Chapter I

INTRODUCTION AND DESIGN OF THE STUDY

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1.1. Introduction

Stress is primarily the body’s natural emotional and physiological reaction to the perception of danger in one’s environment. In psychological terms, the body is being prepared for “Fight or Flight”. Working women has to perform the duties of a wife and a mother at home and perform the role of a superior, a peer or a subordinate outside the home. The working women are required to perform multiple and at times, conflicting roles. Being simultaneously confronted with the multiple demands of home and outside, women have to face the problem of role conflict. At home in addition to biological functions, there are other duties, which they have to perform because of the prevailing cultural norms and value. They are required at the same time to undertake responsibilities, duties and certain commitment connected with their employment. Difficulty arises because often divergent and conflicting roles make demands on the women without taking into consideration their physical capability, energy, endurance and time, which are certainly finite. The conflicts arising out of women performing double role in the home and at place of work makes sense only on the back drop of this patriarchal-bourgeois concept of society according to which women is defined by her biological functions. This is truer in the case of women who
are working in the organized sector. With the two contradictory roles which demand her time and energy, often put her in conflicts.¹

Teacher’s stress refers to the unpleasant emotions such as anger, tension, frustration, anxiety, depression and nervousness, owing to their work as teachers. Teaching the constant legitimate demands of the students and the volume of work involved, can be a stressful job, even at the college level. Even then, they are blamed and fired fairly and squarely for the shortcomings, unmindful of their difficulties and trying circumstances, which are not under control. It is observed that the phrase “teacher burnout” has become a catch phrase in educational literature and includes all the reactions, apathy, aggression, anxiety neurosis, defeatism or sheer bloody mindedness, which can be observed in today’s teachers, now totally disoriented as a professional body.

Today’s life is full of challenges. In everyday, the people come across many situations. The work of a teacher is a physically and mentally challenging. A teacher needs to use a lot of energy in his/her daily chores in the classroom coupled with his/her personal and family commitments. This trend which is a routine for a teacher forwards a lot of stress to the teacher. More than ever before work is not seen as the root of infinite satisfaction and

¹ Ruhi Gupta, Reproductive Health and Labour Women, International Journal of Humanities and Social Science Invention, ISSN: 2319 – 7722, February, 2014, pp.57-65
fulfillment, but rather a source of stress, discontentment and humiliation. This increase negative orientation to work is probable due to the fact that man no longer finds meaning or a sense of him/herself in the community. It is because of the dramatic changes that have taken place in society over the last decade or two that work and life stress have became more immediate focal points of interest. This interest has reflected itself in an ever increasing research orientation into occupational stress, the impact of life events, stress with a burgeoning and desperate range of investigations being undertaken into the sources and manifestation of stress, it was felt that we should ‘step back’ and reflect on what should or needs to be done, that is to focus on priorities or issues or problem areas of importance.² Problems of teaching, 100 percent pass, class control and management can add significantly to teacher’s stress. In fact, they are probably the most potent source of stress in the teacher’s professional life.³ The main causes of stress in the teaching profession are generally found to be in the disruptive noisy student behaviours, poor staff communication and overwork.

² Surinder Kaur, “Comparative Study of Occupational Stress among Teachers of Private and Govt. Schools in Relation to their Age, Gender and Teaching Experience”, International Journal of Educational Planning and Administration, ISSN 2249-3093 Volume 1, Number 2, 2011, pp. 151-160.
³ Regina M. Oliver, Joseph H. Wehby, Daniel J. Reschly, “Teacher classroom management practices: effects on disruptive or aggressive student behavior”, Campbell Systematic Reviews, 2011, pp.1-6
The pivotal role of education as an instrument of social change by altering the human perspective and transforming the traditional mindset of society is well recognized. The universalization of engineering education has become the top priority, especially for the developing countries like India. Recent Indian scientific, industrial and technological development, particularly in space, nuclear and missile technology, computer engineering and information science has earned India world recognition as an emerging global power.\(^4\)

Engineering education in India has a long tradition, which goes back to 1847, the year in which the Thomason College of Civil engineering, later to become the Roorkers University, the First Engineering University in the country. Since the early eighties due to rapid industrialization and economic growth, engineering and technical education in India have been developing faster than anywhere else in the world and India now has the second largest number of engineering students in the world. There are Engineering institutions and colleges that are supported by the State and Central governments, and also a large number of Private Engineering colleges that provide technical education in India. India needs a sharp focus on global talent development through engineering education. In this context, the

The present study is aimed to study the stress among the women teachers working in Engineering colleges in Madurai district.\textsuperscript{5}

1.1.1. Types of Stress

There are three types of stress that are acute stress, episodic stress, and chronic stress. The types of stress are as follows.\textsuperscript{6}

1.1.1.1. Acute Stress

Acute stress is the most widely experienced one, since it typically is caused by the daily demands and pressures encountered by each one of us. While the word “stress” connotes a negative impression, acute stress is what actually brings about excitement, joy and thrill in the human lives. The effects of acute stress are vomiting, tension headaches, and other psychological and physiological symptoms. Because acute stress occurs only at a very short-term, these symptoms might only come out when the stress has already accumulated

i. Emotional distress, such as anger, anxiety, irritability, and acute periods of depression

\textsuperscript{5} DEVASSY (M), Engineering in India, Centre for energy studies, IIT Delhi, 2012, p.1-20.

