that a highly significant drop in levels of urinary-8-hydroxy deoxy-guanosine was seen but not in the other groups. The levels of catechin in the blood and urine of green tea drinkers rose significantly. The result concluded that the regular green tea drinking might protect from oxidative damage and could reduce cancer risks or other disease caused pre radicals associated with smoking.

In 2002 Young conducted a study in China to assess the antioxidant effect of green tea extract when it is part of the food supply. Volunteers (n=346) were divided into two groups and put on a diet low in flavonoids a group of powerful antioxidants for three weeks, both groups consumed identical diets, with the exception that one group green tea extract equal to 18.6mg/day of catechins which was mixed into their meat patties. When the volunteers were consuming green tea extract, there was an increase in their plasma antioxidant capacity. It stated that green tea extracts can produce short lived improvement in antioxidant capabilities in the blood stream.

A study was conducted in Japan among 3000 women over the aged 50 years. The study was conducted by Savakada and Fukao in 2000. They selected the samples by simple random sampling. Those who regularly practiced the

Japanese tea ceremony found that these women lived longer than those in a matched control group who did not perform tea ceremony. It was found that the catechins, theanine or other health promoting ingredients in green tea that relieved stress and prolonged the lives of Japanese women in the study.

Summary

This chapter had dealt with Review of Literature related to the problem stated. It has helped the researcher to understand the impact of problem under study. It has also enabled the investigator to design the study, develop the tool, plan the data collection procedure and to analyze the data.

CHAPTER III

RESEARCH METHODOLOGY

The methodology of research study is defined as the way the information is gathered in order to answer the research question or to analyze the research problem.

The study was conducted to assess the effectiveness of green tea on stress among nurses working in selected hospitals, Chennai. This chapter deals in brief on different steps undertaken by the investigator for the study. It involves research approach, the setting, population, and sample, sampling technique, selection of tool, content validity, reliability, pilot study, data collection procedure and plan for data analysis.

Research Approach

Research approach is the most significant part of any research. The appropriate choice of the research approach depends on the purpose of the research study which is undertaken. To accomplish the objective of this study, an experimental approach was considered most appropriate as the researcher wanted to assess the effectiveness of green tea on stress among nurses working in selected hospital.

Research Design

The research design is the plan, structure and strategy of investigation of answering the research question. It is the overall plan or blue print to the researches to select and to carry out the study. According to Polit and Hungler (1999), quasi experimental research is an experimental design with a goal to assess the effectiveness of a program, where randomization procedure is not used to control the extraneous variables. An experimental research is generally applied where the primary objective is to determine the extent to which a given treatment meets the desired results. Quasi experimental research design was used in this study.

01 - 02

01 x 02

01 - Pretest

02 - Post test

X - Green tea

Variables

Dependent variable

The variable hypothesized to depend on or to be caused by another variable. In this study dependent variable is stress.

Independent variable

The variable hypothesized to the outcome variable of interest. In this study independent variable is green tea.

Green tea

Green tea is made from the camellia sinesis plant which is significantly high in an amino acid called theanine. Theanine can cause the release of neurotransmitters; such as dopamine and GABA and lead to a calming effect on the body. Green tea contains theanine can bring about positive changes to mind. Theanine works at a dose of 50mgs with effect typically being felt within 30mts of ingestion lasting for 8-10hrs. One cup of green tea (120 ml) contains 50mgs of theanine. It is prepared by adding one spoon (1.5gms) of green tea leaves per one cup (120 ml) of boiled water for 2minutes and administered once per day (morning) after breakfast with sugar for 30 days.

Session 1: Pre test among research participants (30 minutes).

Session 2: Description about green tea (10 minutes).

Session 3: Administration of green tea (30 days).

Session 4: Post test among research participants.

Research Settings

Settings are the most specific places where data collection occur (Polit and Beck 2006). The present study was conducted at two hospitals. Apollo specialty hospital, Chennai was taken as experimental group and Apollo main hospital Chennai was taken as control group. Apollo specialty hospital is located about 8kms from Chennai central station and about 10kms from the main bus station. It's located about 15kms from Apollo College of nursing. It's a 350 bedded hospital with all specialties and having the nurses strength about 400. Apollo main hospital is also located in Chennai. It is about 2kms from Chennai central station and 20kms from Apollo College of nursing. It has all specialties with bed strength of more than 600 and nurses strength of more than 900.

Population

Population is the entire aggregation of cases which meet designated set of criteria. (Polit and Beck 2004). The target population is the group of population that the researcher aims to study and to whom the study findings will be generalized. In this study, the target population comprises of all nurses who satisfy the inclusion criteria.

