

SELF MANAGEMENT OF EXCESSIVE TENSION MODULE FOR ENHANCING MANAGERIAL EFFECTIVENESS

Thesis submitted by

TIKHE SHAM GANPAT

Towards the partial fulfillment of

DOCTOR OF PHILOSOPHY (YOGA)

JANUARY 2012



Submitted to

SWAMI VIVEKANANDA YOGA ANUSANDHANA SAMSTHANA

(Declared as Deemed-to-be University under Section 3 of the UGC Act, 1956)

BENGALURU - 560019

INDIA

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BENGALURU - 560019

INDIA

WWW.SVYASA.ORG

DECLARATION

I, hereby declare that this study was conducted by me at Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA) University, Bangalore, under the guidance of **Dr. H. R. Nagendra, Dr. T. M. Srinivasan and Dr. Ramchandra Bhat.**

I also declare that the subject matter of my thesis entitled “**SELF MANAGEMENT OF EXCESSIVE TENSION MODULE FOR ENHANCING MANAGERIAL EFFECTIVENESS**” has not previously formed the basis of the award of any degree, diploma, associate-ship, fellowship or similar titles.

Date: Monday, January 9, 2012

Place: Bengaluru

Tikhe Sham Ganpat





स्वामी विवेकानन्द योग अनुसंधान संस्थान Swami Vivekananda Yoga Anusandhana Samsthana

A University, established under Section 3 of the UGC Act, 1956 vide
Notification No. F.9-45/2001-U.3 dated 08-05-2001 of the Government of India

No. 19, 'Eknath Bhavan', Gavipuram Circle, Kempegowda Nagar, Bangalore - 560 019.

Ph : 26612669 Telefax : 26608645

e-mail : svyasabr@yahoo.com website : www.vyasa.org

Certificate

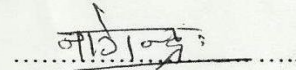
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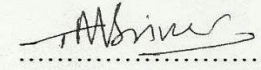
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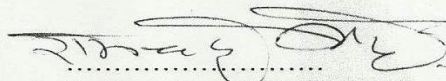
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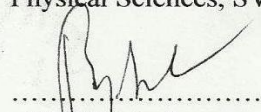
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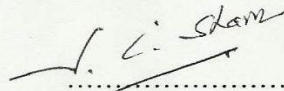
Viva Examination Detail : Date: 24 December 2011
Day: Saturday
Venue: Eknath Bhavan


Dr H R Nagendra
Guide and Vice-Chancellor,
SVYASA


Dr T M Srinivasan
Co-Guide & Dean, Division of Yoga and
Physical Sciences, SVYASA


Dr Ramachandra G Bhat
Co-Guide & Dean, Division of
Yoga-Spirituality, SVYASA


Dr B Mahadevan
External Examiner and
Professor, Production & Operations
Management, Indian Institute of Management
Bangalore


Dr Subhash Sharma
Dean, Division of Yoga and
Management Studies, SVYASA

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ध्यानमूलं गुरुर्मूर्तिः पूजामूलं गुरुर्पदम् ।

मन्त्रमूलं गुरुर्वक्त्रं मोक्षमूलं गुरुर्कृपा ॥ - गुरुगीता

Dhyānamūlaṁ gururmurtiṁ pūjāmūlaṁ gururpadam।

Mantramūlaṁ gururvākyaṁ mokṣamūlaṁ gururkṛpā ॥ -The Guru Gita

Meaning: The root of meditation (**Dhyāna**) is the form of the Guru, the root of worship (**Pūjā**) is the feet of the Guru. The root of sacred sound (**Mantra**) is the word of the Guru, and the root of liberation (**Mokṣa**) is the grace of the Guru.

“No duty is more urgent than of acknowledgement”

I express my profound gratitude to my guides, Dr. H.R. Nagendra, Dr. T. M. Srinivasan and Dr. Ramchandra Bhat for their encouragement and guidance. Their contribution in my development cannot be expressed in words.

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Date: **Monday, January 9, 2012**

Place: **Bengaluru**

Tikhe Sham Ganpat

STANDARD TRANSLITERATION CODE

a	=	अ	ṇa	=	ण	pa	=	प
ā	=	आ	ca	=	च	pha	=	फ
i	=	इ	cha	=	छ	ba	=	ब
ī	=	ई	ja	=	ज	bha	=	भ
u	=	उ	jha	=	झ	ma	=	म
ū	=	ऊ	ñ	=	ञ	ya	=	य
e	=	ए	ṭa	=	ट	ra	=	र
ai	=	ऐ	ṭha	=	ठ	la	=	ल
o	=	ओ	ḍa	=	ड	va	=	व
au	=	औ	ḍha	=	ढ	sa	=	स
m	=	अं	ṇa	=	ण	śa	=	श
ḥ	=	अः	ta	=	त	ṣa	=	ष
ka	=	क	tha	=	थ	ha	=	ह
kha	=	ख	da	=	द	kṣa	=	क्ष
ga	=	ग	dha	=	ध	tra	=	त्र
gha	=	घ	na	=	न	jña	=	ज्ञ

ṛ = ऋ ṝ = ॠ

CHAPTER NO.	CONTENTS	PAGE NO.
1	INTRODUCTION	1-5
2	REVIEW OF LITERATURE ON SMET	6-38
2.1	LITERARY RESEARCH FROM YOGA TEXTS	6
2.2	SMET ACCORDING TO SCIENTIFIC LITERATURE	31
3	AIM AND OBJECTIVES	39-40
3.1	AIM	39
3.2	OBJECTIVES	39
3.3	RESEARCH QUESTIONS	39
3.4	HYPOTHESIS	39
3.5	NULL HYPOTHESIS	39
3.6	RATIONALE	40
4	METHODS	41-48
4.1	SUBJECTS	41
4.1.1	INCLUSION CRITERIA	41
4.1.2	EXCLUSION CRITERIA	41
4.1.3	SOURCE	42
4.1.4	INFORMED CONSENT	42
4.2	DESIGN	42
4.3	INTERVENTION	43
4.3.1	SMET	43
4.3.2	THEORETICAL ASPECT OF SMET	44

4.3.3	PRACTICAL ASPECT OF SMET	45
4.4	ASSESSMENTS	45
4.4.1	BRAIN WAVE COHERENCE (BWC)	45
4.4.2	EMOTIONAL QUOTIENT (EQ)	46
4.4.3	GENERAL HEALTH QUESTIONNAIRE (GHQ)	46
4.4.4	PERSONALITY (GUNA) INVENTORY (PI)	47
5	DATA EXTRACTION AND ANALYSIS	49-51
5.1	DATA COLLECTION	49
5.2	DATA SCORING	50
5.3	DATA ANALYSIS	51
6	RESULTS	52-53
6.1	RESULTS OF BWC MEASUREMENTS	52
6.2	RESULTS OF EQ MEASUREMENTS	52
6.3	RESULTS OF GHQ MEASUREMENTS	52
6.4	RESULTS OF PI MEASUREMENTS	52
6.5	RESULTS OF CORRELATION STUDIES	53
7	DISCUSSIONS	54-65
7.1	DISCUSSION ON BWC RESULTS	54
7.2	DISCUSSION ON EQ RESULTS	55
7.3	DISCUSSION ON GHQ RESULTS	61
7.4	DISCUSSION ON PI RESULTS	61
7.5	DISCUSSION ON CORRELATION STUDIES	62

8	SUMMARY & CONCLUSIONS	66-70
8.1	SUMMARY	66
8.2	CONCLUSIONS	67
8.3	IMPLICATIONS OF THE STUDY	67
8.4	STRENGTH OF THE STUDY	68
8.5	CHALLENGES OF THE STUDY	68
8.6	SUGGESTIONS FOR THE FUTURE STUDY	69
8.7	THE HOPE AND THE FUTURE PERSPECTIVE	70
	REFERENCES	71-79
	LIST OF TABLES	80-91
1	DAILY ROUTINE OF THE SMET PROGRAM	80
2	SMET THEORY SESSION AT A GLANCE	80
3	SMET PRACTICE SESSION AT A GLANCE	80
4.	INTERPRETATIONS OF BWC DATA	81
5.	INTERPRETATIONS OF EQ SCORES	82
6	INTERPRETATIONS OF GHQ COMPONENTS	82
7.1	INTERPRETATIONS OF PI (GUNA) SCORES	83
7.2	TEST-RETEST RELIABILITY CO-EFFICIENT OF PI (GUNA)	83
7.3	RESPONSES TO PI (GUNA) SCORES	83
8.1	DATA ANALYSIS OF BWC	84
8.2	DATA ANALYSIS OF EQ	84
8.3	DATA ANALYSIS OF GHQ	85

8.4	DATA ANALYSIS PI	85
8.5	DATA ANALYSIS OF CORRELATION STUDIES	86
	LIST OF FIGURES	92-95
1	BWC BEFORE AND AFTER THE SMET PROGRAM	92
2	PERCENTAGE CHANGE IN BWC PATTERN	92
3	EQ BEFORE AND AFTER THE SMET PROGRAM	93
4	PERCENTAGE INCREASE IN EQ SCORE	93
5	GHQ SCORE BEFORE AND AFTER THE SMET PROGRAM	94
6	PERCENTAGE DECREASE IN GHQ SCORE	94
7	PI SCORE BEFORE AND AFTER THE SMET PROGRAM	95
8	PERCENTAGE CHANGE IN PI SCORE	95
	LIST OF PLATES	96-113
1	SMET FLOW CHART	96
2	SMET CHART	97
3	INSTANT RELAXATION TECHNIQUE (IN ŚAVĀSANA)	98
4	TĀḌĀSANA (PALM TREE POSE – STANDING POSE)	99
5	ARDHA KAṬI CAKRĀSANA (HALF WHEEL POSE) RIGHT	100
6	TĀḌĀSANA (PALM TREE POSE – STANDING POSE)	101
7	ARDHA KAṬI CAKRĀSANA (HALF WHEEL POSE) LEFT	102
8	TĀḌĀSANA (PALM TREE POSE – STANDING POSE)	103
9	QUICK RELAXATION TECHNIQUE (IN ŚAVĀSANA)	104

10	ŚITHILA DANḌĀSANA (RELAXATION POSE IN SITTING)	105
11	VAJRĀSANA (THUNDERBOLT POSE IN SITTING)	106
12	ŚAŚĀŅKĀSANA (FORWARD BENDING POSE)	107
13	VAJRĀSANA (THUNDERBOLT POSE IN SITTING)	108
14	ARDHA UṢṬRĀSANA (HALF CAMEL POSE)	109
15	VAJRĀSANA (THUNDERBOLT POSE IN SITTING)	110
16	ŚITHILA DANḌĀSANA (RELAXATION POSE IN SITTING)	111
17	DEEP RELAXATION TECHNIQUE (IN ŚAVĀSANA)	112
18	BWC MACHINE (BASIC BRAINMASTER & ELECTRODES)	113
	APPENDICES	114-177
1	INFORMED CONSENT FORM	114
2	DETAILS OF THE MACHINE USED FOR BWC STUDY	115
3	EQ QUESTIONNAIRE	119
4	GENERAL HEALTH QUESTIONNAIRE (GHQ)	134
5	PERSONALITY INVENTORY (GUNA) QUESTIONNAIRE	139
6	DETAILS OF THE INTERVENTION (SMET PROGRAM)	148
7	RAW DATA	171
8	SMET HANDOUTS (SMET FOR TOTAL HEALTH)	176
9	SMET HANDOUTS (SMET RESEARCH)	177
	PUBLICATIONS FROM THIS DOCTORAL THESIS	178- 193

ABSTRACT**“Excessive stress disturbs homeostasis and SMET restores it”****-Nagendra and Nagarathna**

This study deals with the effect of a Yoga module designed to relieve stress and improve emotional well-being of managers in a large Indian company. The module known as Self-Management of Excessive Tension (SMET) includes a set of stimulating and relaxation practices (Cyclic Meditation) and lectures forming the Jñāna Yoga aspect of the whole module.

BACKGROUND

Is the modern life of manager possible without stress? Stress certainly seems to be an inescapable element of the modern life of a manager. Most managers do not know that stress at work often stems from personal responses rather than just the work situation. It is in a manager's best interest to keep stress levels in the workplace at a minimum. For most managers, a little stress can be a good thing. When the pressure is on, they tend to do their work with great efficiency. However, when demands are increasing with no clear end in sight, even those who thrive on stress can be at risk for burnout. Thus, modern lifestyle of today's managers intensifies the stress leading to “excessive tension”. Yoga does have the potential to provide physical, mental, and emotional health benefits to those who practice it with proper guidance. A holistic and integrated stress management program SMET also known as CM has been investigated extensively to combat this modern lifestyle problem and thereby one can lead a holistic way of living in health, harmony, and happiness.

AIM

The aim is to assess the efficacy of SMET program for managerial effectiveness.

OBJECTIVES

To study the efficacy of SMET for managerial effectiveness through the assessment of

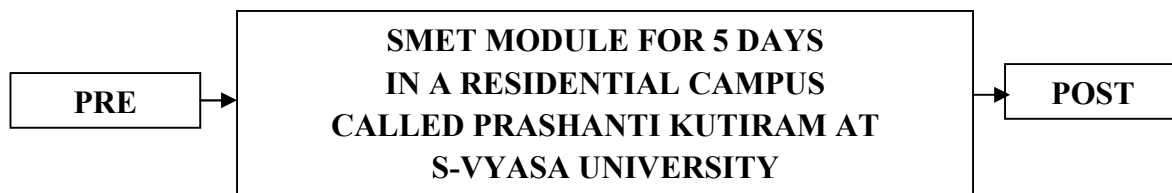
1. Brain Wave Coherence (BWC)
2. Emotional Quotient (EQ)
3. General Health Questionnaire (GHQ)
4. Personality (Guna) Inventory (PI) and
5. Correlations between BWC, EQ, GHQ and PI

METHODS

Subjects: The subjects for the study were 72 managers (63 males and 9 females). They were selected from the groups of managers of Oil and Natural Gas Corporation Limited (ONGC) based on the following criteria.

Design: A single group pre-post study

Subjects	n (Number of Subjects)	Age-range	Mean± SD
SMET participants	72 (63 males and 9 females)	45 – 60 years	48.75±3.86



INTERVENTION

All the subjects of this study participated in the SMET program, a stress management program based on the Yogic wisdom (lecture sessions and practice sessions of CM).

RESULTS

A complete statistical and spectral analysis showed 19.31% increase ($P<0.05$) in Delta, 5.04% increase ($P=0.65$) in Theta, 15.4% increase ($P=0.09$) in Alpha, 1.67% decrease ($P=0.54$) in Beta and 18.68% increase ($P=0.07$) in Gamma BWC between pre and post intervention measurements. Significant 28.22% increase in Delta of unhealthy (cut-off score of 9 in GHQ) participants was observed.

EQ analysis showed 72.02% significant increase ($P<0.001$) in post intervention as compared with pre intervention. Both healthy and unhealthy participants (cut-off score of 9 in GHQ) showed significant increase (76.45% and 70.54% respectively) in EQ within the groups whereas no significant change in between the groups was observed.

Furthermore, there was 68.25% significant decrease ($P<0.001$) in Somatic Symptoms (GHQ_SS), 66.29% significant decrease ($P<0.001$) in Anxiety and Insomnia (GHQ_AI), 65.00% significant decrease ($P<0.001$) in Social Dysfunction (GHQ_SF), 87.08% significant decrease ($P<0.001$) in Severe Depression (GHQ_SP) and 71.47% significant decrease ($P<0.001$) in all medical complaints (GHQ_Total). Moreover, significant decrease in both healthy and unhealthy (cut-off score of 9 in GHQ) participants within the groups was also observed in general health aspect.

It was observed that there was significant decrease in Tamas and Rajas scales and significant increase in Sattva scale of healthy, unhealthy and total participants (cut-off score of 9 in GHQ) within the groups whereas in between the group there was no significant change.

Correlation studies between healthy, unhealthy and combined revealed no significant correlation between BWC, EQ, GHQ and PI variables. This indicates that BWC, EQ, GHQ and PI are adequately independent with each other.

CONCLUSIONS

The present study suggests that

1. SMET is associated with the development of managerial effectiveness leading
 - ↑ Delta Brain Wave Coherence
 - ↑ Emotional Intelligence
 - ↑ General Health and
 - ↑ Sattvic Personality
2. SMET holds a great promise for modern ailments which are related to stress
3. However, further studies using a randomized controlled design could substantiate these preliminary findings.