\textsuperscript{6} https://explorable.com/three-different-kinds-of-stress
ii. **Physical problems**, such as headache, pain, stomach upset, dizziness, heart palpitations, shortness of breath, hypertension and bowel disorders

### 1.1.1.2. Episodic Stress

This type of stress is usually seen in people who make self-inflicted, unrealistic or unreasonable demands which get all clamoured up and bring too much stress in their attempt to accomplish these goals. Episodic stress is not like chronic stress though, because this type of stress ceases from time to time yet not as frequently as acute stress does. Episodic stress is also typically observed in people with “Type A” personality, which involves being overly competitive, aggressive, demanding and sometimes tense and hostile. Because of this, the symptoms of episodic stress are found in “Type A” persons. These include

i. Longer periods of intermitted depression, anxiety disorders and emotional distress

ii. Ceaseless worrying

iii. Persistent physical symptoms similar to those found in acute stress

iv. Coronary heart diseases, or other heart problems
1.1.1.3. **Chronic Stress**

This type of stress is brought about by long-term exposure to stressors, such as unhappy marriage, traumatic experiences, unwanted career or job, stress of poverty, chronic illnesses, relationship conflicts, political problems and dysfunctional families. These stressful situations seem to be unending and the accumulated stress that results from exposure to them can be life-threatening and can even lead a person to resort to violence, suicide and self-harm. Serious illnesses like stroke, heart attack, cancer, and psychological problems such as clinical depression and post-traumatic disorder can originate from chronic stress. Common physical signs and symptoms of chronic stress are

i. Dry Mouth

ii. Difficulty in Breathing

iii. Pounding Heart

iv. Stomach Ache

v. Headache

vi. Diaphoresis

vii. Frequent Urination

viii. Tightening of Muscles
Mental signs and symptoms include

i. Sudden Irritability

ii. Tension

iii. Problems with Concentration

iv. Difficulty in Sleeping

v. Narrowed Perception

vi. Frequent Feelings of Fatigue

Teaching profession occupies important and prestigious place in society. Teachers are considered as the creators of leaders, scientists, philosophers, advocates, politicians and administrators. Teacher is the principle means for implementing all educational programmed of the organizations of educations and Technical Education. A Women teacher at present has a vulnerable position. The era of Liberalization and Globalization in India was lead to Privatisation and growth of engineering colleges’ particularly self financing engineering colleges.

In the changing economic scenario where the employment opportunities are dwindling, the mushroom growth of engineering colleges helps to create employment opportunities to technically educated women. The jobs in the engineering colleges are often the easiest to seek. However, the women teachers face several problems due to male dominance in decision making, long working hours, poor salary and absence of job
security. Though there is concentration of women teachers in engineering colleges, most of them are not employed on regular basis. They perform more or less the same job as men do, but receive poor salary due to high turnover of women teachers. Furthermore, the women teachers play dual role at home and college which causes the work family conflict. The women teachers play an active role not only within their homes but also in society by taking up full-time carriers and participating in social activities. The extra-role they play is either to meet their financial needs or to satisfy their inner urge to gain ‘social identity’. The burden on the women as a caretaker of the family and as an employee leads to conflict and problems. Work family conflict has ever been the concern of individuals and management of the college as it leads to negative consequences like increased health risks, unsatisfactory parent roles, stress, absenteeism, high turnover and the like. These negative consequences highlight the need for understanding the factors which are connected with the work and family conflict of the women teachers. In this context, the present study aims to study the stress among the women teachers working in engineering colleges in Madurai District.
1.2. Statement of the Problem

Stress is a fact of everyday life. When people reach out for help, they are often dealing with circumstances, situations, and stressors in their lives that leave them feeling emotionally and physically overwhelmed. Many people feel that they have very little resources or skills to deal with the high levels of stress they are experiencing. Stress can come from any situation or thought that makes one feels frustrated, angry, or anxious. Everyone sees situations differently and has different coping skills. For this reason, no two people will respond exactly the same way to a given situation. Additionally, not all situations that are labeled “stressful” are negative. The birth of a child, being promoted at work, or moving to a new home may not be perceived as threatening. However, the people may feel that situations are “stressful” because they don’t feel fully prepared to deal with them. Stress is a normal part of life. In small quantities, stress is good; it can motivate the person and help him become more productive. However, too much stress, or a strong response to stress can be harmful. How one perceives a stress provoking event and how he reacts to it determines its impact on their health. The people may be motivated and invigorated by the events in their lives, or the people may see some as “stressful” and respond
in a manner that may have a negative effect on their physical, mental, and social well-being.\footnote{Klinic Community Health Centre, “Stress and Stress Management”, Winnipeg MB Canada, January, 2010, (204) 784-4090,}

Recently, student indiscipline is a very big problem that creates a lot of stress to the teachers and society. Women teachers are more often confronted with the troublesome behaviours of the students who disobey them openly, challenge their authority in the classroom leading to disruption of work, disturbance to the other students and nuisance to the institution. Women teachers should realize that it is the nature of student to be playful, noisy and untidy at times, to speak discourteously at times and to shirk work at times. A dilemma for the women teachers is the division between their professional idealism and the reality of classroom. Their expectations should be realistic, both in terms of the students and in terms of themselves. If they constantly expect too much from students in class control terms, keeping a mental image of a class working diligently and silently following the rules of the sports scrupulously, with every students and everything in its place, and students responding obediently and politely every time they are spoken to, then they are in constant strain trying to translate their image into reality. When they find the task impossible they become terribly frustrated. Women teacher should view class control problem as one the integral aspects of their
job, an aspect that can be and will be mastered if the teacher has the will and
determination.\footnote{T.Ravikumar, and Vijendra Sharma, “Downsizing Higher education, An emergent