The accessible population is the list of population that the researcher finds in the study area. The accessible population in this study was nurses with mild and moderate stress who satisfy the inclusion criteria at Apollo hospitals Chennai

Sample

Sample consists of the subset of units that comprises the population (Polit and Beck, 2004). A sample consists of nurse who meets the inclusion criteria in Apollo hospitals Chennai, was selected for the study.

Sample Size

A sample size of 60 nurses who meet the inclusion criteria was chosen for this study, in that 30 was taken for control group and 30 was taken for experimental group.

Sampling Technique

Sampling is the process of selecting a portion of population to represent the entire population (Polit & Beck 2006). Purposive sampling technique, in which the researcher selected participants based on personal judgement about which one will be more informative, was used for this study.

Sampling Criteria

Inclusion criteria

- Working in Apollo Hospitals Chennai.
- Nurses with minimum one year of experience.
- Who can speak English or Tamil or Malayalam.
- Available at the time of data collection.

Exclusion criteria

- Nurses who are having any major health problem.
- Nurses who are on treatment for various health problems.
- Nurses who are having any family related problems.
- Not willing to participate in the study.

Selection and Development of Study Instruments

As the study was aimed at evaluating the effectiveness of green tea upon stress among nurses, the data collection instruments were developed and chosen through an extensive review of literature in consultation with experts and with the opinion of faculty members. The instruments used in the study were Demographic variable Performa, Professional stress scale developed by British Psychological Society, Rating scale on the level of satisfaction on green tea administration in experimental group of nurses.

Demographic variables proforma

The demographic variable proforma consisted of age, gender, religion, marital status, educational status, type of family, designation, working area and year of experience.

Professional stress scale

This is a standardized tool to assess stress level developed by British Psychological Society. In this scale, the questions from 2 to 23 is 2 point scale ranging from 0-1 (yes or no). The question 1 & 24 is 4 point scale ranging from 1-4. Thus the total obtainable score is 15-60.

Scoring interpretation

Score	Percentage	Level of stress
15	Up to 25%	No stress
16-30	26-50%	Mild stress
31-45	51-75%	Moderate stress
46-60	above 75%	Severe stress

Rating scale on the level of satisfaction on green tea administration in experimental group of nurses

This was developed by the investigator to assess the satisfaction of green tea administration of green tea among experimental group of nurses. This was a 4 point scale ranging from 1-4 (Highly satisfied, Satisfied, Dissatisfied, Highly dissatisfied). Thus the total obtainable score is 10-40.

Scoring interpretation

Score	Percentage	Level of satisfaction
Below 10	Below 25%	Highly dissatisfied.
10-20	26-50%	Dissatisfied.
21-30	51-75%	Satisfied.
Above 30	Above 75%	Highly satisfied

Psychometric Properties of Instruments

Validity of the study instruments

The content validity refers to the degree to which the item on an instrument adequately represents the universe of the content (Polit and Beck

2004). The professional life stress scale by British Psychological society is a standardized tool and permission was obtained from the author to use it. The other proformas and scales were certified validated by seven experts. The, modifications and suggestions of experts were incorporated in the final preparation of the tool.

Reliability of the study instruments

Instrument I Professional life stress scale

Reliability refers to the accuracy and consistency of the measuring tool. The professional life stress scale developed by David Fontana is a standardized tool and permission was obtained from the author to use the tool. The reliability of the tool was established by the author using test retest method and k score was found to be 0.8, indicating that the tool is highly reliable.

Instrument II Rating scale for assessing satisfaction on green tea administration among experimental group of nurses

Reliability refers to the accuracy and consistency of the measuring tool. The level of satisfaction scale was tested using split half method and the reliability was found to be 0.8 indicating that the tool is highly reliable. The satisfaction scale was also certified by and validated by 7 experts.

Selection and Development of Interventions

The intervention used in this study was “green tea”. Green tea is made from the camellia sinensis plant which is significantly high in an amino acid called theanine. Theanine can cause the release of neurotransmitters; such as dopamine and GABA and lead to a calming effect on the body. Green tea contains theanine can bring about positive changes to mind. Theanine works at a dose of 50mgs with effect typically being felt within 30mts of ingestion lasting for 8-10hrs. One cup of green tea(120 ml) contain 50mgs of theanine. It is prepared by adding one spoon (1.5gms) of green tea leaves per one cup (120 ml) of boiled water for 2minutes and administered once per day (morning) after breakfast with sugar for 30 days.

Session 1: Pre test among research participants (30 minutes).

Session 2: Description about green tea (10 minutes).

Session 3: Administration of green tea (30 days).

Session 4: Post test among research participants.