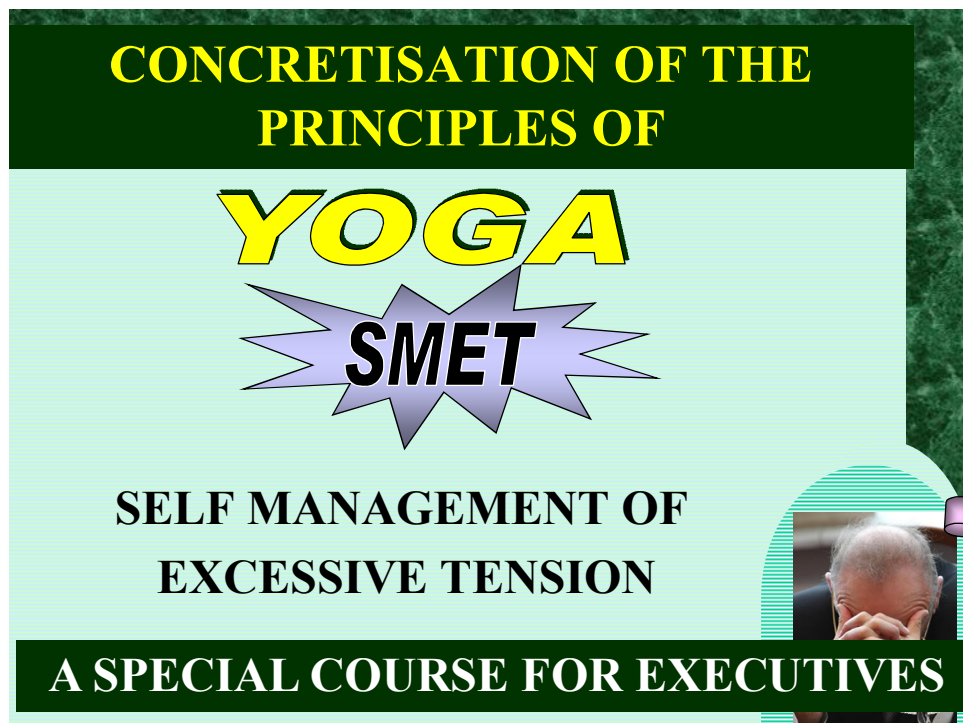
Three cardinal principles of Yoga:

1. Relax the body, 2. Slow down the breath and 3. Calm down the mind

-DR H R NAGENDRA AND DR R NAGARATHNA (New perspectives in stress management)

CHAPTER 1

INTRODUCTION



SOURCE: SMET MODULE, S-VYASA UNIVERSITY

INTRODUCTION

“A good manager is a man who isn't worried about his own career but rather the careers of those who work for him”

H S M Burns

Background

Is the modern life of manager possible without stress? Stress certainly seems to be an inescapable element of the modern life of a manager. Most managers do not know that stress at work often stems from personal responses rather than just the work situation. ^[1]

It is in a manager's best interest to keep stress levels in the workplace at a minimum. For most managers, a little stress can be a good thing. When the pressure is on, they tend to do their work with great efficiency. However, when demands are increasing with no clear end in sight, even those who thrive on stress can be at risk for burnout. Thus, modern lifestyle of today's managers intensifies the stress leading to “excessive tension”. The necessity and importance of a stress management program for managers was reported by McCarroll JE et al. and Jones JW et al. ^{[2],[3]} emphasizing that managers should be prepared for concrete tasks they may perform through technical training. Managers can act as positive role models, especially in times of high stress, by adopting a Yoga way of life. If a respected manager can remain calm and thereby objective in stressful work situations it is much easier for his or her employees to also remain calm.

The present age of speed and competition has increased the stresses and strains resulting in an increasing prevalence of life style-related health problems ^[4] and specifically managers' lives have become a never-ending race against time, technology, and targets. This race creates tension, which leads to dissatisfaction and frustration and eventually manifests itself as psychological and physiological stress with mental and emotional drain. This modern lifestyle intensifies the stress leading to "excessive tension" and consequent deterioration in managerial effectiveness. ^[5] One of the increasingly popular tools to overcome this new challenge is physical activity. There is growing evidence that has established the benefits of physical exercises in preventing life style-related diseases ^[6] such as primary prevention of diabetes, ^[7] prevention of cardiac diseases through control over major risk factors such as smoking, lipids, obesity and stress, ^[8] better quality of life of cancer patients, ^[9] positive health in normal persons through better physical fitness ^[10] and stress reduction. ^[11] Yoga which is considered to be a tool for both physical and mental development of an individual is being recognized around the globe only in the last century although it has been practiced in India over several centuries to promote positive health and well being. It gives solace for the restless mind and can give great relief to the sick. ^{[12],[13]} It has become quite fashionable even for the common man to keep fit. ^[14] With growing scientific evidence, Yoga is emerging as an important health behavior-modifying practice to achieve states of health, both at physical and mental levels. Several studies have demonstrated the beneficial effects of Yoga on health behavior in many life style-related somatic problems such as hypertension, ^[15] bronchial asthma, ^[16] diabetes ^[17] including some psychiatric conditions such as anxiety neurosis ^[18]

and depressive illness^[19] etc. Yoga does have the potential to provide physical, mental and emotional health benefits for those who practice it with proper guidance.^[20]

Self Management of Excessive Tension (SMET) and Managerial Effectiveness (ME)

A holistic and integrated stress management program called Self Management of Excessive Tension (SMET) also popularly known as Cyclic Meditation (CM) has been investigated extensively at Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA) University, Bangalore to combat this modern lifestyle problem and thereby one can lead a holistic way of living in health, harmony and happiness.^[5]

One of the important preoccupations of top management is the improvement of the managerial effectiveness.^{[1],[3],[5]} The popular perception that a high Intelligence Quotient (IQ) is not necessarily a good predictor of professional and personal success has led to a growing interest in understanding the role of Brain Wave Coherence (BWC), Emotional Quotient (EQ), General Health Questionnaire (GHQ) and Personality (Guna) Inventory (PI) in improving the Managerial Effectiveness (ME).^{[4],[10],[14]} Over the last several decades management researchers have developed constructs to identify the factors that influence ME, and have sought to provide a framework to explain performance.^{[1],[2]} In this context, there is a popular perception that individuals of seemingly average or ideally good Delta BWC, EQ, GHQ and Sattva PI often do well in their professional and personal lives, whereas people with high IQ often struggle with life's challenges.^{[4],[5],[13],[14],[20]} Therefore, it would be appropriate to use BWC, EQ, GHQ and PI as a sufficiently good predictor for assessing ME.

Earlier researchers have suggested that other attributes may be better determinants.^{[21],[22],[23],[24]} There is a vast repository of knowledge and accumulated experience in India on the role of Yoga in enabling individuals to lead successful and satisfied lives.^{[25],[26]} More specifically, the Bhagvad Gita, which explicates on Yoga, sees that Yoga begets high efficiency in work opening up possibilities of connections with ME.^[27]

Previous work on stress management educational program, reported significant improvement in the subjective well being inventory (SUBI) scores of the 77 subjects within a period of 10 days as compared to controls. These observations suggest that a short lifestyle modification and stress management educational program can make an appreciable contribution to primary prevention as well as management of lifestyle diseases.^[28] It was demonstrated that SMET decreases occupational stress levels and baseline autonomic arousal in managers, suggesting significant reduction in sympathetic activity^[29] and development of better emotional well-being in them.^[30] Persons with high EQ may strike a balance between emotion and reason, are aware of their own feelings, show empathy and compassion for others, and have high self-esteem which may be instrumental in many situations in the workplace and can help achieve ME.^[31] Recent research has shown a positive relationship between EQ and workplace success.^[32] Previous study on Yoga reported enhanced EQ as a result of the practice of Yoga way of life. The results indicate the importance of Yoga as an integral element in improving ME in organizations.^[33]

This thesis builds on the thread suggested above; and explores the SMET program as a potential tool to influence the pattern of brain waves, emotional intelligence, general health components and personality traits of individuals in a study conducted with managers of a large organization. Although the SMET program was used regularly and the observations were encouraging, to the best of our knowledge there has been no previous attempt to investigate and document systematically the efficacy of SMET program (in a residential set-up) on psychophysiological variables in managers. Hence this study was planned to systematically document the effect of SMET program for ME using BWC, EQ, GHQ and PI.

The thesis is organized as follows: In the next section we introduce the concept of SMET according to Yoga texts and scientific literature in detail through review of literature. The details of the empirical work carried out as part of this study, and the results, key findings, and their implications are discussed in the later sections.

**“SMET PROGRAM GIVES GREATER BENEFITS IF
WE WORK TOGETHER THROUGH A GROUP”**

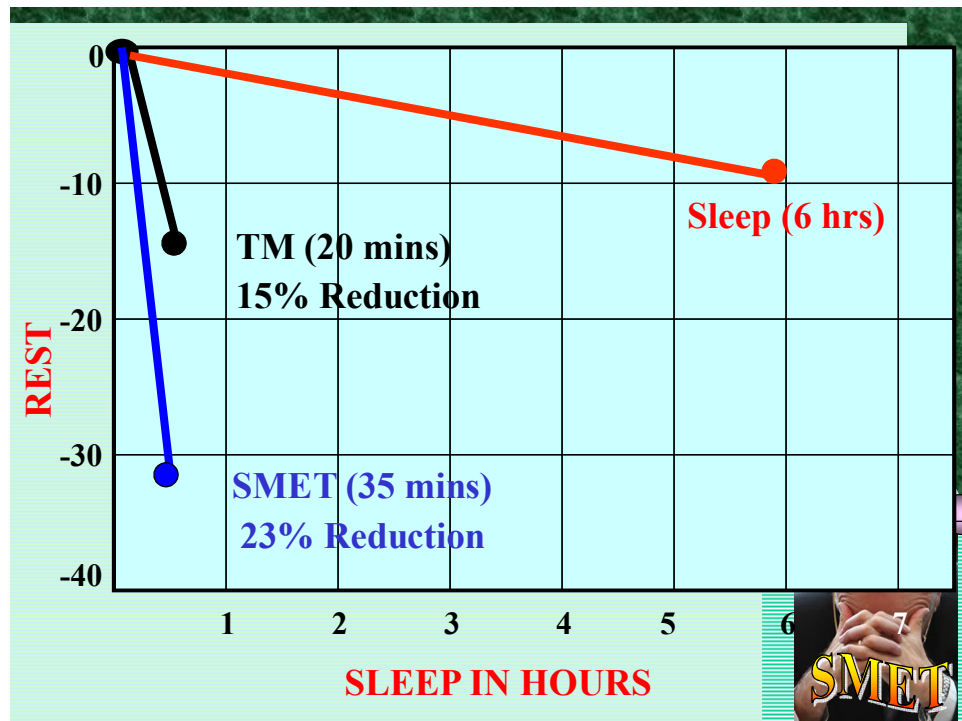
- NAGENDRA AND NAGARATHNA

CHAPTER 2

REVIEW OF LITERATURE ON SMET

RESEARCH AT A GLANCE

A study at Swami Vivekananda Yoga Research Foundation reveals 23% reduction in requirement of rest after SMET practice (CM) than TM (15%)



Reference:

1. Subramanya P, Telles S. A review of the scientific studies on cyclic meditation. Int J Yoga. 2009 Jul;2(2):46-8.
2. Jevning R, Wallace RK, Biedebach M. The physiology of meditation: a review. A wakeful hypometabolic integrated response. Neuroscience and Biobehavioral Reviews 16; 415-424.
3. Dillbeck MC, Orme-Johnson OW. Physiological differences between Transcendental Meditation and rest. American Psychologist, 1987, 42; 879-881.

REVIEW OF LITERATURE ON SMET

“A good manager is a person who takes a little more than his share of the blame and a little less than his share of the credit”.

-John C. Maxwell

2.1 SMET ACCORDING TO YOGIC TEXTS

Meditation is the seventh of eight steps prescribed to reach an ultimate stage of spiritual emancipation. ^[34] While many practitioners do learn meditation directly, others find it easier to first pass through the other stages - learn Āsana and Prāṇayāma. When a practitioner attempts to meditate directly, there could be two responses based on the quality of the mind viz., (i) Rajas - active (personality) mind would be restless all through the session and (ii) Tamas - a mind with inertia could fall asleep. This problem of the mind is addressed in the Māndukya Upaniṣads Kārikā and based on it; a technique of CM was evolved by H.R. Nagendra, Ph.D. at S-VYASA University, Bengaluru.

The verse:

लये संबोधयेत् चित्तं विक्षिप्तं शमयेत् पुनः। सकषायं विजानीयात् समप्राप्तं न चालयेत्॥

-माण्डूक्योपनिषत् कारिका ३- ४४

**Laye sa□bodhayet citta□ vik□ipta□ śamayet puna□|
Saka□āya□ vijānīyāt samaprāpta□ na cālayet ||**

-Mā□□ūkyopani□at Kārikā 3- 44

Meaning: “Stimulate & awaken the sleeping mind, calm down the distractions, recognize the innate stagnations & stay in steadiness without disturbing it.”^[35] The underlying idea is that, for most persons, the mental state is routinely somewhere between the extremes of being 'inactive' or of being 'agitated' and hence to reach a balanced/relaxed state the most suitable technique would be one which combines 'awakening' and 'calming' practices. These series of successive stimulations and relaxations phases of CM, gives the ability to solve the complex problem of the mind with the underlying idea to promote three cardinal principles of Yoga:

1. Stimulate and relax the body,
2. Slow down the breath and
3. Calm the mind.

**“STRESS IS DISHARMONY. DEEP
PHYSIOLOGICAL REST AND RELEASE OF
STRESSES AT SUBTLER LEVELS ARE THE
RESULTS OF REGULAR PRACTICE OF SMET”**

-NAGENDRA AND NAGARATHNA

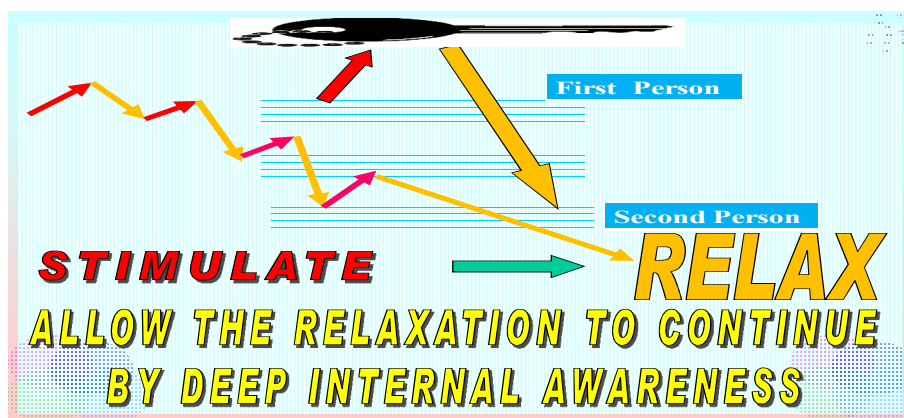
The biggest contribution of this Kārikā is in tackling the key problems of both Tamas (lethargy, resistance to action and stagnation) by stimulation and Rajas (distracted, speeded up mind) by using the technique of “calming the mind.” This principle was the basis on which CM has been developed.

YOGA OFFERS TOTAL REHABILITATION BY THE INTEGRATED MODULE OF SMET



SOURCE: SMET MODULE, S-VYASA UNIVERSITY

Use of Āsanās for stimulation features CM. Imagine two persons lying on the ground. One person continues to lie down for 20 minutes. The other person gets up and does some forward and backward bending postures and relaxation. This is repeated several times in 20 minutes. Who will have greater relaxation? It looks logical and obvious that the first person lying down all the time should get greater rest. But it is experimentally proved that the second person gets 3 times better rest than the first person. This looks like a physiological dilemma! The following sketch explains the mechanism as to how this happen- Cycles of alternate stimulations and relaxations reducing the stress level:



SOURCE: SMET MODULE, S-VYASA UNIVERSITY

Just lying flat on the ground will certainly reduce the stresses. But in a few minutes the stagnation for relaxation comes- this is the main problem of continuous supine rest. To remove this stagnation the Kārikā says that we need stimulation. A series of stimulation and relaxation help to reduce the stresses continuously without allowing the stagnation to dominate.

Concept of stress according to modern medical system

Stress is studied and understood at the physical body level by modern medical system as an imbalance of the neuro- endocrine system and neuro- transmitter level.

CONCEPT OF STRESS
STRESS IS A NON SPECIFIC ,
CONVENTIONAL AND
PHYLOGENETIC BASIC
RESPONSE PATTERN

- Dr SELYE
Dr LEVI



SOURCE: SMET MODULE, S-VYASA UNIVERSITY

Stress prepares us for action.