crisis” Economic political weekly, 17 (4) February, 2003, pp. 603-607.}

Conflict with colleagues is another main reason for women teachers
stress. Such conflicts may arise due to academic disagreement or
managerial direction if the teacher is confronted with any problem in the
class, disciplinary or otherwise. Generally, the teacher reluctant to discuss
the matter with their colleagues for fear of being branded as inefficient for
fear of the same reason, the teacher feels shy to raise such issues in the staff
meetings. The concept of one’s own dignity, looking down upon fellow
teacher’s work, egocentric rivalry among teachers and the attitude of arguing
breed contempt. Women teachers bear their stress in painful isolation. It
hurts the teacher both physically and mentally. Women teachers’ stress is
known to lead and physical illness which itself becomes an additional
burden. The women teacher should come forward to share their problems
with their colleagues.

An overcrowded class disheartens a teacher. The heavy load of work
worries to the women teachers and makes the teacher exhausted. But
determining the strength of the class is not in their hands. Finance,
accommodation, class strength and other working conditions are not the
problems to be tackled by an ordinary teacher. It is not for the women
teacher to worry unnecessarily over these adversities and the women teacher has to adjust and try to live in harmony.

The era of downsizing has resulted in a few forward thinking. Cost effective organizations but the accompanying workplace upheaval has/had unpleasant side effects. Heavy workloads, constant fear of job insecurity, the departure of co-workers and the conflicting demands of work and family have turned many downsized operations into modern day sweat shops. Stress and its manifestation include low morale, high turnover, burnout, excessive absenteeism, violence, substance abuse and hypertension. Teachers were reported to the occupational group with psychiatric morbidity levels that should give some cause for concern. Unless the job stress among the teachers is reduced. It would affect the production of quality students and also the establishment of academic excellence. Therefore, an in-depth investigation on stress among women teachers working in engineering colleges is made the focus of this study. Hence, an attempt has been made to study the stress among women teachers working in engineering colleges in Madurai district.
Nowadays, working women teachers has suffered lot of problems relating with the stress. Particularly, stress arise for the reasons physical surroundings at work, organizational climate and relationship with colleges, teaching experience, mental health, teacher’s attitude towards students emotional and behaviour, job expectations and performance, morale, sense of community, job security, work and family commitment, level of job involvement, administrative effectiveness, and long travel. Married women also affect stress across many situations like family maintenance to care such as spouse and their children, family functions, time schedule, social problem, finance related problems and the like. In this context, the present study aims to study the stress among the women teachers working in engineering colleges in Madurai District.

1.3. Scope of the Study

The present study is aimed to study the level of stress among the women teachers working in engineering colleges in Madurai District. The study is mainly focused on Stress among the women and it is related to work, family, decision, future plan, and the like. Stress is both physical and mental. It is caused by major life events such as illness, the death of a loved one, a change in responsibilities and expectations at work and increase job promotion, social support, avoids anxiety and depression on health in their work environment.
1.4. **Objective of the Study**

The objectives of the present study are as follows

i. To review the existing literature related to the present study

ii. To examine the demographic profile of the women working teachers in engineering colleges in Madurai District.

iii. To identify the level of opinion in engineering colleges in Madurai District.

iv. To analyze the factors affecting stress and the level of opinion determined by the respondents of engineering colleges in Madurai District and

v. To present the findings and offered suggestions for minimizing the stress among the women teachers working in engineering colleges in Madurai District.

1.5. **Geographical Area of the Study**

The study area of the present study is Madurai District. The city is referred by various names like "Madurai", "Koodal", "Malligai Maanagar", "Naanmadakoodal" and "Thirualavai". The word Madurai is derived from Madhura The geographical extent of Madurai is 3,741.73 Sq.Km accounting for 2.9 percent of geographical area of TamilNadu State. There are two
revenue division and 13 blocks in the district. There are 670 villages in the district. According to 2011 census, Madurai had a population of 30,38,252 with a sex-ratio of 990 females for every 1,000 males, much above the national average of 929. There were a total of 3,91,315 workers, comprising 1,224 cultivators, 2,178 main agricultural labourers, 11,282 in household industries, 3,48,849 other workers, 27,782 marginal workers, 388 marginal cultivators, 616 marginal agricultural labourers, 1,611 marginal workers in household industries and 25,167 other marginal workers. The urban agglomeration had a population of 14,62,420. Madurai metropolitan area constitutes the third largest metropolitan area in Tamil Nadu. The district is basically agrarian based and agriculture is the main occupation. The district also offers scope in the field of textiles, readymade garments, dairying, floriculture, coir units, bakery units, brick kiln, toy making, and the like.  

1.6. **Hypotheses of the Study**

The hypotheses of the study are as follows

i. There is no significant relationship between factors influencing Stress and Job stress

ii. There is no significant relationship between factors influencing stress and physical stress

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iii. There is no significant influence of factors influencing Stress and physical stress and job stress.

iv. There is no significant mean difference among the demographic profile of the respondents with respect to factors influencing stress

v. There is no significant mean difference among job stress and physical stress across the demographic profile of the respondents

1.7. Methodology and Data Collection

The present study is an empirical research and it is based on the survey method. A structured questionnaire was used to collect information. This study is descriptive and analytical in nature based on primary and secondary data.