Pilot Study

Polit and Beck stated that a pilot study is a miniature version of actual study in which the instruments are administered to the clients drawn from the same population. Pilot study was conducted to check the feasibility and practicability of study design and to finalize the tool. A pilot study was conducted among 10 nurses who satisfied the eligibility criteria at Apollo hospitals Chennai. The nurses were chosen by purposive sampling and green tea

was administered for 30 days. Level of stress was assessed before and after the green tea administration. It was found that the selected tools were practicable to use and understandable by the nurse. It was also found that it would be feasible to conduct the study in the research setting.

Data Collection Procedure

Data collection is the gathering of information needed to address a research problem. The data collection was done for a period of 5 weeks. Permission was obtained from Ethical committee and Nursing director of Apollo hospitals, Chennai. Written consent was obtained from the participants. Rapport was established by a brief introduction about the research purpose and data was collected by using demographic variable proforma, professional life stress scale developed by British Psychological society, rating scale for assessing the satisfaction of green tea in experimental group of nurses by self administration method.

Green tea was administered for the experimental group of nurses every day morning for 30 days. Green tea is made solely with the leaves of *Camellia Sinensis* plant. It is prepared by adding one teaspoon (1.5gms) of green tea leaves per one cup (120ml) of boiled water for 2 minutes. Nursing superintendent of Apollo Specialty Hospital arranged all the study participants in first shift during my data collection. Daily research participants were assembled in one place and

were given green tea. Post test and level of satisfaction data were collected among the selected nurses on 40th day.

Problem Faced during Data Collection

The nurses were not able to come on time because of their busy schedule in the wards. So sometimes they used to come late for the intervention.

Plan for Data Analysis

Data analysis is the systematic organization, synthesis of research data and testing of null hypothesis by using the obtained data (Polit and Beck, 2004). Analysis and interpretation of the data were carried out by using descriptive and inferential statistics. Descriptive statistics such as mean, frequency and percentage was used to describe the demographic variables and assessment of level of stress.

Inferential statistics such as paired 't' test, and independent 't' test was used to assess the effectiveness of green tea on the level of stress by comparing the pre test and post test mean score of stress. Chi-square test was used to find out the association between selected demographic variables and level of stress among pre test and post test of control and experimental group of nurses.

Summary

This chapter dealt with the selection of research approach, research design, setting, population, sample, sampling technique, sampling criteria, selection and development of study instruments, validity and reliability of study instruments, pilot study, data collection procedure and plan for data analysis. The following chapter deals with analysis and interpretation of data using descriptive and inferential statistics.

CHAPTER IV

ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data was collected from 30 nurses working in Apollo Specialty Hospitals Chennai and Apollo Main Hospital Chennai to determine the effectiveness of green tea upon stress. The data were analyzed according to the objectives and hypothesis of the study. Analysis of study was completed after all the data was transferred to the master coding sheet. The investigator used descriptive and inferential statistics for analysis.

Organization of Findings

The data were analyzed, tabulated and interpreted using descriptive and inferential statistics in the sequence as follows

- Frequency and percentage distribution of demographic variables in the control and experimental group of nurses.
- Frequency and percentage distribution of stress level in control and experimental group of nurses before and after administration of green tea.

- Frequency and percentage distribution of level of satisfaction among experimental group of nurses regarding administration of green tea.
- Comparison of mean and standard deviation of stress scores in control and experimental group of nurses related to self and work before and after administration of green tea.
- Comparison of mean and standard deviation of stress scores related to self and work before administration of green tea between control and experimental group of nurses and after administration of green tea between control and experimental group of nurses.
- Association between selected demographic variables and level of stress of control group of nurses before and after administration of green tea.
- Association between selected demographic variables and level of stress of experimental group of nurses before and after administration of green tea.

Table.1

Frequency and Percentage Distribution of Demographic Variables in the Control and Experimental Group of Nurses.

Variables	Control group(n=30)		Experimental group(n=30)	
	N	P	N	P
Age in years				
25-30	20	70	18	60
31-35	10	30	9	30
36-40	-	-	1	3
>40	-	-	2	7
Mean age	30		29	
Marital status				
Married	17	57	19	63
unmarried	13	43	11	37
Widowed	-	-	-	-
Divorced	-	-	-	-
Separated	-	-	-	-
Designation				
Staff nurse	21	70	19	63
Head nurse	9	30	4	13
Nursing officer	-	-	7	24
Nursing superintend	-	-	-	-
working area				
General ward	-	-	11	37
ICU	20	67	13	43
Emergency	10	33	6	20
Labor room	-	-	-	-
OT	-	-	-	-
OPD	-	-	-	-
Pediatric ward	-	-	-	-
Year of experience				
2 to 5	18	60	15	50
6 to 9	10	30	5	17
10 to 13	2	10	6	20
14 to 17	-	-	4	13

Table.1 shows that majority of nurses in control and experimental group were between the age of 25 to 30 years (70%, 60%) with mean age of 29 years and 30 years respectively. Most of the nurses in control group and experimental group were married (57%, 63%), designated as staff nurse (70%, 63%), working in ICU (67%, 43%) and were having 2 to 5 years of working experiences (60%, 50%) respectively.