STRESS

PREPARES THE
MIND-BODY COMPLEX FOR
PHYSICAL ACTION
TO

COPE WITH
DEMANDING SITUATIONS

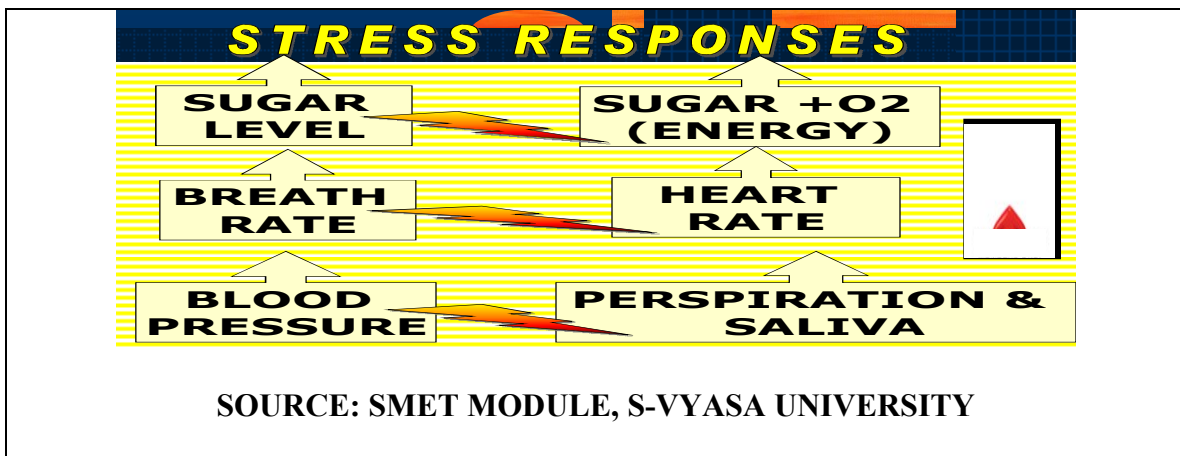


SOURCE: SMET MODULE, S-VYASA UNIVERSITY

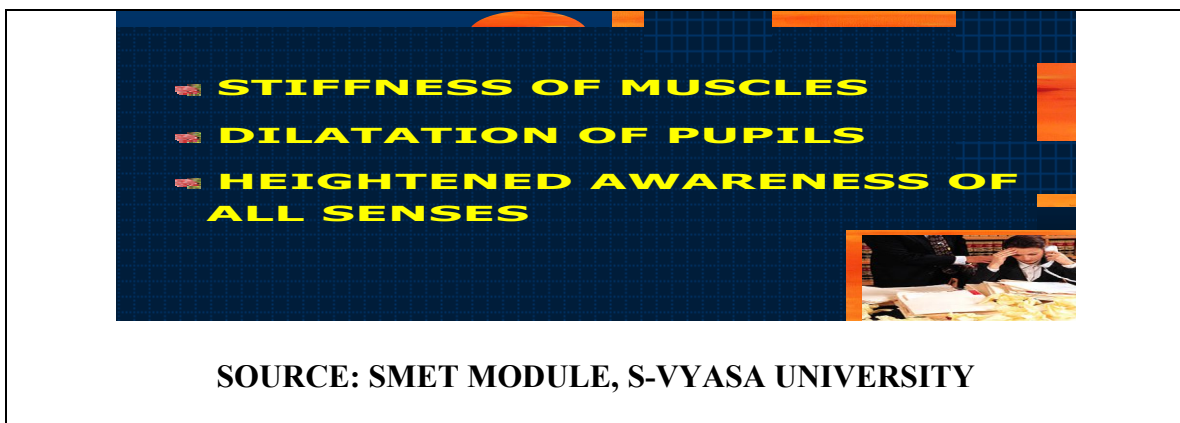
Our reactions to stress are either flight or fight to cope with demanding situations.



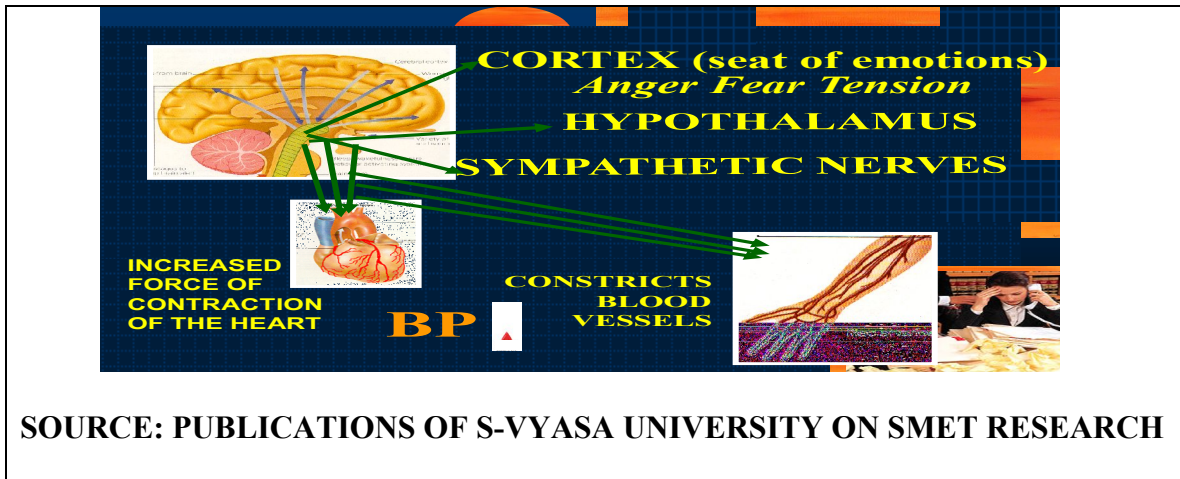
What are the stress responses?



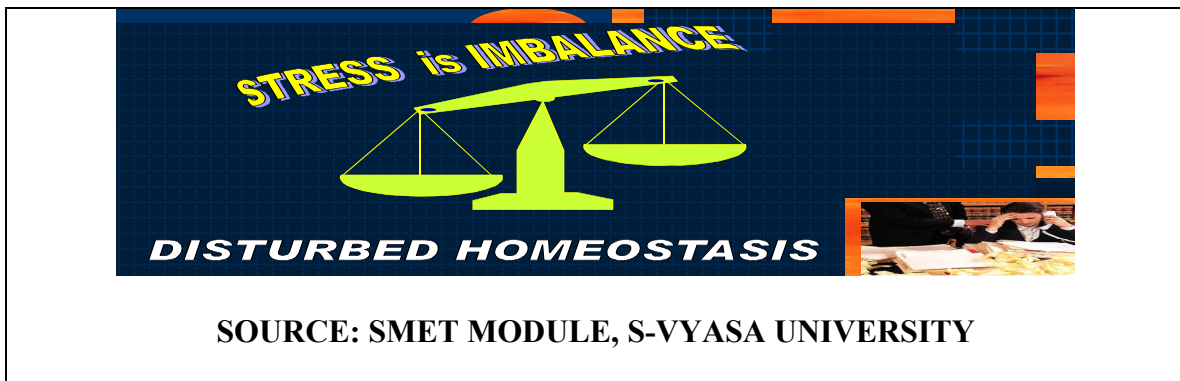
Stress leads to following physiological changes:



Physiological understanding of stress responses:



Thus, we came to a conclusion that stress is imbalance.



Stress and our life:



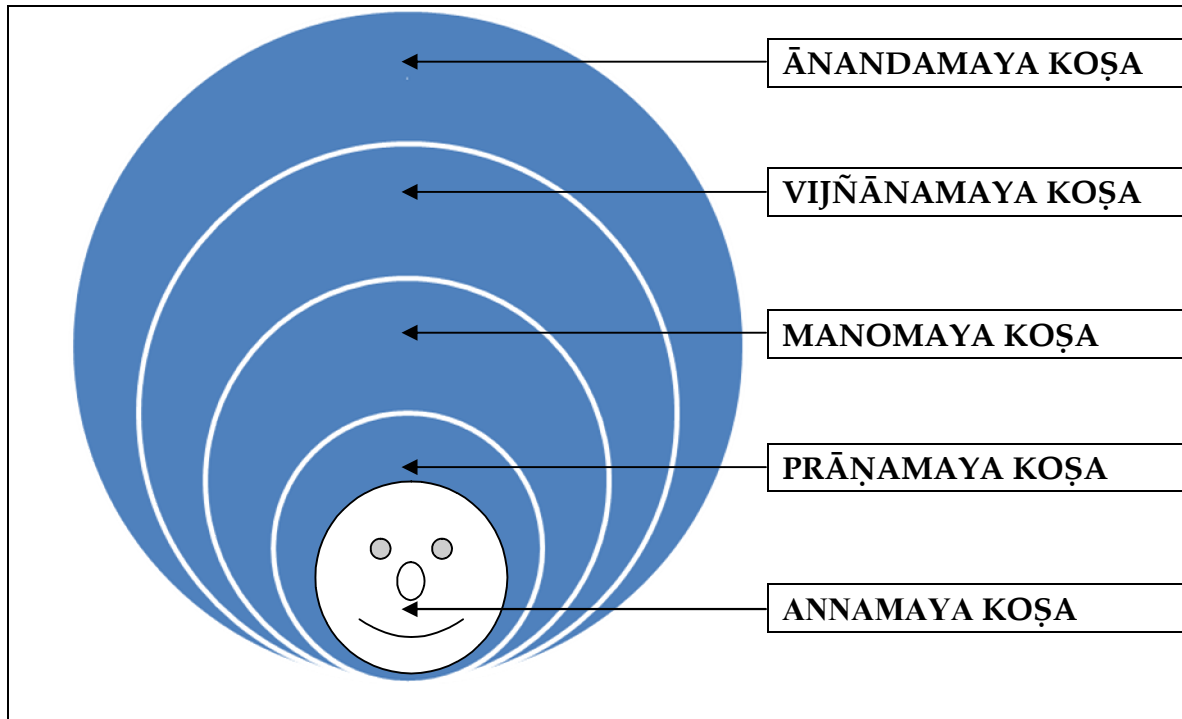
Concept of stress and its management according to Taittirīya Upaniṣad

Proper understanding stress helps man keep a holistic concept of himself in view, not merely his physical body existence. The Taittirīya Upaniṣad has presented this holistic concept of man systematically. It sees man as having five major Kosās or sheaths of existence, named the Annamaya, Prāṇamaya, Manomaya, Vijñānamaya & Ānandamaya Kosā. Keeping all these in mind makes yogic stress management totally holistic. It is based on understanding the impact of stress at all these levels.

Emotional imbalances in the form of strong likes (राग Rāga) and dislikes (द्वेष Dveṣa) bring about imbalances in Prāṇa (the vital energy) in the Prāṇamaya Koṣa which percolates to the Annamaya Koṣa causing stress symptoms and hazards. Origin of desires and action guided by strong likes and dislikes (and not by what is right and wrong) will be the expression of imbalance at Manomaya Koṣa. In Vijñānamaya Koṣa, the अविद्या Avidyā (Ignorance) goes on reducing until in Ānandamaya Koṣa it is all bliss. This state is totally stress-free state.

Working at physical level (Annamaya Koṣa) alone is not enough to reduce stress. Bringing balance to the other four levels is mandatory; the, Prāṇamaya, Manomaya, Vijñānamaya & Ānandamaya Koṣa must all be brought to states of balance. This is the holistic approach used in Yoga.

PAÑCA KOṢA MODEL BASED ON TAITTIRĪYA UPANIṢAD



Thus, in the Taittirīya Upaniṣad, a more fundamental and generalised concept of stress is presented through this PAÑCA KOṢA model. This is the holistic concept of man having five major sheaths of existence.

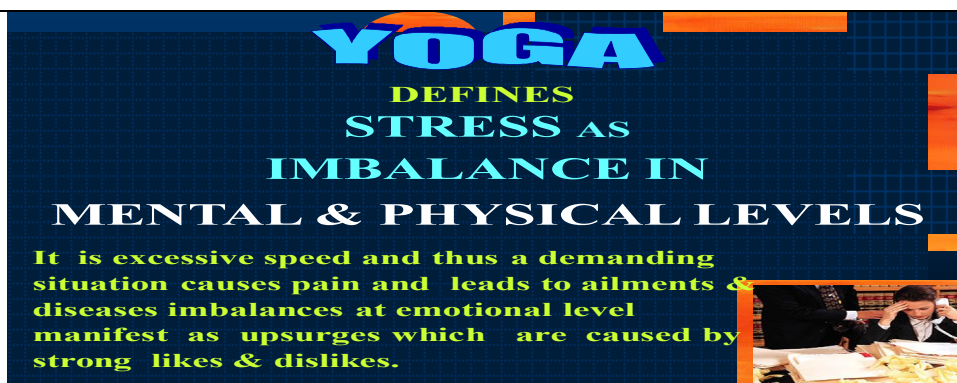
1. ANNAMAYA KOṢA : PHYSICAL LAYER OF CONSCIOUSNESS
2. PRĀṆAMAYA KOṢA : VITAL LAYER OF CONSCIOUSNESS
3. MANOMAYA KOṢA : ASTRAL LAYER OF CONSCIOUSNESS
4. VIJÑĀNAMAYA KOṢA : WISDOM LAYER OF CONSCIOUSNESS
5. ĀNANDAMAYA KOṢA : BLISS LAYER OF CONSCIOUSNESS

Concept of stress and its management according to Yoga

According to Yoga, stress is imbalance; imbalance is misery. At the mental and physical level, excessive speed and demanding situations cause pain, leading to disease and ailments. Definitions of stress according to Yoga are as given below:



SOURCE: SMET MODULE, S-VYASA UNIVERSITY



SOURCE: SMET MODULE, S-VYASA UNIVERSITY

Imbalances on the mental level manifesting as upsurges in emotion are caused by strong likes and dislikes. At the psychological level, imbalances lead to conflicts, and often manifest in petty ego-centric behavior. Lack of holistic knowledge and balanced outlook at subtle levels are responsible for imbalances found at gross levels.

**YOGA OFFERS
TOTAL REHABILITATION
BY
THE INTEGRATED MODULE OF
SMET**



SOURCE: SMET MODULE, S-VYASA UNIVERSITY

Patañjali's idea of stress can be understood by the study of his concepts of modifications of the mind (Citta Vṛtti) and the causes for pains in the mental status (Kleṣa). He puts forth five major modifications of the mind as the determinants of stress (Patañjali Yoga Sutra 1:6): right knowledge (Pramāṇa), wrong knowledge (Viparyaya), fancy (Vikalpa), sleep (Nidrā), and memory (Smṛti).

व्याधिस्त्यानसंशयप्रमादालस्याविरतिभ्रान्तिदर्शनालब्धभूमिकत्वानवस्थितत्वानि चित्तविक्षेपास्तेऽन्तरायाः। १-३०

Vyādhistyānasaṁśayapramādālasyaāviritibhrāntidarśanālabdhabhūmikatvānavasthitatvāni

cittavikṣepāste'ntarāyāḥ |1- 30

दुःखदौर्मनस्यांगमेजयत्वश्वासप्रश्वासाः विक्षेपसहभुवः। १-३१

Duḥkhadaurmanasyāṅgamejayatvaśvāsapraśvāsāḥ vikṣepasahabhuvaḥ |1-31

Meaning: Disease, dullness (chronic fatigue), doubt, procrastination, laziness, craving, erroneous perception, inability to achieve finer stages and instability are the obstacles. Mental pain, depression, nervousness and hard breathing are the accompanying symptoms of mental distraction (Vikṣepasahabhuvaḥ). ^[6]

Stress Management Principles according to Patañjali

In the Yoga Sutrās (1: 32- 39), Patañjali suggests 8 suitable stress management principles to come out of the stress to a state of complete mental well-being.

1. For removing of those obstacles and accompanying symptoms, the practice of concentration on one principle is undertaken.
2. In relation to happiness, misery, virtue and vice, by cultivating the attitudes of friendliness, compassion, gladness and indifference respectively, the mind becomes purified and peaceful
3. Or by the expiration and retention of the breath one can control the mind
4. Or else the mind can be made steady by bringing it into activity through sense experience
5. Or the luminous state which is beyond sorrow can control the mind
6. Or else the mind can be brought under control by making passionless persons the object for concentrating the mind
7. Or else the mind can be made steady by giving it the knowledge of dream and sleep for support
8. Or else by any desired meditation, mind can be steadied

The ultimate goal of yoga is to bring about the status of complete mental well-being by restraining mental modifications. Control over the mind's fluctuations comes from persevering practice (Abhyāsa) and non-attachment (Vairāgya). Repeating the sacred syllable (Praṇava Japa) and pondering its meaning (Arthabhāvanam) lead to experience of the ultimate mental well-being.