Before the distribution of the final questionnaires, pilot testing questionnaires were conducted in order to observe an understanding of respondents towards statements included in the questionnaire. Pilot testing questionnaires were done with twenty four respondents so as to collecting their opinions regarding the applicability of answering the questions. It is also important for the respondents to be similar to those who will answer the questionnaire once it has finally been structured. Each
respondent was allowed a limited time of ten minutes in answering questionnaire. There are two reasons of time pressuring. Firstly, to check whether the statements in the questionnaires contain any ambiguity or whether it is too complex to understand. Secondly, to figure out if the questionnaire was completed with ease. Additionally, respondents will be asked whether they understand the directions of completing the questionnaire, and if it is clear to follow. Later, a discussion between researcher and respondent will carry on along with taking notes for further development of questionnaire. The overall result indicated that the questionnaire was valid, reliability, and took appropriate time to complete. After all researchers have completed the pilot testing, suggestions will be revised and then applied to improve final questionnaire, which will then be distributed among samples.

1.7.1. Primary Data

The primary data were collected directly from the sample Women Teachers working in the Engineering Colleges in Madurai District. The sample size consisted of 240 Women Teachers working in the Engineering Colleges in Madurai District.
1.7.2. **Secondary Data**

The secondary data for the study were collected from office of Directorate of collegiate education, Anna University Regional-center, AICTE hand book and various reports of Anna University, Chennai, records and reports, standard text books of related study, leading Journals and published documents, newspaper, magazines, and maintained by the service provider in their websites.

1.8. **Period of the Study**

This study has been cover a period of one year for which reliable information is available from the questionnaire and pertains the year 2013-2014.

1.9. **Sample Design**

The required primary data were collected through Questionnaire. The population of the present study is a stress among the women teachers working in engineering colleges in Madurai district. There are twelve colleges in the district, and it was attempted to study aspect of stress among women teachers working in engineering colleges. It was found that there were 1,202 teachers in all colleges. In order to ensure equal representation of women teachers in the colleges select for the study the proportionate stratified random sampling technique would be done for this research, from
the targeted educational institutions. A sample of 20 per cent was taken from the total population of 1,202 which worked out to 240 Respondents.

1.9.1. Size of the sample

With a view to analyze the level of stress among the women teachers working in engineering colleges in Madurai District, a total of 240 respondents have identified by using the proportionate stratified random sampling method.

1.10. Operational Definitions and Concepts

Operational Definitions of the study are as follows

1.10.1. Knowledge

Knowledge is a familiarity, awareness or understanding of someone or something, such as facts, information, descriptions, or skills, which is acquired through experience or education of engineering by learning.

1.10.2. Profession

A profession is a vocation founded upon specialised educational training, the purpose of which is to supply disinterested objective counsel and service to others, for a direct and definite compensation, wholly apart from expectation of other business gain.
1.10.3. Technology Education

Technology education is the study of technology, in which students "learn about the processes and knowledge related to the technology". It covers the human ability to shape and change the physical world to meet needs, by manipulating materials and tools with techniques.

1.10.4. Stress

Stress is simply a reaction to a stimulus that disturbs the women teachers’ physical or mental equilibrium. In other words, it is an omnipresent part of life. A stressful event can trigger the “fight-or-flight” response, causing hormones such as adrenaline and cortisol to surge through the body.

1.10.5. Stress management

It refers to the wide spectrum of techniques and psychotherapies aimed at controlling the women teacher's levels of stress, especially chronic stress, usually for the purpose of improving everyday functioning.

1.10.6. Occupational Stress

Occupational stress is a major hazard for women working teachers. Increased workloads, downsizing, overtime, hostile work environments, and shift work are just a few of the many causes of stressful working conditions. This factsheet addresses some of the causes of workplace stress and solutions for change.
1.10.7. Teacher

A teacher is a person whose occupation is teaching. Women college teachers facilitate the engineering student learning, often in a college or academy or perhaps in another environment such as outdoors. A women teacher who teaches on an individual basis may be described as a tutor. Women engineering college teacher is one who teaches; one whose business or occupation is to instruct others.

1.10.8. College

A college (Latin: collegium) is an educational institution or a constituent part of one. Usage of the word college varies in English-speaking nations. A college may be a degree-awarding tertiary educational institution, a part of a collegiate university, or an institution offering vocational education.

1.10.9. Engineering

The engineering profession of applying scientific principles to the design, construction, and maintenance of engines, cars, machines, and the like (mechanical engineering), buildings, bridges, roads, etc (civil engineering), electrical machines and communication systems (electrical engineering), chemical plant and machinery (chemical engineering), or aircraft (aeronautical engineering). See also military engineering.
1.10.10. Women Teachers

Women teachers who are working as teachers in the engineering colleges affiliated to Anna University located in and around Madurai District.

1.10.11. Coping Strategies

Any physical, psychological, social, or material factor which helps women teachers working in the engineering colleges overcome job-related stressors and achieve valued outcomes with students.

1.10.12. Stress Stimuli

Organizational characteristics that initiate a reaction in a given setting.

1.10.13. Emotional Intelligence

Emotional intelligence (EI) is the ability of women teachers to recognize their own and other people's emotions, to discriminate between different feelings and label them appropriately, and to use emotional information to guide thinking and behavior.