Fig 3 shows that majority of nurses were females (63%, 97%) in control and experimental group respectively.

Fig 4 shows that most of the nurses were Hindus (60%, 57%) in control and experimental group respectively.

Fig 5 shows that majority of nurses belongs to nuclear family (97%, 80%) in control and experimental group respectively.

Fig 6 shows that most of nurse were finished B.Sc nursing (60%, 53%) in control and experimental group respectively.

Table.2

Frequency and Percentage Distribution of Stress Level in Control and Experimental Group of Nurses Before and After Administration of Green

Group	Control Group(n=30)								Experimental group(n=30)							
	Normal		Mild		Moderate		Severe		Normal		Mild		Moderate		Severe	
	n	p	n	P	N	p	n	p	n	p	n	p	n	P	N	P
Before Administration	-	-	29	97	1	3	-	-	-	-	29	97		3	-	-
After Administration	-	-	29	97	1	3	-	-	17	57	13	43	-	-	-	-

Tea

The data presented in table 2 depicted that the control group of nurses had the same mild stress (97%) in both before and after administration of green tea. In experimental group of the nurses, mild stress (97%) were found before administration of green tea. After administration of green tea was normal stress (57%) and mild stress was reduced from 97% to 43% among experimental group of nurses.

Table.3

Frequency and Percentage Distribution of Level of Satisfaction among Experimental Group of Nurses Regarding Administration of Green Tea.

Level of satisfaction	Experimental group (n=30)	
	n	P
Overall satisfaction	30	100
Related to research	30	100
Related to green tea	30	100

This table shows that all the nurses (100%) were highly satisfied with the green tea.

Table.4

Comparison of Mean and Standard Deviation of Stress Scores in Control and Experimental Group of Nurses Related to Self and Work Before and After Administration of Green Tea.

Parameters	Control group (n=30)			Experimental group (n=30)		
	Before Administration	After - Administration	Paired 't' value	Before Administration	After Administration	Paired 't' value
	M±SD	M±SD		M±SD	M±SD	
Global stress scores	23.4± 4.86	23.8± 4.4	1.06	23.5±4.84	17.5± 4.36	5.52***
Related to self	23.14± 4.9	23.27± 4.7	1.75	24.29± 4.8	22.9± 5	2.73*
Related to work	23±4.4	22.8± 4.8	1.62	19.2± 3.8	17.2 ± 4.7	9.2***

The data presented in the table 4 depicted that the difference in mean and standard deviation of nurses in the control group (M=23.4±4.86, M=23.8±4.4) before and after administration of green tea is not statistically significant ($p>0.05$), whereas in the experimental group of nurses the mean and standard deviation (M=23.5±4.84, M=17.5±4.36) before and after administration of green tea is statistically significant ($P<0.001$).

This table also shows that the difference in mean and standard deviation related to self and related to work in the control group (M=23.14±4.9, M=23±4.4) before and after (M=23.27±4.7, M=22.8±4.8) administration of green tea is not

significant($p>0.05$), whereas in the experimental group the mean and standard deviation ($M=24.29\pm 4.8, M=22.9\pm 5$) before and after ($M=19.2\pm 3.8, M=17.2\pm 4.7$) administration of green tea is statistically significant ($p<0.001$) and it can be attributed to the effectiveness of green tea. Hence the null hypotheses H_{01} (There will be no significant difference in the level of stress in control and experimental group of nurses before and after administration of green tea) was rejected.

Table.5

Comparison of Mean and Standard Deviation of Stress Scores Related to Self and Work Before Administration of Green Tea between Control and Experimental Group and After Administration of Green Tea between Control and Experimental Group of Nurses

Group	n	Before administration			After administration		
		Mean	SD	Independent 't' value	Mean	SD	Independent 't' value
Global stress scores							
Control group	30	23.4	4.68	0.828	23.5	4.84	8.28***
Experimental group	30	23.8	4.4		17.5	4.32	
Dimension wise stress scores							
Related to self							
Control group	30	23.14	4.9	1.2	23.27	4.4	8.3***
Experimental group	30	24.29	4.8		19.2	3.8	
Related to work							
Control group	30	23	4.9	0.75	22.8	4.8	24.66***
Experimental group	30	22.9	5		17.2	4.7	

The data presents in the table 5 depicted that the mean and standard deviation of nurses before administration of green tea ($M=23.4\pm 4.68$, $M=23.8\pm 4.4$) between control and experimental group is not significant ($p>0.05$), whereas after administration of green tea there is a difference in the mean and standard deviation ($M=23.5\pm 4.84$, $M=17.5\pm 4.32$) between control and experimental group of nurses.