Four Qualities for Effective Stress Management through Cognitive Behavioral Transformation according to Patañjali

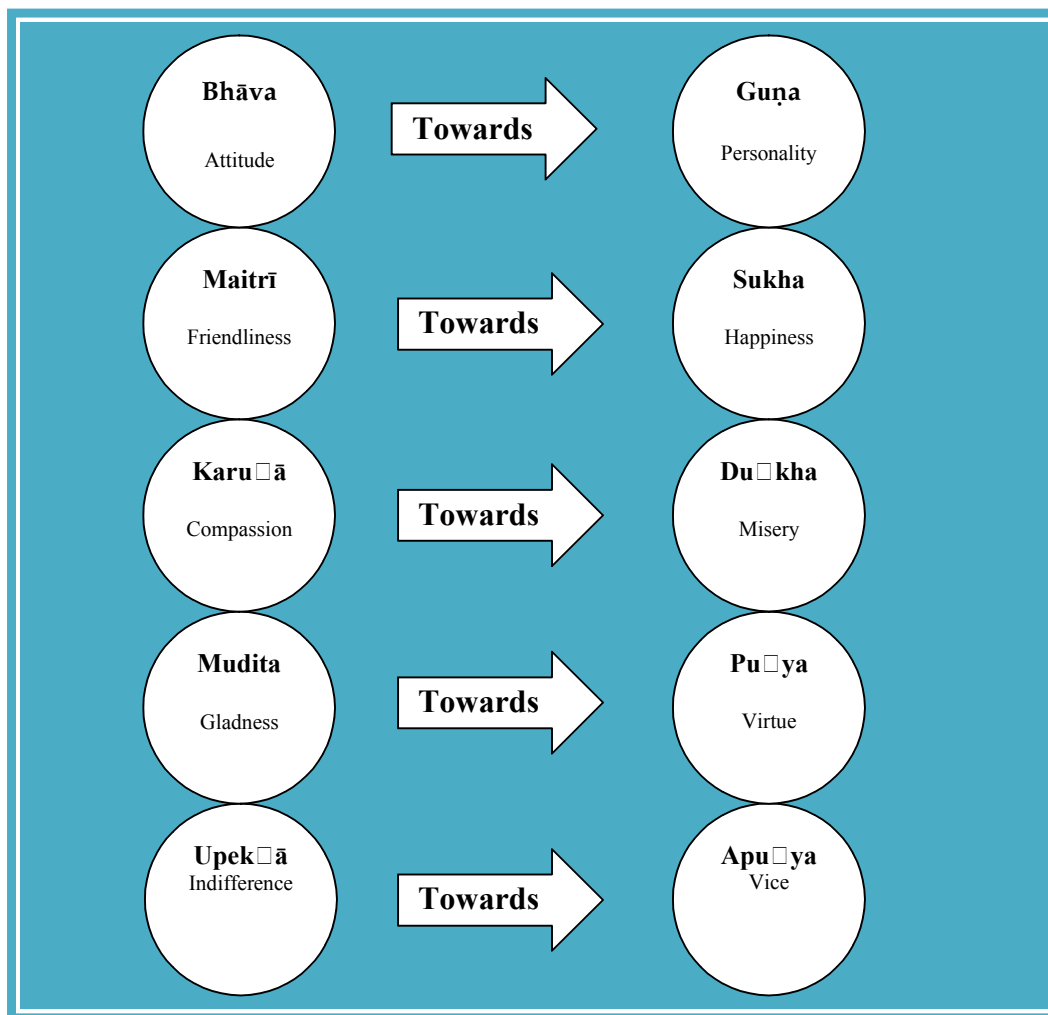
Patañjali states that four qualities should become the basis of our association with other people.

मैत्रीकरुणामुदितोपेक्षाणां सुखदुःखपुण्यापुण्यविषयाणां भावनातश्चित्तप्रसादनम्। पातञ्जल योग सुत्र १.३३

Maitrīkaruṇāmuditopekāṇāṃ sukhaduḥkhapuṇyāpuyaviṣyāṇāṃ

bhāvanātaścittaprasādanam |Pātañjala Yoga Sutra 1.33

The meaning is that: “The mind becomes purified and peaceful by cultivating the attitudes of friendliness, compassion, gladness and indifference respectively towards happiness, misery, virtue and vice”.



Here, पतञ्जलि Patañjali uses the term क्लेश Kleṣa which aptly describes stress. In his text योग सुत्र Yoga Sutra (Yoga Aphorisms) the Kleṣas have been described as:

अविद्याऽस्मितारागद्वेषाभिनिवेशाः क्लेशाः । पातञ्जल योग सुत्र २-३

Avidyā'smitārāgadveṣābhiniveśāḥ kleśāḥ. Pātañjala Yoga Sutra 2-3

Stress in the form of mental, emotional, and biopsychic hindrances (क्लेश Kleśās) originates from अविद्या Avidyā (unawareness) of our true nature. As a result of this ignorance [which veils the bright light of truth], the other Kleśās arise such as अस्मिता Asmitā (the limited false identification of egoism), राग Rāga (fixation and craving), द्वेष Dveṣā (repulsion, dislike, hatred, anger, fear, antipathy, or aversion), and the fear of dissolution (अभिनिवेश Abhiniveśāḥ). In our original state we are totally stress-free. We are blissful. That state, devoid of any tension and pressure is the source of all bliss, knowledge, creativity and freedom. This stress-free state which पतञ्जलि Patañjali calls स्वरूप Svarupa (our true nature) is given as:

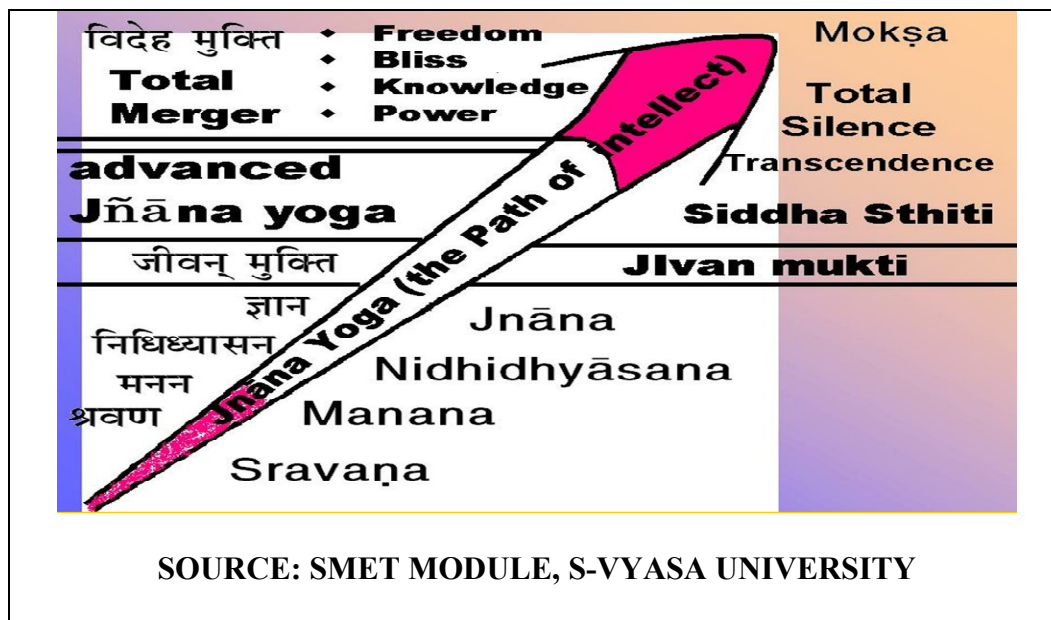
तदा द्रष्टुः स्वरूपेऽवस्थानम् । पातञ्जल योग सुत्र १-३

Tadā draṣṭuḥ svarupe'vasthānam |Pātañjala yoga sutra 1-3

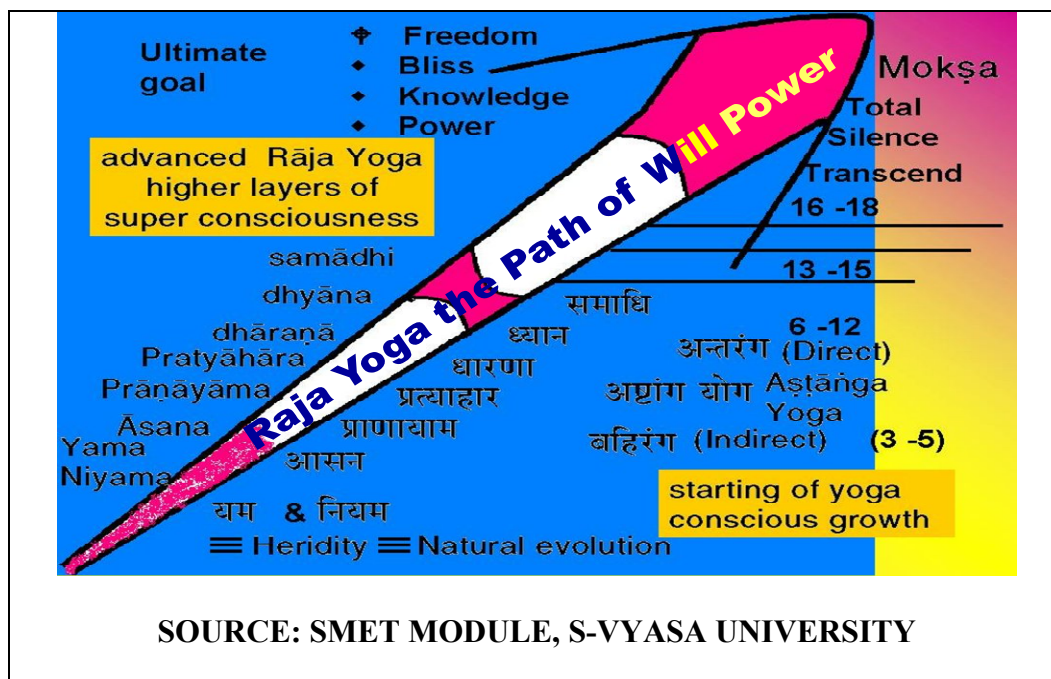
Then the seer abides in the unbiased primordial all pervading clear light consciousness, which is our true nature (स्वरूप Svarupa).

According to Swami Vivekananda this state of स्वरूप Svarupa can be achieved by:

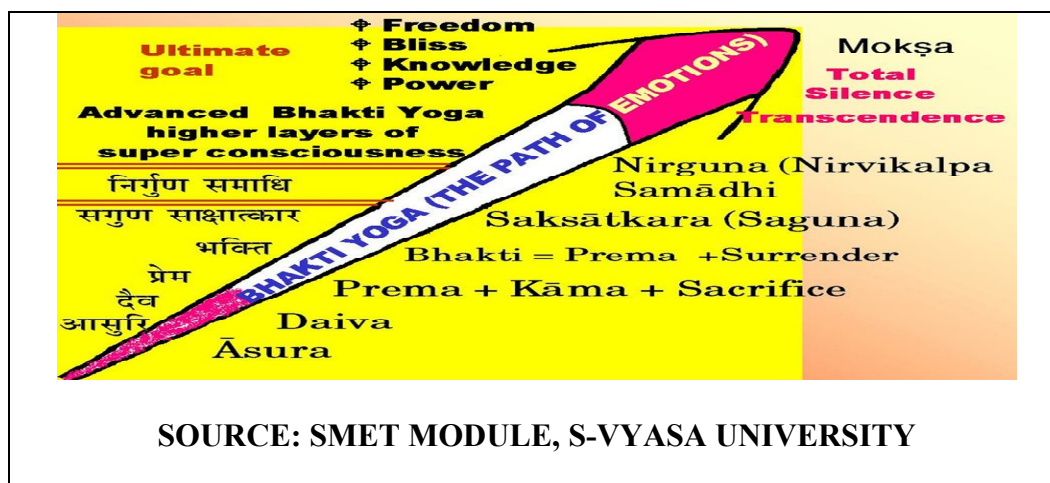
Jnana Yoga: The path of intellect



Or by Raja Yoga: The path of will power



Or by Bhakti Yoga: The path of emotions



Or by Karma Yoga: The path of selfless action



By following one or more or all these paths of Yoga, one may attain this state of स्वरूप

Svarupa. This state of स्वरूप in other scriptures or cultures also known by मोक्ष Mokṣa or

महानिर्वाण Mhānirvāṇa, or Pure Consciousness. Can we call it as our sweetest home?

Yes, says Dr H R Nagendra in his lectures on SMET module at S-VYASA University.

अष्टांग योग Aṣṭāṅga (eight limbs) Yoga proposed by पतञ्जलि Patañjali for Stress

Management

1. YAMA (UNIVERSAL MORAL COMMANDMENTS)

- a. Ahimsā (Non- violence)
- b. Satya (Truth)
- c. Asteya (Non-stealing)
- d. Brahmacharya (Continence)
- e. Aparigraha (Non-coveting)

2. NIYAMA (SELF- PURIFICATION BY DISCIPLINE)

- a. Śauca (Cleanliness)
- b. Santoṣa (Contentment)
- c. Tapas (Austerity)
- d. Svādhyāya (Self-study)
- e. Īśvarapranidhāna (Surrender to God)

3. ĀSANA (POSTURE)

4. PRĀNĀYĀMA (BREATH CONTROL)

5. PRATYĀHĀRA (WITHDRAWAL OF MIND FROM SENSES)

6. DHĀRANĀ (CONCENTRATION)

7. DHYANA (MEDITATION)

8. SAMĀDHI (SUPER-CONSCIOUSNESS)

Genesis of Stress and its management according to Bhagvad Gita (BG)

BG presents the genesis of stress in a dramatic narration:

ध्यायतो विषयान्पुंसः सङ्गस्तेषूपजायते । सङ्गात्सञ्जायते कामः कामात्क्रोधोऽभिजायते ॥२-६२॥

क्रोधाद्भवति सम्मोहः सम्मोहात्स्मृतिविभ्रमः । स्मृतिभ्रंशाद्बुद्धिनाशो बुद्धिनाशात्प्रणश्यति ॥२-६३॥

Dhyāyato viṣayānpuṁsaḥ saṅgasteṣūpajāyate |

Saṅgātsañjāyate kāmaḥ kāmātkrodho'bhijāyate ||2-62||

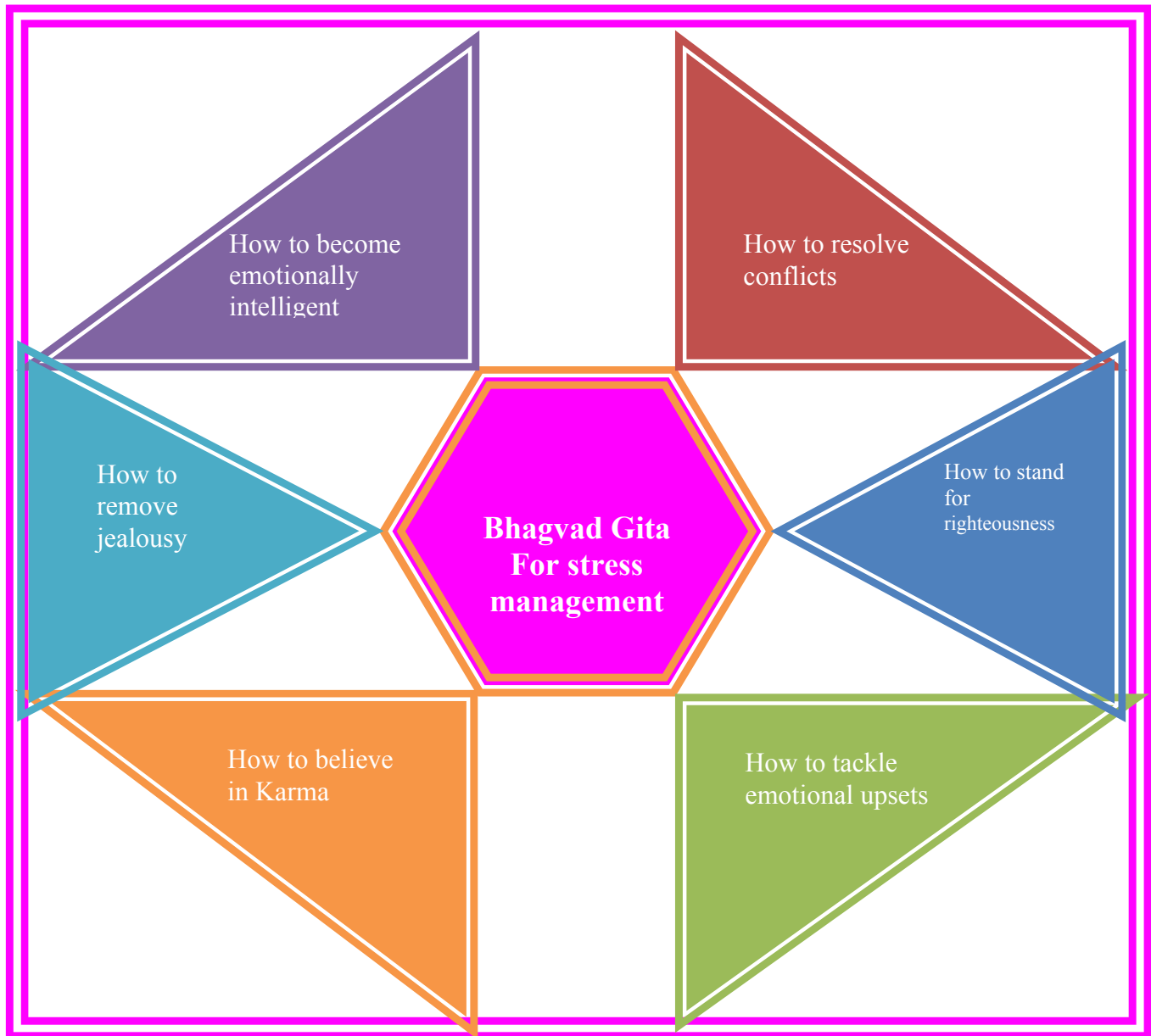
Krodhādbhavati sammohaḥ sammohātsmṛtīvibhramaḥ |

Smṛtibhramśādbudhdināśo budhdināśātpṛaṇasyati ||2-63||

Repeated thinking about objects leads to attachment, attachment to desires, desires (strong likes and dislikes) to anger (greed, lust, fear, possessiveness, etc.) which in turn leads to infatuation, lack of awareness and power of discrimination and finally one gets lost. BG 2-62 & 63

This dramatic narration matches with the description of Patañjali's comprehensive concept of Kleṣa. Egocentric personalities are characterized by strong obsessions, ambitions, likes and dislikes. Emotional imbalances often emerge out of them as upsurges. Else, if they get suppressed they percolate to the physical level resulting in heart attacks or nerve shattering diseases. When the emotional outbursts like anger continues for a long time, we become infatuated and obsessed losing all power of discrimination and act from the instinctive level. Patañjali called this as Abhiniveṣa, a state of helplessness, constriction, slavery or bondage which is the grossest manifestation of stress.