1.10.14. Teacher Stress

Any characteristic within the engineering college environment that poses a threat to the teacher.
1.10.15. Job

A job is an activity, often regular and often performed in exchange for payment. The women teachers working in engineering colleges have multiple jobs, such as those of parent, homemaker, and teacher. The Women Teacher can begin a job by becoming a teacher, volunteering, starting a business, or becoming a parent.

1.10.16. Job Satisfaction

Job satisfaction is the level of satisfaction of women teachers working in engineering colleges who feel about their profession, which can affect their performance.

1.10.17. Time Management

Time management is the act or process of planning and exercising conscious control over the amount of time spent on specific activities, especially to increase effectiveness and productivity of Women Teachers working in Engineering Colleges.

1.11. Profile of the Study Area

Madurai district is one of the thirty-two districts of the state of Tamil Nadu, in southern India. The city of Madurai serves as the district headquarters. It houses the world famous Sri Meenakshi Sundareswarar temple and is situated on the banks of the river Vaigai. Thiruparankundram
is one of the major tourist places in the district. Kazimar Periya Pallivasal and Madurai Maqbara in Kazimar Street are the oldest and major Islamic symbols in Madurai District contain the larger towns like Melur, Avaniapuram, Thirumangalam and Usilampatti.¹⁰

Madurai is called with various nicknames like Athens of the East, Thoonga Nagaram (City that never Sleeps), Naan maada koodal (City of Four junctions), Malligai Managar (City of Jasmine), Koodal Managar (City of Junction) Koil Nagar (Temple city). The main kingdoms which ruled Madurai during various times are the Pandyas and the Nayaks. According to 2011 census, Madurai district had a population of 30,38,252 up from 25,78,201 in the 2001 census, for a growth rate of 17.95%. It had a sex-ratio of 990 females for every 1,000 males, up from 978 in 2001, and much above the national average of 929. A total of 3,13,978 were under the age of six, constituting 1,62,517 males and 1,51,461 females. Scheduled Castes and Scheduled Tribes accounted for 13.46% and 0.37% of the population respectively. The average literacy of the district was 74.83%, compared to the national average of 72.99%. The district had a total of 7,94,887 households. There were a total of 13,54,632 workers, comprising 81,352 cultivators, 2,87,731 main agricultural labourers, 39,753 in household industries, 7,65,066 other workers, 1,80,730 marginal workers, 11,367

marginal cultivators, 85,097 marginal agricultural labourers, 7,540 marginal workers in household industries and 76,726 other marginal workers.\textsuperscript{11}

Madurai district comprises thirteen talukas and revenue blocks, under the gram panchayat system rural administration or the district is done by panchayat villages and the taluk headquarters. The revenue blocks are further sub-divided by firkas, the last three taluks, Tiruparankundram, Madurai West and Madurai East were created in February 2014. The thirteen talukas/blocks are

- Thiruparankundram—7 firkas
- T.Kallupatti—3 firkas
- Tirumangalam—3 firkas
- Kalligudi, Sedapatti, Usilampatti, Vadipatti, Melur, Madurai West, Madurai East, Kottampatti, Alanganallur and Chellampatti.

Madurai has a tradition and heritage. It is so popular for festivals and various tourist spots. In this part, the researcher presents the profile of Madurai District. It covers the historical background, location, geographical features, demographic factors, climate and rainfall communication and transport and industries.

1.11.1. Location

The District lies between 100 25’ and 90 65’ north latitude and 770 48’ and 780 35’ east longitude. The general geographical information of the district is simple and flat as well as hill area. The Vaigai River flows in the district and it is dry during the summer season. Madurai District consists of seven Taluks namely, Madurai North, Madurai South, Vadipatti, Melur, Thirumangalam, Peraiyur and Usilampatti, 13 Blocks and 428 Villages. As regards the hierarchy of administrative arrangement, there are 3 Municipalities, 15 Town Panchayats and 428 Village Panchayats in the District, in addition to madurai corporation.12

1.11.2. Geographical Features

The geographical area of Madurai district is 3,742 sq.km accounting for nearly 2.9 per cent of the geographical area of the Tamil Nadu State. There are two revenue divisions and seven taluks and there are 670 villages in this district. Dindigul district, Sivagangai district, Virudhunagar district and Theni district serve as northern, eastern, southern and western boundaries respectively of the Madurai district. Madurai district is classified into six sub-zones (southern plateau and hill region) under zone. And among the 13 agro-climatic zones in the country, normally sub-tropical climate prevails over the district without any sharp variation. Table 1.1 presents the

12 http://www.madurai.tn.nic.in/profile.html
details of revenue division, taluks, firkas, panchayat unions and town Panchayat in Madurai district.

Table 1.1
Revenue Division, Taluks, Firkas, Panchayat Union and Town Panchayat in Madurai District

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Revenue Division</th>
<th>Revenue Taluks</th>
<th>Name of the Firkas (Name of the R.I. Head Quarters)</th>
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<td>2. Appanthirupathi</td>
<td>9. Sathamangalam</td>
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<td>3. Arumbanur</td>
<td>10. Cathirapatti</td>
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<td>4. Othakadai</td>
<td>11. Kalamangalam</td>
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<td>Madurai South</td>
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<td>5. Thanichyam</td>
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<td>Usilampatti</td>
<td>4. Mooduvarpatti</td>
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<td></td>
<td></td>
<td>1. Usilampatti</td>
<td>7. Palamedu</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Uthappanaickanur</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thirumangalam</td>
<td>3. Karumathur</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>4. Valandur</td>
<td></td>
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<td></td>
<td></td>
<td>5. Sindhupatti</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>S.Thirumangalam</td>
<td>5. Sivarakottai</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Elumalai 2. Sedapatti</td>
<td>5. T.Kallupatti</td>
</tr>
</tbody>
</table>

It is clear from Table 1.1 that 7 revenue taluks and there are 13 panchayat unions and 12 Town panchayats in districts.