This table also reveals that the mean and standard deviation of teachers before administration of green tea related to self ($M=23.14\pm 4.9$, $M=22.29\pm 4.8$) and related to

work ($M=23\pm 4.9, M=22.9\pm 3.8$) between control and experimental group which is not significant ($p<0.05$), whereas after administration of green tea the mean and standard deviation in related to self ($M=22.27\pm 4.4, M=19.2\pm 5.8$) and related to work ($M=22.8\pm 4.8, M=17.2\pm 4.7$) between control and experimental group of nurses. The difference was statistically significant at ($P<0.001$) and can be attributed to the effectiveness of green tea. Hence the null hypotheses H_{01} (There will be no significant difference in the level of stress in control and experimental group of nurses before and after administration of green tea) was rejected.

Table.6

Association between Selected Demographic Variables and Level of Stress in Control Group of Nurses Before and After Administration of Green Tea.

(n=30)

Variables	Before administration			After administration		
	Up to mean	Above mean	χ^2	Up to mean	Above mean	χ^2
Age in years						
Up to 30	5	5	0.05	7	3	1.74
>30	12	8		9	11	
Gender						
Male	6	5	0.44	7	4	0.28
Female	8	11		9	10	
Religion						
Hindu and Muslim	10	8	0.1	10	8	0.1
Christian and others	6	6		6	6	
Marital status						
Married	8	9	0.003	10	7	0.46
Unmarried	6	7		6	7	
Education Status						
Diploma	5	7	0.2	6	6	0.09
Others	9	9		10	8	
Type of family						
Nuclear	15	14	1.64	15	0	1.64
Joint and extended	1	0		1	14	
Designation						
Staff nurse	10	11	0.03	10	11	0.03
Others	4	5		6	3	
Working area						
ICU	7	13	3.43	8	12	3.43
ER and others	7	3		8	2	
Year of experience						
Up to 5 years	6	12	2.9	7	11	2.9
>5 years	8	4		9	3	

It could be inferred from the table 6 that there is no significant association between the selected demographic variables (age, gender, religion, and marital status, type of family, educational status, designation, working area, and years of experience) and level of stress in control group of nurses. Hence the null hypothesis H_{02} (There will be no significant association between selected demographic variables and level of stress in control group of nurses before and after administration of green tea) was retained.

Table.7

Association between Selected Demographic Variables and Level of Stress in Experimental Group of Nurses Before and After Administration of Green Tea.

(n=30)

Variables	Before administration			After administration		
	Up to mean	Above mean	χ^2	Up to mean	Above mean	χ^2
Age in years						
Up to 30	8	10	0.09	11	7	0.23
>30	6	6		10	2	9
Gender						
Male	1	0	1.36	1	0	0.08
Female	15	14		20	9	
Religion						
Hindu and Muslim	11	6	2.03	13	4	0.13
Christian and others	5	8		9	4	
Marital status						
Married	10	9	0.02	13	6	0.63
Unmarried	6	5		9	2	
Education Status						
Diploma	8	6	2.13	9	5	2.06
Others	10	6		11	5	
Type of family						
Nuclear	11	14	0.96	20	4	1.31
Joint and extended	4	1		3	3	
Designation						
Staff nurse	8	11	2.61	11	8	3.06
Others	8	3		10	1	
Working area						
ICU	6	7	0.46	7	6	2.82
ER and others	10	7		14	3	
Year of experience						

Up to 5 years	8	7	1.22	11	4	0.18
>5 years	5	10		12	5	4

It could be inferred from the table 7 that there is no significant association between the selected demographic variables (age, gender, religion, and marital status, type of family, educational status, designation, working area, and years of experience) and level of stress in experimental group of nurses. Hence the null hypothesis H_{03} (There will be no significant association between selected demographic variables and level of stress in experimental group of nurses before and after administration of green tea) was retained.

Summary

This chapter dealt with the analysis and interpretation of the data collected by the researcher. From the analysis it can be inferred that the stress score was reduced after administration of green and there is no association between level of stress and selected demographic variables. This can be attributed to the effectiveness of green tea.

CHAPTER V

DISCUSSION

Statement of the Problem

A Quasi- Experimental Study to Assess the Effectiveness of Green Tea upon Stress among Nurses Working in Selected Hospitals, Chennai.