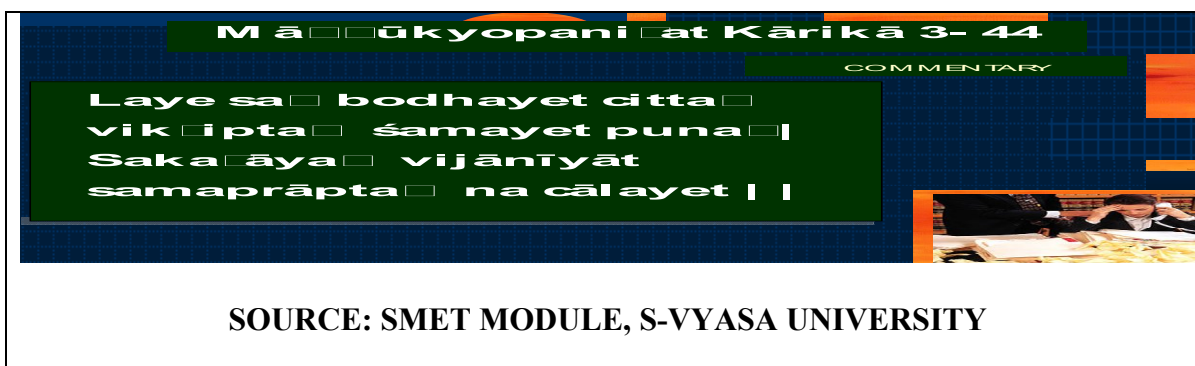
Stress Management Principles according to Bhagvad Gita



Source: <http://www.slideshare.net/Subhashitam/bhagvad-gita-be-emotionally-intelligent-presentation>

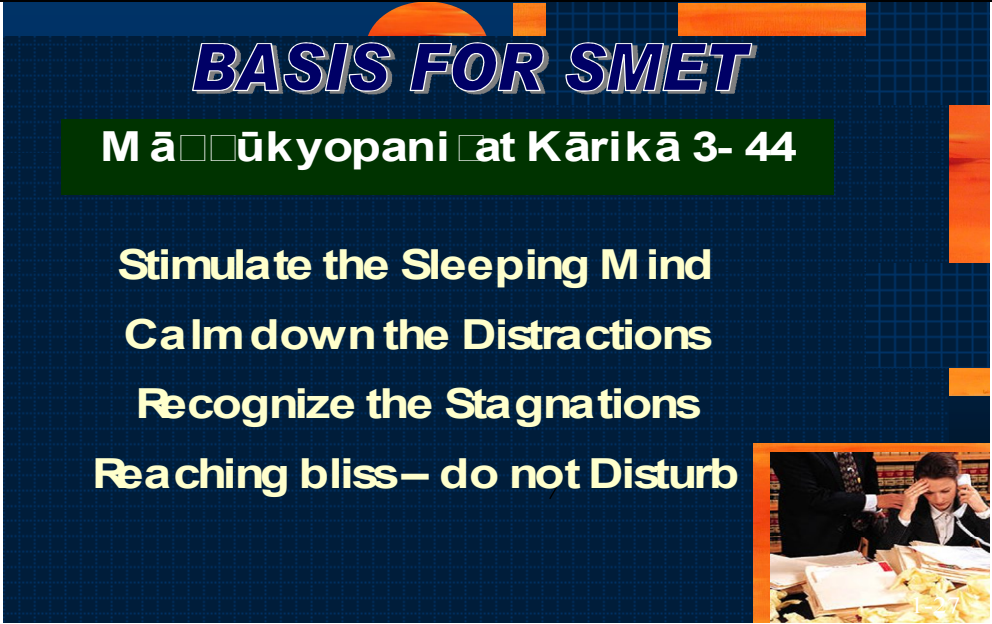
Stress accumulated at the body level as stiffness of joints and spasm of muscles can be released by the practice of Yoga Āsanās, congenial body postures to help calm the mind. Slow movements help in combating the rush from within. The rhythmic breathe slowing process through Prāṇayāma brings balance at the Prāṇic level. Retaining awareness and

relaxation throughout the practice helps to gain mastery over the mental process and eliminates imbalances at Prāṇamaya Kosā level. Keeping goals in mind, and achieving a happy, healthy, peaceful and efficient life that promotes harmony in the surrounding prevents one from getting lost in the rat race and mad rush to affluence, which can destroy inner poise, tranquility and calmness - the very purpose of Yoga. By using Yoga, we learn to expand our horizons, increase capabilities and manifest dormant potentialities. People who achieve this state enjoy a sense of peace and bliss deep within. Attuned to the illumination of total knowledge within, and actively engaging themselves for the good of all beings, they enjoy the process of serving others, says the Bhagvad Gītā. Further, achieving ones goals is to learn the cardinal principles of Yoga, “relaxation of body; slow down the breath and calm down the mind”. It is a series of successive stimulation and relaxation that can solve the complex problem of the mind.



Crystallizing such principles into practical techniques, S-VYASA has developed highly effective programs of stress management, offered under the following four headings:

1. Instant Relaxation Technique (IRT)
2. Quick Relaxation Technique (QRT)
3. Deep Relaxation Technique (DRT)
4. Self Management of Excessive Tension (SMET)



BASIS FOR SMET

M āñākyopani śat Kārikā 3- 44

Stimulate the Sleeping Mind

Calm down the Distractions

Recognize the Stagnations

Reaching bliss— do not Disturb

SOURCE: SMET MODULE, S-VYASA UNIVERSITY

Over the last 25 years, these programs have been conducted at various business houses, factories, industries, and educational institutions, management development institutions and for the common public in general. Course participants have experienced deep relaxation resulting in great calmness of mind and body during the programs. Preliminary investigations have demonstrated the efficacy of this program in handling stress effectively.

CM and SMET

CM is essentially a practice.

SMET is a stress management program featured with theory and practice. [Tables 2&3]

List of CM Practices [See Plates 1 to 17]

SMET Theory and Practice Sessions are shown as below:

SMET THEORY SESSIONS AT A GLANCE

Day	Session 1	Session 2
1	Introduction to SMET	Concept of stress according to modern medical science & yoga
2	Recognition is half solution	Stress levels and stress release
3	Executive Growth 1 (Depth of Perception)	Executive Growth 2 (Expansion of Awareness)
4	Group Dynamics	Summary of published research work in SMET at VYASA

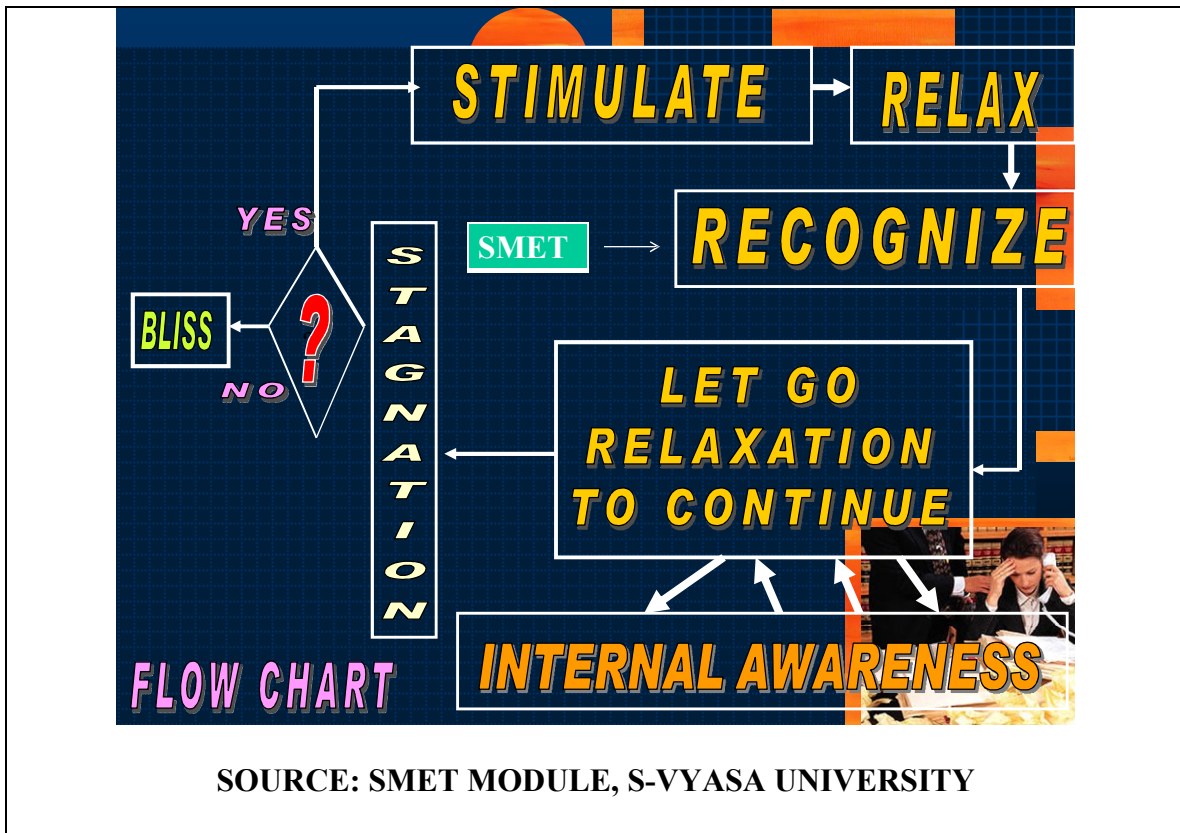
SMET PRACTICE SESSION AT A GLANCE

Day	Session 1	Session 2
1	IRT (Instant Relaxation Technique) Relaxation and Centering in Tādāsana Ardha Kaṭi Chakrāsana (Right & Left) QRT (Quick Relaxation Technique)	Ardha Kaṭi Chakrāsana (Right & Left) QRT, Śīthila Danḍāsana, Vajrāsana Śhśānkāsana, Ardha Uṣṭrāsana or Uṣṭrāsana
2	QRT, Vajrāsana, Ardha Uṣṭrāsana or Uṣṭrāsana, Śīthila Danḍāsana, DRT (Deep Relaxation Technique)	FULL PRACTICE (starting from IRT to DRT including all standing and sitting postures) with recognition of stimulation- relaxation.
3	FULL PRACTICE allowing the relaxation more than stimulation	FULL PRACTICE feeling the blood flow, blood pressure, synchronization of pulse and heart beat, nerve impulses
4	FULL PRACTICE feeling the changes in the mind and emotions with pointed, linear, surface and 3 dimensional awareness of the whole body	FULL PRACTICE enjoying the group awareness expanding to all- pervasive awareness.

List of deepening aspects in SMET practice (CM) based on theory

1. All the movements to be done smoothly and slowly with full awareness.
2. Feel all the changes in the whole body and allow the changes to continue.
3. Feel the resonating wave throughout the body while chanting Omakāra/Bhrāmārī during the practice of Tāḍāsana (Palm Tree Posture).
4. Allow the changes to continue when the orientation changes from the lying position to the standing position.
5. Let all the movements be slow and continuous without any jerks
6. Eyes closed, face smiling.
7. Bend in the same plane and as far as you can without any strain during the practice of Ardha Kaṭi Cakrāsana (Half Wheel Pose)
8. In Vajrāsana, the head, neck and buttocks should be in a straight line and observe the breathing.
9. During the practice, with emphasis on the recognition of stretches, spasms and stresses, one needs to follow all the instructions. Also one has to locate the regions of relaxation obtained by release of stimulations.
10. Closing the eyes throughout the SMET program is meant for drawing your awareness inwards, i.e. looking within and recognizing the regions of stress and tensions and also the regions of relaxation. This is the goal at the beginning stage. As we progress further the program, we will be able to recognize the generalized changes all over the body-mind complex, as well as particular changes that occur at the instance of each Asana and other Yoga techniques.

Following is the flow chart depicting the progress of internal awareness during SMET program:



We will reach very deep layers of the mind releasing stress greatly. However, we do not normally reach a perfect state of bliss with no stress or tension whatsoever. But we can certainly open up new dimensions of our inner personality through this program. We will not only be able to recognize gross stress at the body level, but we will also become aware of the vast hidden potentialities within us.

SMET practice with emphasis on recognition of various stimulations at different levels- physical, mental, emotional, intellectual and spiritual brings internal awareness and release of stimulations, and when properly used also lead to expansion of awareness.



SOURCE: SMET MODULE, S-VYASA UNIVERSITY

Difference between SMET postures and normal Āsanās

1. All the postures are performed very slowly with no jerks or discontinuities.
2. Smooth, normal and effortless movements are most congenial.
3. Allow normal breathing to continue.
4. Final position of the posture varies from person to person and is not very important.
5. No forceful stretching in Postures; get to the final position without strain. A stretch will be there but we learn to work in the elastic range- a region of pleasurable pain.
6. Close the eyes throughout the practice. In the initial sessions one may open his/her eyes and look at the instructor to learn and correct his/her posture.
7. Carefully feel all the changes which go on in the body-mind complex with no strenuous without attention but by passive or effortless awareness.

SMET program and Managerial Effectiveness (ME)

The ME is a manager's ability to achieve desired results. Results are generally believed to be influenced by the organization's established culture. A good manager must adapt to the organization's culture and make sure his/her skills are aligned with organizational goals in order to achieve positive results. Thus, in other words the ME is manager's skills and ability to develop and maintain organizational culture for healthy workplace.

Yoga has an important role in improving the ME. Various stress management programs based on Yoga are available to enhance ME. In the SMET program, many of ONGC managers have reported that as a result of the SMET practice, they can handle difficult situations both at home and work much more effectively, without getting aggravated. Similarly, the parameters like BWC recording, EQ, GHQ and PI are the added dimensions in process of assessment of efficacy of SMET for ME.

We propose the hypothesis that a systematic adoption of SMET program as a way of life in day to day activities of manager's life can result in the ME, thus paving the way for better performance as managers. The empirical work was carried out to prove this hypothesis and to document this idea scientifically which is discussed in the later sections.

2.2 SMET ACCORDING TO SCIENTIFIC LITERATURE

The holistic and integrated stress management program called SMET is attracting a large number of managers to combat this modern lifestyle problem and thereby allowing them to lead holistic ways of living in health, harmony and happiness.^[5] Previous work on stress management program, reported significant improvement in the subjective well being inventory (SUBI) scores of the 77 subjects within a period of 10 days as compared to controls. These observations suggest that a short lifestyle modification and stress management program can make a considerable contribution to primary prevention as well as management of lifestyle diseases.^[28] Previous study on SMET, reported decrease in occupational stress levels and baseline autonomic arousal in managers, suggesting significant reduction in sympathetic activity^[29] and better emotional well being in them.^[30] CM Technique, the practical aspect of SMET program, has been understood in earlier studies to help reduce anxiety, based on a reduction in levels of psycho-physiological arousal.^[36] Significant reduction (19.3%) in oxygen consumption after practicing CM as compared to equivalent period of supine rest (4.8%), was reported.^[37] CM has shown a significant decrease in oxygen consumption and an increase in breath volume, suggesting reduced sympathetic activity.^[38] CM showed a reduction in the physiological signs of anxiety and stress.^{[39],[40]} Studies on CM have suggested that sympathetic activation occurs predominantly during the initial Yoga posture phases of CM, whereas, later CM, reduces sympathetic arousal and restores homeostasis.^[41] In a subsequent study correlating CM and heart rate variability, a two-day CM program decreased occupational stress levels and baseline autonomic arousal in 26 asymptomatic, male, middle managers,^[29] suggesting significant reduction in sympathetic activity.