1.11.3. Demographic Factors

Population is one of the major factors for determining the economics of any country. India is the second largest populated country in the world after China. The population of the state and study area is described below in Table 1.2.

Table 1.2
Overview of Madurai District

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>2011</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Actual Population</td>
<td>3,038,252</td>
<td>2,578,201</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1,526,475</td>
<td>1,303,363</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1,511,777</td>
<td>1,274,838</td>
</tr>
<tr>
<td>2.</td>
<td>Population Growth</td>
<td>17.84%</td>
<td>7.41%</td>
</tr>
<tr>
<td></td>
<td>Area Sq. Km</td>
<td>3,710</td>
<td>3,710</td>
</tr>
<tr>
<td>3.</td>
<td>Density/km2</td>
<td>819</td>
<td>698</td>
</tr>
<tr>
<td></td>
<td>Proportion to Tamil Nadu Population</td>
<td>4.21%</td>
<td>4.13%</td>
</tr>
<tr>
<td>4.</td>
<td>Sex Ratio (Per 1000)</td>
<td>990</td>
<td>978</td>
</tr>
<tr>
<td></td>
<td>Child Sex Ratio (0-6 Age)</td>
<td>932</td>
<td>926</td>
</tr>
<tr>
<td>5.</td>
<td>Average Literacy</td>
<td>83.45</td>
<td>77.82</td>
</tr>
<tr>
<td></td>
<td>Male Literacy</td>
<td>89.72</td>
<td>86.17</td>
</tr>
<tr>
<td></td>
<td>Female Literacy</td>
<td>77.16</td>
<td>69.35</td>
</tr>
<tr>
<td>6.</td>
<td>Total Child Population (0-6 Age)</td>
<td>313,978</td>
<td>295,276</td>
</tr>
<tr>
<td></td>
<td>Male Population (0-6 Age)</td>
<td>162,517</td>
<td>153,326</td>
</tr>
<tr>
<td></td>
<td>Female Population (0-6 Age)</td>
<td>151,461</td>
<td>141,950</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Description</td>
<td>2011</td>
<td>2001</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------</td>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td>7.</td>
<td>Literates</td>
<td>2,273,430</td>
<td>1,776,654</td>
</tr>
<tr>
<td></td>
<td>Male Literates</td>
<td>1,223,810</td>
<td>991,010</td>
</tr>
<tr>
<td></td>
<td>Female Literates</td>
<td>1,049,620</td>
<td>785,644</td>
</tr>
<tr>
<td>8.</td>
<td>Child Proportion (0-6 Age)</td>
<td>10.33%</td>
<td>11.45%</td>
</tr>
<tr>
<td></td>
<td>Boys Proportion (0-6 Age)</td>
<td>10.65%</td>
<td>11.76%</td>
</tr>
<tr>
<td></td>
<td>Girls Proportion (0-6 Age)</td>
<td>10.02%</td>
<td>11.13%</td>
</tr>
</tbody>
</table>

Sources: 1. Census of India 2011.  

It is clear from Table 1.2 that as per the census of India 2011, growth of population has increased when comparing the year 2001.

1.11.4. Climate

Madurai district favourably enjoys the tropical climate. The mean minimum temperature ranges from 21.0°C to 26.7°C and the maximum temperature varies from 30.5°C to 38.7°C. The temperature in degree centigrade is minimum 27.8°C and maximum 39.5°C. May and June are the hottest months and the maximum temperature is recorded during these months. Generally, Madurai district has a hot, dry and variable climate. The summer season here extends from March to July and in April-May the summer reaches its zenith. There are two observatories in Madurai district (one in Madurai south and other at Madurai Airport).\(^{13}\)

\(^{13}\) http://www.madurai.tn.nic.in/profile.html
1.11.5. Rainfall

The district receives the maximum amount of rainfall from the Northeast and the Southwest monsoons. But the rainfall is scanty in other seasons.

1.11.6. Communication and Transport

Madurai district is well served by roads and railways. Major surface roads constitute National Highways and State Highways. Madurai district enjoys comparatively good weather condition. The easy availability of granite and quartz in most parts and quarries of other materials make it possible for good maintenance of roads. A few bridges over rivers connect interior parts for traffic. Since Madurai itself is a pilgrim center, the city serves as a transit point to pilgrims and tourists who visit Rameswaram and Cape Comerin. Madurai is well connected by air and rail with other parts of the country. A daily flight service operates to the headquarters of the State. During summer seasons, jasmine flower is airlifted from Madurai to a number of destinations inside and outside the country.