Objectives of the Study

1. To assess the level of stress in control and experimental group of nurses before and after administration of green tea.
2. To evaluate the effectiveness of green tea by comparing the level of stress in control and experimental group of nurses before and after administration of green tea.
3. To find out the association between selected demographic variables and the level of stress in control group of nurses before and after administration of green tea.
4. To find out the association between selected demographic variables and the level of stress in experimental group of nurses before and after administration of green tea.

5. To determine the level of satisfaction in experimental group of nurses regarding administration of green tea.

The study was carried out among 30 nurses in each control and experimental group of nurses, working at Apollo Hospital, Chennai. The level of stress experienced by nurses was assessed. Green tea was administered after which the level of stress experienced by nurses was assessed again. Level of satisfaction regarding the green tea administration was also assessed in experimental group of nurses.

The discussion is presented as follows

- Demographic variables in control and experimental group of nurses.
- Level of stress in control and experimental group of nurses.
- Effectiveness of green tea in experimental group of nurses.
- Association between selected demographic variables and level of stress in control group of nurses before and after administration of green tea.
- Association between selected demographic variables and level of stress in experimental group of nurses before and after administration of group tea.

- Level of satisfaction among experimental group of nurses regarding administration of green tea.

Demographic variables of nurses in control and experimental group of nurses

Majority of nurses were between the age of 25 to 30 years (70%, 60%) with mean age of 29 years and 30 years, females (63%, 97%) and belongs to nuclear family (97%, 80%) in control and experimental group of nurses respectively. Most of the nurses were Hindus (60%, 57%), married (57%, 63%), studied B.Sc. Nursing (60%, 53%), designated as staff nurse (70%, 63%), working in ICU (67%, 43%) and were having 2 to 5 years of working experiences (60%, 50%) in control group and experimental group of nurses respectively.

In present days majority of the hospitals are recruiting freshers mainly because most of the nurses after getting a 2 to 3 years of experienced move to western countries to earn money more. Nursing is one of the health care professions, in which the professionals used to care people with different disease condition, from different cultural diversities with various personality traits, in different health care settings like hospitals and other health care facilities. The nurses are the only health care professionals who are spending more time with patients and their family members. Since this is highly demanding patience and tolerance, mostly females are opting the nursing

profession. In India there is predominance of Hindu religion, thus Hindus constitute majority of country's population.

Nowadays most of the healthcare settings inside and outside our country recruiting degree candidates for job to improve the standard of care and equalize the minimum qualification in the nursing profession to minimize the internal conflict, arising because of inequality among nurses due to different educational qualification. Among nurses married women have family responsibilities in addition to the hospital responsibilities; this may be one of the main causes to produce stress. Most of the married nurses are still working in our country itself because of family responsibility. In nursing shift duty is very common, especially frequent night shifts. This also produces more burdens for the females and produces health problems related to health.

Among working women, family responsibilities is the one of main cause to produce stress. In nursing shift duty is very common, especially frequent night shifts. This produces more burdens for the females and produces health problems related to stress. Nowadays the joint family concept is very less in our culture mainly due urbanization, industrial explosion and advancement in informational technologies. So majority of them were belonged to nuclear family. In ICUs all most all the patients were dependent and with life supporting measures. So majority of nurses had mild level of stress than those working in other areas, this is mainly due to patients condition and increased work load. In a hospital

majority of nurses will be staff nurses than nursing superintendent or head nurses.

Level of stress among nurses in the control and experimental group of nurses

Mild level of stress (97%) was found in control group of nurses before and after administration of green tea. Experimental group of nurses had mild level of stress (97%) before administration of green tea whereas after administration of green tea level of mild level of stress reduced to (57%). This finding shows the effectiveness of green tea among nurses in reducing stress. Green tea is a medicinal plant which contains more amino acid and antioxidants. The antioxidants help to reduce blood cortisol level and thus helping in reduction of stress due to various reasons. Those who had taken green tea regularly showed reduction in stress level. After green tea administration normal level of stress (43%) was present in experimental group of nurses. This is because stress will be present in all individual irrespective of age, sex or any other personal characteristics.

The present study findings were also similar to the study conducted in Japan among 3000 women over the aged 50 years. The study was conducted by Savakada and Fukao in 1992. They selected the samples by simple random sampling. Those who regularly practiced the Japanese tea ceremony found that these women lived longer than those in a matched control group who did not

perform tea ceremony. It was found that the catechins, theanine or other health promoting ingredients in green tea that relieved stress and prolonged the lives of Japanese women in the study.