Summary Table of Scientific Literature on SMET Practice/CM

Sr.No.	Subject	Author/s (Journal and Year of Publication)	Findings
1	Reduction in the occupational stress levels	1.1 Vempati RP and Telles S (J Indian Psychol 1999)	↓ Anxiety & Depression
		1.2 Vempati RP and Telles S (J Indian Psychol 2000)	↓ Occupational Stress Levels and baseline autonomic arousal suggesting significant ↓ Sympathetic Activity
2	Reduced sympathetic arousal and restored homeostasis	2.1 Sarang P and Telles S (Int J Stress Manag 2006)	↑ Vagal Tone, Parasympathetic Dominance and ↓ Cortical Activity
		2.2 Vempati RP and Telles S (Psychol Rep 2002)	↓ Sympathetic Activity
		2.3 Patra S and Telles S (Appl Psychophysiol Biofeedback 2010)	Parasympathetic Dominance during sleep
3	Better cognitive functions	3.1 Sarang SP and Telles S (Int J Neurosci 2006)	↓ P300 Peak Latency, ↑ Peak Amplitude
		3.2 Subramanya P and Telles S (Clin EEG Neurosci 2009)	Prolonged latencies of evoked potentials generated within the cerebral cortex, supporting the idea of cortical inhibition after CM
		3.3 Sarang SP and Telles S (Percept Mot Skills 2007)	Improved performance in a letter cancellation task which required selective attention, concentration, visual scanning abilities and a

			repetitive motor response suggesting CM not only enhances performance but also selectively reduces the probability of being distracted.
		3.4 Subramanya P and Telles S (Biopsychosoc Med 2009)	$\begin{array}{ccc} \uparrow \text{Memory Scores} & \xrightarrow{\Sigma} & \downarrow \text{State Anxiety} \\ & & \uparrow \text{Alertness} \end{array}$
		3.5 Chattha R, Nagarathna R, Padmalatha V, Nagendra HR (BJOG 2008)	CM combined with other yogic practices can improve hot flushes and night sweats. It also can improve cognitive functions such as remote memory, mental balance, attention and concentration, delayed and immediate recall, verbal retention and recognition tests.
		3.6 Subramanya P and Telles S. (Int J Yoga 2009)	CM practice (i) ↓ Autonomic arousal, (ii) ↑ Attention, and (iii) ↑ Quality of sleep.
		3.7 An H, Kulkarni R, Nagarathna R, Nagendra H (Int J Yoga 2010)	↑ Sampling entropy in the CM group as compared to the control group. The time domain measure called pNNx is shown to be useful in distinguishing between the meditative state of CM and a normal resting state.
		3.8 Khemka SS, Rao NH, Nagarathna R. (Indian J Physiol Pharmacol. 2009)	Both CM and Deep Relaxation Technique (DRT) improve attention, but that only DRT

			reduces State Anxiety.
		3.9 Subramanya P and Telles S. (Percept Mot Skills 2009)	It was difficult to conclude whether improved Digit-Letter Substitution Task (DLST) scores after CM were due to better information processing speed or improved motor speed.
4	Better IQ	4.1 Pradhan B, Nagendra HR (Int J Yoga 2009)	Both CM and SR led to improvement in performance, as assessed by DLST, but the magnitude of net score improvement was greater after SR (7.85%) compared to CM (3.95%).
		4.2 Pradhan B, Nagendra HR (Int J Yoga 2010)	Both CM and SR led to improvement in performance, as assessed by SLCT, but the change caused by CM was larger than SR in the net scores (14.5 % versus 11.31%).
5	Better EQ	5.1 Sony K, Nath NCB and Nagendra HR (XIMB Journal of Management 2007)	SMET intervention contributed to better emotional well being of the managers
		5.2 Sony K, Nath NCB and Nagendra HR (Indira Management Review 2008)	There is no correlation between EQ, Guna Typology/Human Quality Quotient (HQQ) suggesting EQ and Guna Typology/HQQ are two distinct concepts entirely
		5.3 Sony K, Nath NCB	SMET intervention contributed to

		and Nagendra HR (Jour Nat Acad Psych 2007)	significantly enhancement of emotional competence level of the managers
		5.4 Adhia H, Nagendra HR, Mahadevan B (IIMB Management Review 2010)	↑ EQ in managers suggesting improvement in the ME in organizations
		5.5 Ganpat TS and Nagendra HR (J Mid-life Health 2011)	A systematic adoption of the SMET program can result in better EQ among managers for the ME, thus paving the way for their better performance as managers.
6	Improved sleep structure	6.1 Patra S and Telles S (Med Sci Monit 2009)	CM during day time has been shown to ↑ in % Slow Wave Sleep in the subsequent night. CM has number of components which may facilitate sleep such as increased activity, muscle stretching, interoception and guided relaxation
7	Overall Managerial Effectiveness	7.1 Ganpat TS and Nagendra HR (Indian J Physiol Pharmacol 2011)	Significant ↑ in Delta Wave Coherence and moderate ↑ in Alpha and Gamma Wave Coherence suggest good homogeneity, uniformity, and increased orderliness of brain functioning which reflects in enhancement of frontal lobe integration, increased cognitive flexibility, intelligence, and emotional stability. Thus, SMET

			intervention contributed to better emotional stability of the managers
		7.2 Adhia H, Nagendra HR, Mahadevan B (Int J Yoga 2010)	Improvement in the factors like job satisfaction, goal orientation, affective organizational commitment and organizational citizenship behavior positively among managers which have a crucial bearing on organizational effectiveness.
		7.3 Adhia H, Nagendra HR, Mahadevan B (Vikalpa, IIMA Journal 2010)	↑ Job satisfaction through reduction of job burnout of managers
8	Better physiological relaxation confirmed through studies on metabolism and O₂ consumed	8.1 Telles S, Reddy SK and Nagendra HR (Appl Psychophysiol Biofeedback 2000)	32.1% ↓ O ₂ consumption suggesting deep physical rest
		8.2 Sarang PS and Telles S (Appl Psychophysiol Biofeedback 2006)	19.3% ↓ O ₂ consumption after CM compared to 4.8% following Supine Rest (SR) suggesting more physiological relaxation after CM than SR
		8.3 Sarang SP and Telles S (J Indian Psychol 2006)	CM reduced the energy expenditure more than SR alone

CM suggests a shift towards sympatho-vagal balance in favor of parasympathetic dominance during sleep.^[42] The mechanisms underlying the decrease in occupational stress levels may be related to decreased autonomic arousal (sympathetic activation) as

well as psychological factors. These results support the idea that a combination of Yoga postures with supine rest reduces the energy expenditure as compared to supine rest alone.^[43]

CM enhances the cognitive processes as demonstrated by P300^[44] studies and brings about a greater improvement in the performance of the cancellation task. Both tasks require selective attention and concentration.^[45] These benefits were ascribed to possible stress reducing effects of CM in its different aspects of neuro-psycho-physiological dimensions.^{[46],[47],[48],[49],[50],[51],[52],[53],[54],[55]}

CM has a number of components which may facilitate sleep such as increased physical activity, muscle stretching, interception, and guided relaxation. It was demonstrated that SMET program decreases occupational stress levels and baseline autonomic arousal in managers, suggesting significant reduction in sympathetic activity^[56] and development of better emotional well-being in them.^[57]

Managers with dominance of Sattva Guṇa in their personality traits are happier, healthier and more successful in their relationships which are signs of high EQ.^[58] These benefits indicate the importance of Yoga based life style stress management program as an integral element in improving ME in organizations.^[33] The SMET program has also been found to improve measures of EQ.^[59] Taken together, these studies suggest that CM practice (a) reduces autonomic arousal, (b) improves attention, concentration, visual scanning abilities and (c) improves quality of sleep.

Previous investigations have not systematically evaluated the effect of SMET program (in a residential set-up) on BWC, EQ, GHQ, and PI in managers. Thereby, they implicitly overlook the correlations between them. Hence, we have designed the present study to assess the efficacy of SMET program for the ME through evaluating BWC, EQ, GHQ, and PI in managers.



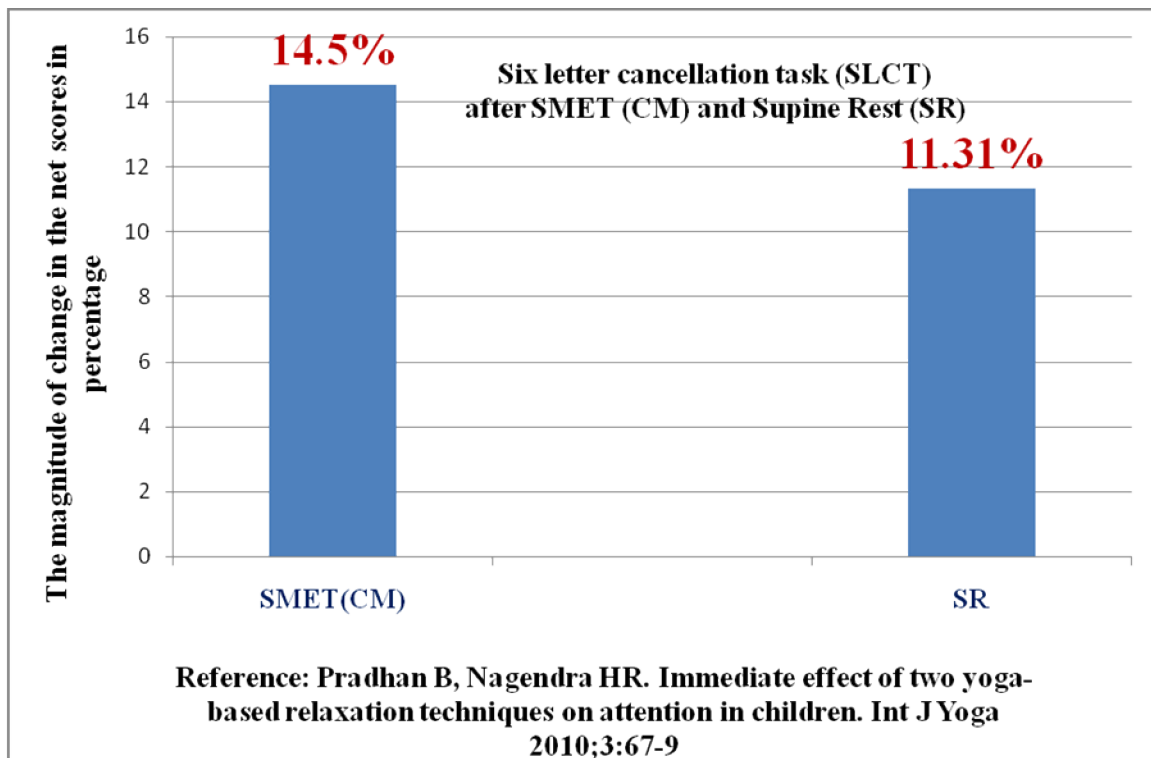
SOURCE: SMET MODULE, S-VYASA UNIVERSITY

CHAPTER 3

AIM AND OBJECTIVES

RESEARCH AT A GLANCE

The magnitude of change in the total and net scores of six letter cancellation task (SLCT) of was more after SMET practice (CM) than after Supine Rest (SR) showing improvement in sustained attention, concentration, visual scanning, and motor speed.



AIM AND OBJECTIVES

3.1 Aim

The aim of the study is to give an in-depth analysis of SMET module and to assess the efficacy of it for ME.

3.2 Objectives

The objectives of this study are to explore the efficacy of SMET module for the ME through the assessment of BWC, EQ, GHQ, PI and correlations between BWC, EQ, GHQ and PI

3.3 Research Questions

- a. Can a short residential SMET module (a lifestyle modification program of stress management based on Yogic wisdom) bring about significant changes in ME through the assessment of BWC, EQ, GHQ and PI in managers?
- b. Are there any correlations between BWC, EQ, GHQ and PI in managers?

3.4 Hypothesis

- a. SMET program brings about changes in BWC, EQ, GHQ and PI for ME.
- b. There exist some correlations between BWC, EQ, GHQ and PI in managers.

3.5 Null Hypothesis

- a. No change will take place in BWC, EQ, GHQ and PI in managers
- b. There exist no correlations between BWC, EQ, GHQ and PI in managers

3.6 Rationale

Earlier investigations have shown the usefulness of SMET and CM program in reducing stress, providing deeper rest than good sleep, improved sleep structure, cognitive responses as well as brain functioning.

This study is to further understand the effect of SMET module as a short residential program of 5 days for the middle line executives in developing ME through the pre and post measurements of BWC, EQ, GHQ and PI.

The rationale for the study is that an integrated approach of Yoga module, the basis for SMET program works at all levels of human system- physical, mental, emotional, intellectual and spiritual to build a total personality development for compete and holistic ME.

**“IN THE SMET PROGRAM, WE WILL BE MOVING FROM ONE
STRESS LEVEL TO ANOTHER LOWER ONE AS WE PROGRESS”**

-NAGENDRA AND NAGARATHNA

CHAPTER 4
METHODS

**“THE TARGET SET DURING SMET
PROGRAM IS THE RELEASE OF
STRESS AND TENSION”**

-NAGENDRA AND NAGARATHNA

METHODS

“A survey of managers in a leading UK supermarket chain revealed that those high on emotional intelligence experienced less stress, enjoyed better health, demonstrated higher levels of morale and performance, and reported a better quality of life.”

- Margaret Chapman

4.1 Subjects

The subjects for the study were 72 managers (63 males and 9 females). They were selected from the groups of managers of Oil and Natural Gas Corporation (ONGC) Limited based on the following inclusion and exclusion criteria.

4.1.1 Inclusion Criteria

1. Middle level executives,
2. Age range 45 and 60 years and
3. Both male and females

4.1.2 Exclusion Criteria

1. Women during pregnancy, menstrual periods or experiencing menopausal problems,
2. Persons with serious medical conditions,
3. Participants taking medication
4. Using any other wellness strategy,
5. Persons using psychiatric drugs, alcohol, or tobacco in any form.

4.1.3 Source

Subjects for the present study were selected from ONGC Limited, India.

4.1.4 Informed Consent

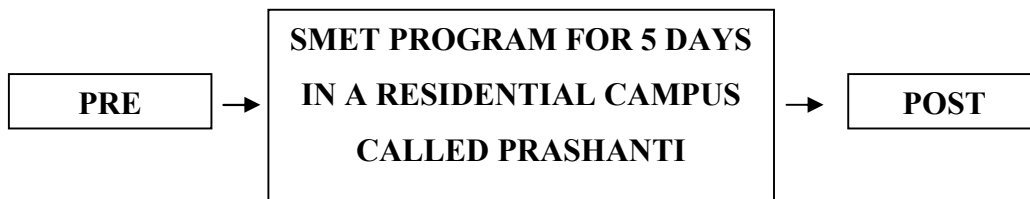
An informed consent was obtained from all the participants. [See Appendix 1]

The Institutional Review Board (IRB) Approval: The study was approved by the IRB.

Health check up by physicians: SMET participants were examined for their complete health check up to satisfy the inclusion criteria.

4.2 Design

A single group pre-post design



Subjects	Number of Subjects	Age-range	Age in Mean± SD
ONGC managers	72 (63 males and 9 females)	45 – 60 years	48.75±3.86

4.3 Intervention

All the subjects of this study participated in the SMET module, a stress management program based on the yogic wisdom (lecture sessions and practice sessions of CM).^{[5], [60]} CM, a combination of stimulating and calming practices, based on the yogic scripture was the principle behind the practices of the SMET program. The program was conducted in the serene and peaceful atmosphere of the Praśānti Kuṭīram in a residential set up with a schedule starting from 5 AM to 10 PM as shown in **Table 1**. **Tables 2 and 3** show the topics of lecture and practice sessions. **[Plates 1 and 2]**

Sattvic diet (high-fiber low-fat vegetarian and balanced diet), devotional sessions, cultural programs and discourses from experts were the key essence of this program. The program was based on Integrated Approach of Yoga leading to the holistic development of the personality.