1.11.7. Industries

Madurai district is not rich in minerals even through it is not totally extinct. Crystalline limestone and building stone are available in large quantities in Thirumangalam and Melur taluks of the district, which are used
for making cement and for constructions purposes. Madurai district is one of the leading industrial and trading populated districts in Tamil Nadu. Industries of the district have been classified into three broad categories namely household, small, medium and large scale industries. A little more than one third of the urban population is engaged in household industry, that too mainly in Madurai. Handloom weaving is the major household industry in the district. The district has many weavers’ co-operative societies. Other important items are making toys and dolls, processing of food articles, manufacturing of safety matches and allied articles. The Manufacture of metal products except machinery and transport equipment covers 30 per cent of the total industries in the district. Household articles such as stainless steel, aluminium and iron utensils, containers, locks, agricultural implements and steel furniture are produced. Food products follow next and there is a list of more than 100 items such as sweets, biscuits, pickles, jams, vermicelli, appalam and the like. These items have a ready market. Manufacturing of transport equipment occupies the third place in the small-scale industries.\textsuperscript{14}

Madurai city is famous for dyeing, as it is one of the largest locations in south India. Another peculiar character of wax printing, done in Madurai city, which was once prevalent on a large scale. This is also declining slowly because of mechanical printing. The Harvey Mills has

\textsuperscript{14} http://www.madurai.tn.nic.in/profile.html
celebrated its centenary, now under the name of Madura Coats Private Limited. There are many cotton mills in the district out of which more than half of them are manufacturing yarn and textiles. The remaining manufacture yarn alone and most of them are under the private sector, barring one under the co-operative sector. Other important industries in the district are chemicals, cotton seed oil, metal and alloys, cement, electric goods, automobiles, paper and pulp products, rubber goods, leather goods, sewing machines, engineering products, sugar mills, flour mills and food production. Industrial training institutes are functioning in Madurai, which impart training in various trades.

1.11.8. The Main Highlight of the Madurai District

Madurai is the second largest city of Tamil Nadu after Chennai. It is situated on the banks of the river Vaigai and is known as the city of temples and festivals. The old city was laid out around the temple with most of its streets running parallel to the walls of the temple. In essence, the city grew in concentric rectangles of bigger and bigger sizes as one moved away from the central temple. Each of these four streets is then named after the direction in which they lie. There are thus north, south, east and west streets in each rectangle. The four streets within the walls are called the Adi streets, those just outside the temple walls are Chithirai streets, those outer to the chithirai, the Avani streets and the outermost Masi streets. The town was
then surrounded by fortified walls that again ran parallel to the inner streets. Outside the walls were a ditch and a glacis. These walls remained in place until the middle of the last century and are often said to be responsible for the present congestion in the town. Madurai has a rich mythological background. It is said that Lord Shiva himself performed sixty-four miracles called Thiruvilaiyadals. There is a story for each of the miracles that are duly chronicled in the Sthala purana. Some of these are narrated later. Madurai or Madura as it was then called, was a huge district that included the present day districts of Dindigul, Theni, Ramanathapuram and Sivagangai. It was thus bounded on the north by Coimbatore, Pudukkottai, and Tanjore, on the east by the Palk straits and on the south by the Gulf of Mannar and Tirunelveli and, on the west by the kingdom of Travancore. Now after India's independence, Madurai is still one of the major districts of Tamil Nadu but remains a pale shadow of its' former self. Madurai District now has 10 State Assembly constituencies, one full and two part parliament constituencies. Madurai is surrounded by several mountains. It is famous for Jasmine Flowers. Jasmine flowers are transported to other cities of India from Madurai.
1.12. Framework of Analysis

The statistical procedures used are selected based on the suitability to examine the objectives of the research using Statistical Package for Social Science (SPSS). Quantitative data is drawn from respondent’s response in the present study. In order to analyze the collected data various statistical techniques are employed keeping in view the nature of the problem, objectives and hypotheses. Both descriptive and inferential statistics are used. In descriptive statistics, percentage and frequency are computed to explain the characteristics of respondents. In inferential statistics Chi-square Test, one way analysis of variance (ANOVA), Regression, Correlation and Factor analysis are computed to determine the significant mean differences.

1.12.1. Chi Square Test

The Chi-Square statistical tool is the most commonly used to evaluate Tests of Independence when using a cross tabulation (also known as a bivariate table). Cross tabulation presents the distribution of two categorical variables simultaneously, with the intersections of the categories of the variables appearing in the cells of the table. The Test of Independence assesses whether an association exists between the two variables by carefully examining the pattern of responses in the cells; calculating the Chi-Square statistic and comparing it against a critical value from the Chi-Square distribution allows the researcher to assess whether the association seen
between the variables in a particular sample is likely to represent an actual relationship between those variables in the population.

The calculation of the Chi-Square statistic is quite straight-forward and intuitive.

\[ x^2 = \sum \left( \frac{(fo - fe)^2}{fe} \right) \]

Where \( fo \) = the observed frequency (the observed counts in the cells) and \( fe \) = the expected frequency if no relationship existed between the variables.

As depicted in the formula, the Chi-Square statistic is based on the difference between what is actually observed in the table and what would be expected if there was truly no relationship between the variables.

1.12.2. One Way ANOVA

The One-Way Analysis of Variance (ANOVA) is used to determine whether there are any significant differences between the means of two or more independent (unrelated) groups (although you tend to only see it used when there are a minimum of three, rather than two groups). For example, you could use a one-way ANOVA to understand whether exam performance differed based on test anxiety levels amongst students, dividing students into three independent groups (e.g., low, medium and high-stressed students).
ANOVA is a statistical test which analyzes variance. It is helpful in making comparison of two or more means which enables a researcher to draw various results and predictions about two or more sets of data. ANOVA test includes one-way ANOVA, two-way ANOVA or multiple ANOVA depending upon the type and arrangement of the data. One-way ANOVA has the following test statistics:

Where,

\[ F = \frac{MST}{MSE} \]

\( F = \) Anova Coefficient

\( MST = \) Mean sum of squares due to treatment

\( MSE = \) Mean sum of squares due to error.