Effectiveness of green tea upon stress in experimental group of nurses

The level of stress among nurses before administration of green tea was higher ($M=23.5 \pm 4.84$) than the level of stress after administration of green tea ($M=17.5 \pm 4.36$). This attributed to the effectiveness of green tea administration upon stress among nurses.

Green tea is the tea prepared using unfermented leaves of tea plant. Green tea is a rich source of antioxidants known as catechin and thus offers several health benefits. One of the most beneficial constituent of green tea is an amino acid called theanine. The primary function of this amino acid are promoting relaxation and relieving stress. Based on the reports given by study participants that they were all comfortable in taking green tea in its various aspects and also coming for green tea daily helped them in having a relaxation time from their normal routines works. So the management of hospitals can also provide green tea instead of giving other tea products during their refreshing time in between the duties, which may the nurses to reduce their stress and improve their working abilities. They can also provide different varieties of green tea because drinking same type of tea daily may produce dislikes in nurses.

Green tea is cheaper, easily available, with good taste, easy preparation, with no side effect and no extra time is needed for practicing it daily. Therefore nurses can also practice green tea daily in their day to day life to reduce the stress.

The present study finding also supports a study done in Japan on the effect of green tea on stress, studied the life styles of 42093 individuals over the age of 40 and assessed their psychological distress based on their life style pattern. The study samples were selected using simple random sampling. The research showed that study participants who had an average consumption of green tea per day, had lower psychological distress than participants who didn't take. (Green tea Library 2010)

Association between selected demographic variables and level of stress in control and experimental group of nurses

The study findings revealed that there was no significant association between the level of stress and selected demographic variables in control and experimental group of nurses among nurses. So Ho₂ and Ho₃ were accepted. This is due to the small sample size in the present study. Irrespective of demographic variables all nurses working in the hospital experiences stress. So stress relieving measures like green tea can be applicable in all nurses working in hospitals.

The present study findings were contradictory to the study finding of Tyson. He conducted a study in 2006. It was a longitudinal study conducted in perspective on 14 hospitals in Thailand examined source of occupational stress, coping strategies and job satisfaction. A sample of 200 nurses was compared to 147 nurses sampled from the same hospital ward after 5 years and revealed a significant increase in nurse's work load, involvement in life and death situation and problem from being required to perform task outside of their competence. Although nurses working in public hospital generally reported more stress than private hospital, surprisingly nurse's satisfaction with their job increased particularly in public hospitals which may be attributable to age, improvement in monetary compensation and organizational support.

Level of satisfaction among experimental group of nurses regarding administration of green tea

The present study reveals that all the nurses (100%) were highly satisfied towards various aspects of administration of green tea. All my study participants reported that they felt ease and comfort after taking green tea, it was good in taste and composition that made them more interested in taking green tea and there were no harmful side effect after taking green tea for a long time like 30 days continuously. They expressed the interest to take green tea regularly to improve their health and protect them from harmful effects of stress caused from working conditions.

Summary

This chapter has dealt with the discussion of findings in the present study which includes demographic variables of nurses in control and experimental group, level of stress among nurses in control and experimental group, association between selected demographic variables and level of stress, level of satisfaction of green tea among nurses.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This is the most creative and demanding part of the study. This chapter gives a brief account of the present study including the conclusion drawn from the findings, recommendations, limitations of the study, suggestions for the study and nursing implications.

Summary

The aim of the study was to assess the effectiveness of green tea upon stress among nurses at selective hospital Chennai.

Objectives of the Study

1. To assess the level of stress in control and experimental group of nurses before and after administration of green tea.
2. To evaluate the effectiveness of green tea by comparing the level of stress in control and experimental group of nurses before and after administration of green tea.

3. To find out the association between selected demographic variables and the level of stress in control group of nurses before and after administration of green tea.
4. To find out the association between selected demographic variables and the level of stress in experimental group of nurses before and after administration of green tea.
5. To determine the level of satisfaction among experimental group of nurses regarding administration of green tea.

Null Hypotheses

H₀₁

There will be no significant difference in level of stress of control and experimental group of nurses before and after administration green tea.

H₀₂

There will be no significant association between selected demographic variables and level of stress of control of nurses before and after administration of green tea.

H₀₃

There will be no significant association between selected demographic variables and level of stress of experimental group of nurses before and after administration of green tea.

The conceptual framework of the study was developed on the basis of Roy's Adaptation model, which focuses on stressors among nurses and how they are coping with the internal and external stimuli.

The study variables were the green tea and the stress among nurses. Hypotheses were formulated. The level of significance at $p < 0.001$ level, was considered as significant.