4.3.1 SMET

SMET program consists of both theory and practice. The set of practices known as CM is an integral component of SMET program. CM combines ‘stimulating’ and ‘calming’ practices.^[35] It is based on an ancient yogic text, Māṇḍūkya Upaniṣads Kārikā, which suggests that this combination is the essence of all Yoga practices, and would be helpful to release stress, achieve mental equilibrium and emotional balance.^[5] **[Appendix 6]**

4.3.2 Theoretical aspects of SMET program

The theory sessions consisted of the following 7 aspects of SMET

1. Introduction to SMET- This lecture deals with the basis of SMET practice Māṇḍūkya Upaniṣads Kārikā, with the description of the steps included in the practice, and the research findings of decreased metabolic rate about 3 times more rest in 30 -35 minutes of SMET than 6 hours of good sleep.
2. Concept of stress according to Modern Medical Science and Yoga - It deals with the physiological aspects of stress and shows how it affects our health and efficiency, the root causes of stress and also it explains the method of stimulation and relaxation to overcome stress.
3. Recognition is half solution and stress release- This lecture deals with the recognition of stress and how to release and overcome the stress.
4. Executive growth-This lecture deals with two dimensions of increasing sensitivity (depth of perception) and (expansion of awareness) as the two principle components of growth and the SMET practice to accomplish the same.
5. Group dynamics- This lecture deals with benefits of working together in a group and how a group effort can bring efficiency at all levels and how SMET brings out the group effect.
6. Stress research: The research work done by VYASA over the last 20 years will be reviewed and the usefulness of SMET integrated approach of Yoga for Asthma, Diabetes, Hypertension, Cardiac problems, back pain, cancer, etc well brought out.

7. VYASA Movement- This session brings out the activities of VYASA in general with particular emphasis of research for the managerial world covering the developments done over the last 3 decades.

Each theory session is associated with the corresponding practice sessions to get more benefit from practice session. At the end of each theory session the hints for doing the practices going into the subtleties of practices were given.

4.3.3 Practical aspects of SMET program

Each practical session lasted for 35 minutes. It is a combination of stimulation and relaxation practices. This practice part is having three-relaxation technique and some postures, which forms a cycle of stimulation and relaxation in a sequence.

4.4 Assessments

4.4.1 Brain Wave Coherence (BWC)

The brain wave is a bioelectric potential that is recorded from the surface of the skull, using appropriate electrodes and instrumentation. Coherence is the condition of synchrony between the waves generated in between the 2 hemispheres of the brain. For example: if the left and right occipital lobes are generating Alpha waves of similar frequencies, there is some coherence between them. Brain wave coherence is the recording of electrical activity along the scalp produced by the firing of neurons within the brain. In this study we have used Brain Master 2 Channel EEG version 2.0 from Bio-Medical Instruments, Inc., Warren, Michigan for BWC recording^{[61],[62]} which records the brain waves and through an inbuilt software gives the coherence values of Delta (δ), Theta (θ), Alpha (α), Beta (β) and Gamma (γ) waves. [See Table 4]

4.4.2 Emotional Quotient (EQ)

In this study we have used the EQ test developed by Prof N. K. Chadha. The test has 15 real life situations based on 5 point scale rating and then finally obtained scores that was converted into percentile score. The classification of EQ values are shown in the **Table 5**. This test is useful to measure emotional dimensions as emotional competency, emotional maturity and emotional sensitivity. This test has been standardized for Indian population (professional managers, businessmen, bureaucrats, artists and graduate students) and used widely in research and elsewhere. It has a reliability of 0.94 and validity of 0.92. ^[63]

4.4.3 General Health Questionnaire (GHQ)

This 28 item test using a binary method of scoring (0, 0, 1, 1) yields an assessment on four robust subscales: Somatic Symptoms (SS), Anxiety and Insomnia (AI), Social Dysfunction (SF) and Severe Depression (SP). A sum of the scores for these four subscales gives the score for total health. Lower scores in the GHQ indicate better state of the health. The cut-off score was 9. ^[64] It provides information about the recent mental status, thus identifying the presence of possible psychiatric disturbance. This questionnaire has acceptable psychometric properties and has good internal consistency and reliability with Cronbach's alpha of 0.85 and validity of 0.76. The questionnaire is validated for the Indian population and test-retest effects get eliminated in 24 hours. ^[65]

[Table 6]

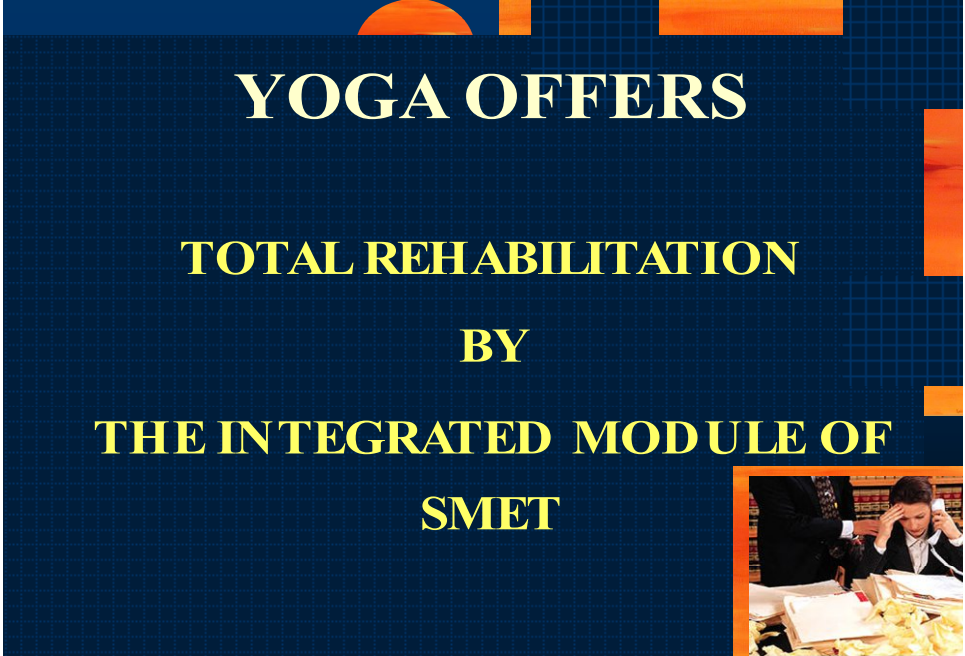
4.4.4 Personality Inventory (PI)

There are different theories of personality. These were the psychoanalytic, trait, social-cognitive, humanistic and the Indian approach to personality, based on Gunas. If we wish to determine aspects of a person's personality based on a particular theory, there are specific techniques for assessing those. For example, if we wish to know about the dominant traits in a person, e.g., whether he/she is an extrovert or introvert, there are specific ways developed by psychologists, to get this information. Similarly, if we wish to know about the unconscious aspects of a person's personality, we will have to use psychoanalytic ways of assessing the same. The Indian approach to personality emphasizes the three Gunas: Sattva, Rajas and Tamas. In order to assess a person's nature based on this conception, we need to have an understanding of which Guna is predominant in a person's life, in thought, speech and action, and then which is less dominant, and finally which is the least. For example, a person who is extremely truthful, detached, and helpful is likely to be high on Sattva. There are two ways of assessing personality traits. One method consists of asking a set of questions which a person has to answer about his/her opinions, feelings and actions. For this purpose, a PI is used. In the second approach, some other person makes assessments about a person's traits, based on prior knowledge about that person, or by direct observation of the person. This is called the rating-scale approach. [Tables 7.1, 7.2 and 7.3]

In this study, we have used PI developed by Pathak, Bhatt and Sharma.^[66] It has 24 items for Sattva Guṇa (balanced, gentle and controlled personality trait), 34 items for Rajas Guṇa (violent and uncontrolled personality trait) and 30 items for Tamas Guṇa (dull and

uncontrolled personality trait). It has good internal consistency and reliability and in terms of validity, all the three traits showed low correlation with each other indicating that these three traits are independent.

PI is based on Samkhya Philosophy's concept of Guna.^[67] In an ideal situation of perfect health, an individual has the complete freedom to use any of these three Guṇa with dominance of Sattva Guṇa in his personality. Ill health or limited health occurs if Rajas or Tamas Guṇa becomes dominant, as one loses freedom and gets habituated to either of these Guṇa. Hence, the degree of positive health can be measured by a tool that can grade these three personality traits or Guṇa.^[68]



YOGA OFFERS

TOTAL REHABILITATION

BY

THE INTEGRATED MODULE OF

SMET

SOURCE: SMET MODULE, S-VYASA UNIVERSITY

CHAPTER 5

DATA EXTRACTION AND ANALYSIS

**“RELEASE OF STRESS THROUGH
REGULAR PRACTICE OF SMET
COMPLETMENTS OUR GROWTH”**

-NAGENDRA AND NAGARATHNA

DATA EXTRACTION AND ANALYSIS

“Management is nothing more than motivating other people”

-Lee Iacocca

Data for BWC, EQ, GHQ and PI were taken before (pre) and after (post) the five days intervention of SMET program for ONGC participants.

5.1 Data Collection

BWC recording condition: We collected brain wave coherence data using 2-channel electrode locations C3 and C4. We referenced these scalp locations to linked earlobes, with the ground at the forehead. We did all recordings in similar conditions using Brain Master 2 Channel brain wave version 2.0 for clinical from Bio-Medical Instruments, Inc., Warren, Michigan. We chose sampling frequency rate of 256 Hz. Protocol of setting file was brain wave Pro 2 Channel Alpha Synchrony. Run of length was 10.0 minutes. We kept the electrode impedances below 10 K Ω to ensure noise-free, accurate, and good brain wave recordings. ^{[61], [62]}

Experimental Paradigm: We studied BWC, EQ, GHQ, and PI for same subject at the same time of the day for pre and post data. During BWC recording, each subject was resting on the chair with the eyes closed for 10 minutes in Bio-Field Energy Laboratory of S-VYASA University.

EQ, GHQ and PI: The EQ, GHQ and PI data were collected before (pre) and after (post) the 5 days SMET program. The three questionnaires (EQ, GHQ and PI) were filled up by the subjects on the first and last days of five days SMET intervention. EQ test was administered first, followed by GHQ test and PI Test. A separate group was assigned to administer the test on participants under the supervision and guidance of psychologist, in this way masking or blinding was achieved in this study. The time of administering the questionnaire was before lunch break (between 9am-1pm) which was the same on the first day and the last day of intervention.

5.2 Data Scoring

The data analysis of GHQ showed that 28 subjects were healthy (the cut-off score was 9) and the remaining 44 were unhealthy.

BWC Calculation and Training: BrainMaster calculates and displays coherence for different components as delta, theta, alpha, beta, and gamma. In addition, we can set a threshold between 0.01 and 0.99 for training. The operator can select any or all of the components for sound feedback; hence coherence training was easy. In addition, we can show the coherence on the summary screen, and read it from the Excel spreadsheet containing the minute-by-minute statistics. Coherence between 0.0 and 0.4 in brain wave is not significant, because random signals can have a small amount of coherence. However, coherent values above 0.5 and especially exceeding 0.6 are significant for brain wave training. ^[69]

EQ- It uses scoring such as 0, 5, 10, 15 and 20. The total score was calculated using scoring key and then with the help of interpretation of EQ score as shown in Table 5 and then the percentile value and interpretation was assessed.

GHQ- This 28 items test using binary method of scoring (0, 0, 1, 1) yields assessment on four robust subscales: somatic symptoms (SS), anxiety and insomnia (AI), social dysfunction (SF), severe depression (SP). Lower the scores in GHQ, the better state of health.

PI- Tables 7.1, 7.2 and 7.3 are showing the items in their respective Guṇa (personality) Responses to inventory items are received in terms of choices between very much, much, moderate, little or not at all. These raw answers are then converted to numerical values from 5 to 1 respectively. Answers to all items on all three scales are converted to 5,4,3,2 or 1, as above. Addition of scores on all items on a particular scale gives the individual's total score on that scale. In this way, each individual receives a score on each of the three scales. Percentage of each was calculated by dividing the score of each Guṇa with total score and multiplying by 100.

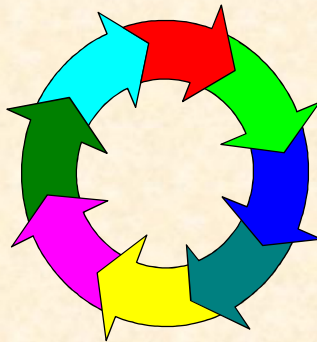
5.3 Data Analysis

All statistical analysis was carried out using the version 16.0 of the Statistical Package for Social Sciences (SPSS) software. The Kolmogorov-Smirnov test showed that the data was not normally distributed. Hence, we have used the Wilcoxon signed rank test to compare means of the data. Finally, Non-Parametric Spearman's Rho test was used to evaluate correlations between BWC, EQ, GHQ and PI scores.

CHAPTER 6

RESULTS

SMET FOR GROUP DYNAMICS



SOURCE: SMET MODULE, S-VYASA UNIVERSITY

RESULTS

6.1 BWC: Analysis on mean score showed 19.31% increase ($P=0.03$) in Delta, 5.04% of increase ($P=0.65$) in Theta, 15.4% increase ($P=0.09$) in Alpha, 1.67% decrease ($P=0.54$) in Beta and 18.68% increase ($P=0.07$) in Gamma BWC between pre and post intervention measurements ($n=72$). 28.22% significant increase ($P=0.02$) in Delta BWC of unhealthy subjects ($n=44$) was observed. [Table 8.1]

6.2 EQ: EQ analysis ($n=72$) showed 72.02% significant increase ($P<0.001$) in post intervention as compared with pre intervention. Both healthy and unhealthy participants showed significant increase (76.45% and 70.54% respectively) in EQ within the groups whereas no significant change in between the groups was observed. [Table 8.2]

6.3 GHQ: Furthermore, there was 68.25% significant decrease ($P<0.001$) in Somatic Symptoms (GHQ_SS), 66.29% significant decrease ($P<0.001$) in Anxiety and Insomnia (GHQ_AI), 65.00% significant decrease ($P<0.001$) in Social Dysfunction (GHQ_SF), 87.08% significant decrease ($P<0.001$) in Severe Depression (GHQ_SP) and 71.47% significant decrease ($P<0.001$) in all medical complaints (GHQ_Total). Moreover, significant decrease in both healthy and unhealthy (the cut-off score was 9) subjects within the groups was also observed in general health aspect. [Table 8.3]

6.4 PI: It was observed that there were significant decrease in Tamas and Rajas scales and significant increase in Sattva scale of healthy, unhealthy and all subjects within the groups whereas in between the group there was no significant change. [Table 8.4]

6.5 Correlation studies

i) For n=72 (healthy & unhealthy): The results from the Table 8.5 (summary of correlation study for n=72) for healthy & unhealthy participants shows that all the BWC rhythms were significantly correlated with other BWC rhythms. For example, the correlations between Delta (pre) and Theta (pre) or Delta (pre) and Alpha (pre), etc were found significantly correlated. Similarly, all the subscales of EQ, GHQ and PI were significantly correlated with other subscales. It was observed that there were no significant correlations between BWC, EQ, GHQ and PI. [Table 8.5]

ii) Summary of correlation study for healthy participants (n= 28): Table 8.6 (summary of correlation study for healthy participants) showed that all the subscales of BWC, EQ, GHQ and PI were significantly correlated with other subscales. There was a correlation between somatic symptoms and Theta (pre), Alpha (pre) and Tamas (post). [Table 8.6]

iii) Summary of correlation study for unhealthy participants (n=44): Summary of correlation study for unhealthy participants showed all the subscales of BWC, EQ, GHQ and PI were significantly correlated with other subscales. It was observed that there was correlation between somatic symptoms and Theta (pre), Alpha (pre) and Tamas (after). [Table 8.7] It was observed that there were no significant correlations between BWC, EQ, GHQ and PI.

Thus, the results from the correlation studies revealed that there were no significant correlations between BWC, EQ, GHQ and PI.

CHAPTER 7
DISCUSSIONS

“CYCLICITY IS ONE OF THE KEY FACETS OF NATURE. WE FIND THIS CYCLICITY PRESENT IN NATURE, INTERNALLY AND EXTERNALLY.

SMET PROGRAM BUILT ON THE PRINCIPLES OF ALTERNATE STIMULATION AND RELAXATION INCORPORATES THIS CONCEPT OF CYCLICITY AND HENCE IS IN TUNE WITH NATURE”

-NAGENDRA AND NAGARATHNA

DISCUSSIONS

“The best manager is the one who has sense enough to pick good men to do what he wants done and self-restraint enough to keep from meddling with them while they do it”.

-Theodore Roosevelt

7.1 Discussion on BWC results

Significant increase in delta BWC in the present study may be associated with the higher states of consciousness.^[70] Moderate increase in alpha BWC in the present study may be related with wakefulness and vigilance^{[71],[72],[73]} and is the essential requirement for managerial effectiveness.^{[74],[75]} This outcome may also be related to the findings from earlier studies in which percentage of alpha waves were higher in persons performing meditation with good coherence suggesting good homogeneity, uniformity, and increased orderliness of brain functioning.^[76] Similarly, it was reported that Transcendental Meditation (TM) increases frontal alpha coherence, which reflects an enhancement of frontal lobe integration, as increased cognitive flexibility, intelligence, and emotional stability.^[77] However, implications for increase in theta and decrease in beta BWC in the present study were uncertain but may be correlated with thought-free respiratory suspension.^[78] Furthermore, it was demonstrated that increased occipital gamma power was related with enhanced sensory awareness.^[79]

7.2 Discussion on EQ results

Significant increase in EQ in the present study suggests that SMET participants may strike a balance between emotion and reason, are aware of their own feelings, show empathy and compassion for others, and have high self-esteem which may be instrumental in many situations in the workplace and can help achieve organizational effectiveness.^[31] Recent research has shown a positive relationship between EQ and workplace success.^[32] Previous study on Yoga reported enhanced EQ as a result of the practice of Yoga way of life. The results indicate the importance of Yoga as an integral element in improving managerial performance in organizations.^[33] The present study is consistent with these findings and indicates that a systematic adoption of SMET program can result in better EQ among managers for ME, thus paving the way for their better performance as managers.