Formula for MST is given below:

\[ MST = \frac{SST}{p - 1} \]

\[ SST = \sum n (X - \bar{X})^2 \]

Where,

\( SST = \) Sum of squares due to treatment

\( p = \) Total number of populations
n = Total number of samples in a population.

Formula for MSE is given below:

\[
\text{MSE} = \frac{\text{SSE}}{N-p}
\]

\[
\text{SSE} = \sum (n - 1)S^2
\]

Where,

\[
\text{SSE} = \text{Sum of squares due to error}
\]

\[
S = \text{Standard deviation of the samples}
\]

\[
N = \text{Total number of observations.}
\]

1.12.3. Regression Analysis

Regression analysis involves identifying the relationship between a dependent variable and one or more independent variables. A model of the relationship is hypothesized, and estimates of the parameter values are used to develop an estimated regression equation. Various tests are then employed to determine if the model is satisfactory. If the model is deemed satisfactory, the estimated regression equation can be used to predict the value of the dependent variable given values for the independent variables.
1.12.4. Correlation

Correlation and regression analysis are related in the sense that both deal with relationships among variables. The correlation coefficient is a measure of linear association between two variables. Values of the correlation coefficient are always between -1 and +1. A correlation coefficient of +1 indicates that two variables are perfectly related in a positive linear sense, a correlation coefficient of -1 indicates that two variables are perfectly related in a negative linear sense, and a correlation coefficient of 0 indicates that there is no linear relationship between the two variables. For simple linear regression, the sample correlation coefficient is the square root of the coefficient of determination, with the sign of the correlation coefficient being the same as the sign of $b_1$, the coefficient of $x_1$ in the estimated regression equation.

Neither regression nor correlation analysis can be interpreted as establishing cause-and-effect relationships. They can indicate only how or to what extent variables are associated with each other. The correlation coefficient measures only the degree of linear association between two variables. Any conclusions about a cause-and-effect relationship must be based on the judgment of the analyst.
One of the most widely used statistics is the coefficient of correlation ‘r’ which measures the degree of association between the two values of related variables given in the data set. It takes values from +1 to –1. If two sets or data have \( r = +1 \), they are said to be perfectly correlated positively if \( r = -1 \) they are said to be perfectly correlated negatively; and if \( r = 0 \) they are uncorrelated. The coefficient of correlation ‘r’ is given by the formula.

\[
r = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}}
\]

1.12.5. Factor Analysis

The factor analysis is used when the researcher wants to narrate the variable into handsome factors and also find the relationship between the variables and narrated factors. It is also called the narration analysis. Whenever the variables related to a particular event are unmanageable or plenty and also in interval scale, the factor analysis has to be executed to narrate these variables into factors. Before applying the factor analysis, the validity of data for factor analysis, the validity of data for factor analysis have to be executed with the help of Kaiser-Meyer-Ohlin (KMO) measure of sampling adequacy and Bartlett’s test of sphericity. The acceptable KMO measure of sampling adequacy is 0.5, whereas the acceptable level of significance of chi-square value is up to 0.05 per cent level. In the present
study, the factor analysis has been executed to identify the Factors Influencing stress among the Women Teachers working in Engineering Colleges at Madurai District.

1.13. Scheme of the Report

The present study consists of seven chapters. They are

The first chapter “Introduction and design of the study” describes contains statement of the problem, scope of the study, significance of the study, objectives of the study, research hypotheses, pilot study, sampling design, methodology and data collection, operational definitions and concepts, framework of analysis and the scheme of the report.

The second chapter “Review of Literature” deals with a brief review of existing literature related to the study. It provides a thorough review of the literature related to the occupational stress among the teachers of Engineering colleges in Madurai district, Job Stress Related Problems and Coping Strategies, Coping Stress and Social resources among adults with unipolar Depression, Perceived stress levels of principals, Work and family precursors of Burnout in Teachers, Perceived Occupational stress as the function of achievement and around the world for the purpose of fully understanding the historical perspective and current methodologies available on this subject.
The third chapter “Theoretical Background of Stress Management” deals with the theoretical background of Occupational Stress, Causes of Stress and various techniques for managing the stress.

The fourth chapter “Origin and Growth of Engineering Education in India and Profile of Study Units” examines the origin and growth of Engineering Education in India which includes Origin and Growth of Engineering Course in India, Profile of All India Council for Technical Education (AICTE) and Engineering Colleges in Tamilnadu and Profile of Study Units.

The fifth chapter “Analysis of Socio Economic Conditions of the Women Teachers Working in Engineering Colleges in Madurai District” analyse the demographic factors of the respondents like age-wise classification, marital status of the respondents, educational qualification, type of family, type of house, family size of the respondents, designation of the respondents, experience wise classification, salary, mode of transport and working hours.

The sixth chapter “Analysis of Stress among the Women Teachers Working in Engineering College in Madurai” deals with the results of the data collected from survey respondents which includes impact of Demographic profile of the respondents on the Factors influencing the stress among the Sample Respondents.
The seventh and last chapter “Summary of Findings, Suggestion and Conclusion” provides the predominant findings of the rigorous statistical analysis carried out to analyse the primary data pertaining to stress among the Women Teachers working in the Engineering Colleges in Madurai District and the conclusion arrived at from the study. It crucially presents impact of stress along with suitable suggestions.