An extensive review of literature and guidance by experts formed the foundation to the development of the study instruments. An experimental research of quasi experimental research was used to achieve the objectives of the study. The presents study was conducted in two hospitals, Apollo specialty hospital Chennai and Apollo main hospital Chennai. The sample size was 30 nurses (Both in experimental and control group). They were selected by purposive sampling technique, according to the availability of nurses who fulfilled the eligibility criteria.

The researcher used a demographic variable proforma, Professional life stress scale developed by David Fontana, British psychological society and rating

scale on level of satisfaction regarding the green tea for collecting data. After the pilot study the data for the main study was collected. The collected data was tabulated and analyzed using descriptive and inferential statistics.

The Major Findings of the Study

Demographic variables

Majority of nurses were between the age of 25 to 30 years (70%, 60%) with mean age of 29 years and 30 years, females (63%, 97%) and belongs to nuclear family (97%, 80%) in control and experimental group respectively. Most of the nurses were Hindus (60%, 57%), married (57%, 63%), studied B.Sc. Nursing (60%, 53%), designated as staff nurse (70%, 63%), working in ICU (67%, 43%) and were having 2 to 5 years of working experiences (60%, 50%) in control group and experimental group respectively.

Mean and standard deviation of stress among nurses in the control and experimental group

The pre assessment level of stress was higher ($M=23.5\pm 4.84$) than post assessment level of stress ($M=17.5\pm 4.36$) in experimental group. The difference is statistically significant ($p<0.001$). So null hypothesis H_{01} (There will be no

significant difference in the level of stress of nurses of control and experimental group before and after green tea) was rejected.

Association between level of stress and selected demographic variables among nurses in control group

There was no significant association between the selected demographic variables of nurses and level of stress. So the null hypothesis H₀₂ (There will be no significant association between selected demographic variables and level of stress of control group of nurses before and after administration of green tea) was retained.

Association between level of stress and selected demographic variables among nurses in experimental group

There was no significant association between the selected demographic variable of nurses and level of stress. So the null hypothesis H₀₃ (There will be no significant association between selected demographic variable and level of stress of experimental group of nurses before and after administration green tea) was retained.

Level of satisfaction regarding green tea

All the nurses (100%) were highly satisfied regarding various aspects of green tea administration.

Conclusion

Stress is very common among nurses working in different hospitals. This stress can be reduced by effective intervention aimed at creating awareness, enhancing coping skills, assertiveness and various stress reduction measures to compact stress among nurses.

Implications

Implications for nursing practice, nursing education, nursing administration and nursing research are recommended based on the findings of the study.

Nursing practice

The findings of this study revealed that about 97% of nurses had mild level of stress. The study also shows that the stress was experienced by nurses irrespective of age, sex, marital status, educational status or any other demographic variables of nurses. This underscores the need for nurses to practice various stress reducing measures including trying green tea daily in their life. Green tea is cheaper, easily available, no side effect, with good taste and no extra time is needed to practice it daily.

Nursing education

Integration of theory and practice is important in nursing education. With the emerging health care trends, nursing education must focus on innovation to enhance nursing care. Some research suggest that occupational stress among health care professionals is currently a major concern in health policy including nurses .The research findings suggest that supportive relationships with peers may reduce the occurrence of high stress level among nurses leading the conclusion that social support and psychosocial work climate should be improved in health care institution. Nursing education curriculum should be incorporated with emphasis on stress reduction and to improve psychosocial work climate in the hospital. The nursing students should be taught about the importance of reducing stress to enhance a high quality personal and professional work.

Nursing administration

Periodic formal training program for nurses to reduce stress can be organized by the nurse administrators. Nurse administrators can arrange conferences, in service education and workshop to encourage staff nurse to reduce work related stress and perform well in their academic and personal life.

Nursing research

In India, evidence based clinical strategies are not sufficient to address barriers to reduce the stress .Stress has been categories as an antecedent or

stimulus as a consequence or response and as an interaction. Staff nurses to be encouraged to undertake research studies in the area of stress among nursing professionals and to disseminate the findings can be tried for its effectiveness on stress.

Recommendations

- The study can be conducted on larger sample to generalize the results.
- The study can be conducted among the other health care professionals who also experiences stress.
- The study can be conducted in community settings among different population like menapausal women and old age population.
- A comparative study can be conducted to evaluate the effectiveness of various other intervention to help the nurses in reducing their stress and to cope up with stress in the day to day life.
- A longitudinal study with time series design can be conducted with the post test at an interval of 2, 4, 6 months to assess how long the effectiveness of the intervention.
- A comparative study can be conducted to assess the level of stress among nurses and other health care profession.

Limitations

- The study findings cannot be generalized due to small sample population.
- Random sampling was not possible due to practical difficulties.
- True experimental study was not possible due to practical difficulties.