Let us consider how SMET program is useful to enhance EQ and leads to ME

1. Ability to understand adequate depth of feeling: The extent to which the subject relates to the subtlety, or 'depth', of their own internal feelings, is not cut off from their feelings by unresolved traumas, and is not 'locked in their head' by their intellect, or any other source of emotional rigidity.
2. Ability to know adequate expression and control of emotions: Is the subject able to express refined levels of feeling, and if negative emotions are induced, does he or she have self-control.
3. Ability to function in a balanced way in emotionally disturbed state: The ability not to 'switch off' in situations where there is high emotionality, either from others in the

environment, or being demanded from oneself to deal with the situation in hand. Similarly, the ability not to get lost in high emotion for its own sake i.e. not to let ones emotions ‘run away with oneself’.

4. Ability to understand the root of the problem and take corrective measure: Can the subject maintain a state of balance, when another person is either directing extreme emotion at them, or else being deliberately provocative.
5. Ability to develop optimistic attitude by invoking positive emotions: is the subject able to stimulate positive outlooks and emotions in others, and indeed in themselves, when faced with difficult and emotionally challenging situations, either short-term or long-term.

The question again arises as to why the observed improvements in the EQ were so great, after the SMET intervention. Among the possible reasons are certain of the lectures included in the SMET program. Participants attend the lecture and are then asked to become more aware of the subject of the lecture during the SMET session following the lecture. In addition, the previously considered effects of SMET, reducing stress, increasing restfulness, and improving balance in the autonomic nervous system will variously impact EQ scores, as discussed below.

1. Ability to understand adequate depth of feeling: The SMET lecture, “Recognition of stress and its release”, enables the subject to understand different levels of stress, and also to understand how to release it. It is clear that the removal of stress and increased restfulness are going to improve a person’s sensitivity to their own emotional states.

Similarly autonomic balance will tend to keep the inner feeling cleansed so that each emotion that arises can be adequately considered.

2. Ability to know adequate expression and control of emotions: Depth of perception and expansion of awareness are two aspects of the SMET lecture entitled “executive growth”, which helps the student understand how to go to subtler levels of awareness. Again, decrease of stress, increased restfulness and autonomic balance are three factors, which should purify the mind so that it can express and control emotions more appropriately.
3. Ability to function in a balanced way in emotionally disturbed state: Here the SMET lecture on “Group Dynamics” is very helpful in promoting this ability. A well rested nervous system with lower stress levels, and autonomic balance to strengthen it, will find it easier to function with delicate and more sensitive levels of emotion. If one’s mind is calm and relaxed he or she will be able to deal more effectively and function appropriately with emotions.
4. Ability to understand the root of the problem and take corrective measure: Here again, the SMET lecture, “Recognition of stress and its release”, should prove helpful in inculcating attitudes which will help this ability to grow. As before, a more resilient, stress-free nervous system will react less to turbulent emotions in the environment. The subject will be able to function more easily without regard for any negative emotions that may be directed at them.
5. Ability to develop optimistic attitude by invoking positive emotions: In this case, the “Expansion of Awareness” section of the lecture “Executive Growth” provides vitally useful information on positive emotions. It should prove helpful in developing this ability. Furthermore, when a person is well rested and stress free, they feel more

optimistic. This gives them a sunnier outlook on life, and the consequent ability to generate positive emotional attitudes from within themselves, as and when needed.

The fact that after the SMET program, the levels of EQ increased significantly means their behavior patterns were changing and that during SMET program they had gained a certain amount of EQ in dealing with their own and other's emotions.

Underlying the mechanisms of powerful results of the SMET program on EQ

Indeed, the results hypothesized are on the basis of general understanding of the effects of the SMET Yoga practices, and the nature of emotional intelligence. However, this very high degree of effect was not anticipated. Previous work on stress management educational program, reported significant improvement in the subjective well being inventory (SUBI) scores of the 77 subjects within a period of 10 days as compared to controls. These observations suggest that a short lifestyle modification and stress management educational program can make an appreciable contribution to primary prevention as well as management of lifestyle diseases.^[28] It was demonstrated that SMET decreases occupational stress levels and baseline autonomic arousal in managers, suggesting significant reduction in sympathetic activity^[29] and better emotional well-being in them.^[30] Persons with high EQ may strike a balance between emotion and reason, are aware of their own feelings, show empathy and compassion for others, and have high self-esteem which may be instrumental in many situations in the workplace and can help achieve managerial effectiveness.^[31] Recent research has shown a positive relationship between EQ and workplace success.^[32] Previous study on Yoga reported

enhanced EQ as a result of the practice of Yoga way of life. The results indicate the importance of Yoga as an integral element in improving ME in organizations. ^[33]

Levels of emotional imbalance correlate with levels of autonomic imbalance; hence reducing autonomic imbalance will tend to bring emotional balance. Mastery over emotions by those who have developed greater EQ involves reduced physiological and psychological arousal, and increased awareness. If stresses are removed at physical, mental and emotional levels by practice of SMET program, emotional and autonomic balance result and then deeper awareness of feelings, and increased ability to handle them wisely become spontaneous process.

There are three levels of consideration, purely physiological arousal, psychological to do with personality, and awareness, concerning the mastery of the emotions by those who have developed full EQ. For example, sympathetic arousal is one aspect of normal function. However, if it is unnecessarily prolonged, autonomic imbalance will result. Similarly, if a person is continuously exposed to negative situations, this will result in higher degrees of emotionality as a personality factor. When this occurs autonomic imbalance will be chronic. If, on the other hand, all levels of stress are removed by practice of SMET and other meditation techniques, and emotional and autonomic balance result, deeper awareness of feelings and emotions will arise, and increased ability to handle them wisely. This is what is apparently being seen in the results of SMET practice.

Finally, SMET practice is known to improve balance in the autonomic nervous system. To be precise, the sympathetic nervous system is mildly activated by performance of Yogāsanas, while the parasympathetic nervous system is activated in the rest periods that follow each set of Yogāsanas practice. The result of these alternating periods of activity and rest, designed in accordance with Māṇḍūkya Upaniṣads Kārikā, is to provide a highly effective means of bringing the autonomic nervous system into a state of balance. Moreover, this state of balance is not inactive. It is one where both the sympathetic and parasympathetic components are moderately, but not excessively, activated. It produces a sense of a warm, protective envelope shielding the individual from conflicting emotions that may be raging around them. The autonomic nervous system is deeply connected to the emotions. On the one hand, it is activated in various different ways when the brain enters an emotional state due to the perception of some object or memory with emotional associations. Moreover, it is reciprocally connected to the emotional centers in the mid-brain, and when it is brought back into balance, it tends to redress emotional disequilibrium. Rebalancing the autonomic nervous system is therefore an effective means of coordinating emotions.

These three different kinds of contribution, natural release of stress, deep rest to enhance the release of more deeply rooted stresses, and the rebalancing of the autonomic nervous system, will tend to act synergistically, and mutually enhance each other's effects. That is probably the reason why the observed increases in EQ score is much greater and more significant than might have been expected.

7.3 Discussion on GHQ results

In the present study GHQ analysis shows improvement in the overall health status of the SMET participant. People with low medical complaints are happier, healthier and more successful in their relationships which are signs of high emotional intelligence. Persons with high emotional intelligence may strike a balance between emotion and reason, are aware of their own feelings, show empathy and compassion for others, and have high self-esteem which may be instrumental in many situations in the workplace and can help achieve ME.^[31] Recent research has shown a positive relationship between emotional intelligence and workplace success.^[32] Previous studies on Yoga reported enhanced mental health as a result of the practice of Yoga way of life. The results indicate the importance of Yoga as an integral element in improving ME in organizations. ^{[80],[81],[33]} Our study is consistent with these findings, indicating that a systematic adoption of the SMET program can result in better health among managers for ME, thus paving the way for their better performance as managers.

7.4 Discussion on PI results

People with dominance of Sattva Guṇa in their personality are happier, healthier and more successful in their relationships which are signs of high EQ. ^[58] Similarly, persons with high EQ may strike a balance between emotion and reason, are aware of their own feelings, show empathy and compassion for others, and have high self-esteem which may be instrumental in many situations in the workplace and can help achieve ME. ^[31] Moreover, recent research has shown a positive relationship between EQ and workplace success.^[32] A similar studies on Yoga based SMET program reported significant

enhancement of emotional competence in the managers ^[59] and indicates the importance of Yoga as an integral element in improving ME in organizations^{[80],[81],[33]} Our study is consistent with these findings, demonstrating that a systematic adoption of the SMET program can result in improvement of Sattva Guṇa (balanced personality trait) among managers for ME, thus paving the way for their better performance as managers in organization.

There are several factors that could potentially explain part of these excellent improvements observed after a week. These include novelty of living style in S-VYASA University also known by Praśānti Kuṭīram, the serene surroundings, Sattvic (balanced) food habits and customs (systematic and well organized daily routine) etc.

7.5 Discussion on correlation studies between BWC, EQ, GHQ and PI

One of the main objectives of the study was to investigate any correlations that may exist between these different physiological measure like BWC and psychological measures like EQ, GHQ and PI to determine the extent to which they co-vary, or may be independent of each other. Correlation studies between Healthy, unhealthy and combined revealed no significant correlation between BWC, EQ, GHQ and PI variables. This indicates that BWC, EQ, GHQ and PI are adequately independent with each other. The findings of correlation studies between EQ and PI are consistent with the results reported by Sony et al. ^{[30],[58],[59]}

Above discussions are presented below in a tabular form.

Sr. No.	Topic of the present study	Observations in the present study	Author/s (Journal and Year of Publication) of previous study	Findings of the previous study that correlate with the present study
1	Brain Wave Coherence (BWC)	↑ Delta BWC	1. Mason LI et al. (Sleep 1997)	↓ may be associated with the higher states of consciousness.
		↑ Alpha BWC	2. Darrow CW (Psychol Rev 1947) Malmo RB (Psychol Rev 1959) Cantero JL et al. (Neurosci Lett 1999)	Moderate increase in alpha BWC in the present study may be related with wakefulness and vigilance
			3. Feige B et al. (J Neurophysiol 2005) 4. Sadato N (Neuroreport 1998)	It is the essential requirement for ME
			5. Khare KC and Nigam SK (Indian J Physiol Pharmacol 2000)	Good homogeneity, uniformity, and increased orderliness of brain functioning
			6. Cahn BR and Polich J (Psychol Bull 2006)	TM increases frontal alpha coherence, which reflects an

				enhancement of frontal lobe integration, as increased cognitive flexibility, intelligence, and emotional stability
		↑ Theta BWC and ↓ Beta BWC	7. Badawi K et al. (Psychosom Med 1984)	Uncertain. May be correlated with thought-free respiratory suspension.
		↑ Gamma BWC	8. Cahn BR et al. (Cong Process 2010)	enhanced sensory awareness
2	Emotional Intelligent Quotient (EQ)	↑ EQ	9. Singh D (Emotional Intelligence at Work: A professional Guide, 2003)	People with high EQ may strike a balance between emotion and reason, are aware of their own feelings, show empathy and compassion for others, and have high self-esteem which may be instrumental in many situations in the workplace and can help achieve ME
3	General Health Questionnaire (GHQ)	↓ somatic symptoms ↓ anxiety & insomnia	10. Vempati RP and Telles S (J Indian Psychol 2000)	↓ Occupational Stress Levels and baseline autonomic arousal suggesting significant ↓ Sympathetic Activity

		↓social dysfunction ↓severe depression ↓ all medical complaints		
4	Personality Inventory (PI)	↓Tamas ↓Rajas ↑ Sattva	11. Sony K, Nath NCB and Nagendra HR (XIMB Journal of Management 2007) 12. Sony K, Nath NCB and Nagendra HR (Jour Nat Acad Psych 2007)	Calm state of the mind of the SMET program practitioners and may have implications for ME
5	Correlations between BWC, EQ, GHQ & PI	Correlation studies between healthy, unhealthy (with cut-off 9 in GHQ) and combined revealed no significant correlation between BWC, EQ, GHQ and PI variables	13. Sony K, Nath NCB and Nagendra HR (Indira Management Review 2008)	EQ and PI are adequately independent with each other

CHAPTER 8

SUMMARY & CONCLUSIONS

**“SMET PROGRAM OFFERS NEW
PERSPECTIVES IN STRESS
MANAGEMENT”**

- NAGENDRA AND NAGARATHNA

SUMMARY & CONCLUSIONS

“Coming together is a beginning. Keeping together is progress. Working together is success”

-Henry Ford

8.1 Summary

Today’s managers know that many stress related problems at work often stem from the personal life rather than just the work situation. The aim of this study was to assess efficacy of SMET program for ME. The subjects for the study were 72 managers, 48.75 ± 3.86 years of mean age referred from ONGC Limited. The data were taken on the first and sixth day of 5 days SMET program. The data analysis on mean score showed 19.31% increase ($P < 0.05$) in Delta, 5.04% increase ($P = 0.65$) in Theta, 15.4% increase ($P = 0.09$) in Alpha, 1.67% decrease ($P = 0.54$) in Beta, 18.68% increase ($P = 0.07$) in Gamma BWC, 72.02% increase ($P < 0.001$) in EQ, 68.25% decrease ($P < 0.001$) in Somatic Symptoms, 66.29% decrease ($P < 0.001$) in Anxiety and Insomnia, 65.00% decrease ($P < 0.001$) in Social Dysfunction, 87.08% decrease ($P < 0.001$) in Severe Depression, 71.47% decrease ($P < 0.001$) in all medical complaints, 81.95% decrease ($P < 0.001$) in Tamas (dull), 80.92% decrease ($P < 0.001$) in Rajas (violent) and 139.71% increase ($P < 0.001$) in Sattva (balanced) personality trait scores. Taken together, these results suggest that participation in a SMET program was associated with improvement in Delta BWC, EQ, general health and Sattva personality and may have implications for ME. This indicates that SMET program could potentially play a vital role in the management of stress and thus holds a great promise for stress related modern ailments.

8.2 Conclusions

The initial hypothesis that SMET would bring change in BWC, EQ, GHQ and PI of managers was definitely upheld. The magnitude of the observed changes, together with their very high statistical significances, establish the ability of regular practice of the SMET integrated Yoga module to enhance Delta BWC, EQ, GHQ and Sattva PI beyond all reasonable doubt. The results are exceedingly strong. There is nothing unequivocal about them. This shows that the null hypothesis, that no improvement would take place after the SMET intervention on BWC, EQ, GHQ and PI of managers, and that any apparent change was only due to chance variations in the distribution, is definitely not sustained. Taken together, the results from the present study suggest that participation in a SMET program was associated with improvement in Delta BWC, EQ, general health and Sattva personality in managers and may have implications for ME. This indicates that SMET program could potentially play a role in the management of stress related ailments. However, further studies using a randomized controlled design could substantiate these preliminary findings.

8.3 Implications of the study

Previous studies on Yoga programs reported enhanced general health as a result of the practice of Yoga way of life. The results indicate the importance of Yoga as an integral element in improving managerial performance in organizations. ^{[57][58][59]} Our study is consistent with these findings, indicating that a systematic adoption of the SMET program can result in improvement of Delta BWC, EQ, GHQ and PI among managers for ME, thus paving the way for their better performance as managers. These results suggest

that SMET program can make an appreciable contribution to primary prevention as well as management of lifestyle diseases in managers and thereby they can lead a holistic way of living in health, harmony and happiness.

8.4 Strength of the study

- a. This is the first study trying to find the correlation between BWC, EQ, GHQ and PI in managers in a residential set up.
- b. This is first study investigating the effect of an SMET program on BWC, EQ, GHQ and PI of managers. The study shows highly encouraging results.
- c. This is a simple trial conducted to see whether SMET program can change BWC, EQ, GHQ and PI in managers.

8.5 Challenges of the study

- a. Control group would have added strength to study.
- b. The selections of subjects from a single company will not be enough evidence for the applications of the findings of this research to the corporate sector in general.
- c. Addition of female managers equal to males taking into consideration the natural hormonal changes during menses, etc variables, would have made the study more broad based.
- d. Quantitative, physiological, biochemical parameters related to emotional & personality dimensions would have strengthened the study substantially.
- e. What happens to them after long term needs follow up for at least one year. That study would have made the findings more acceptable for long-term application.

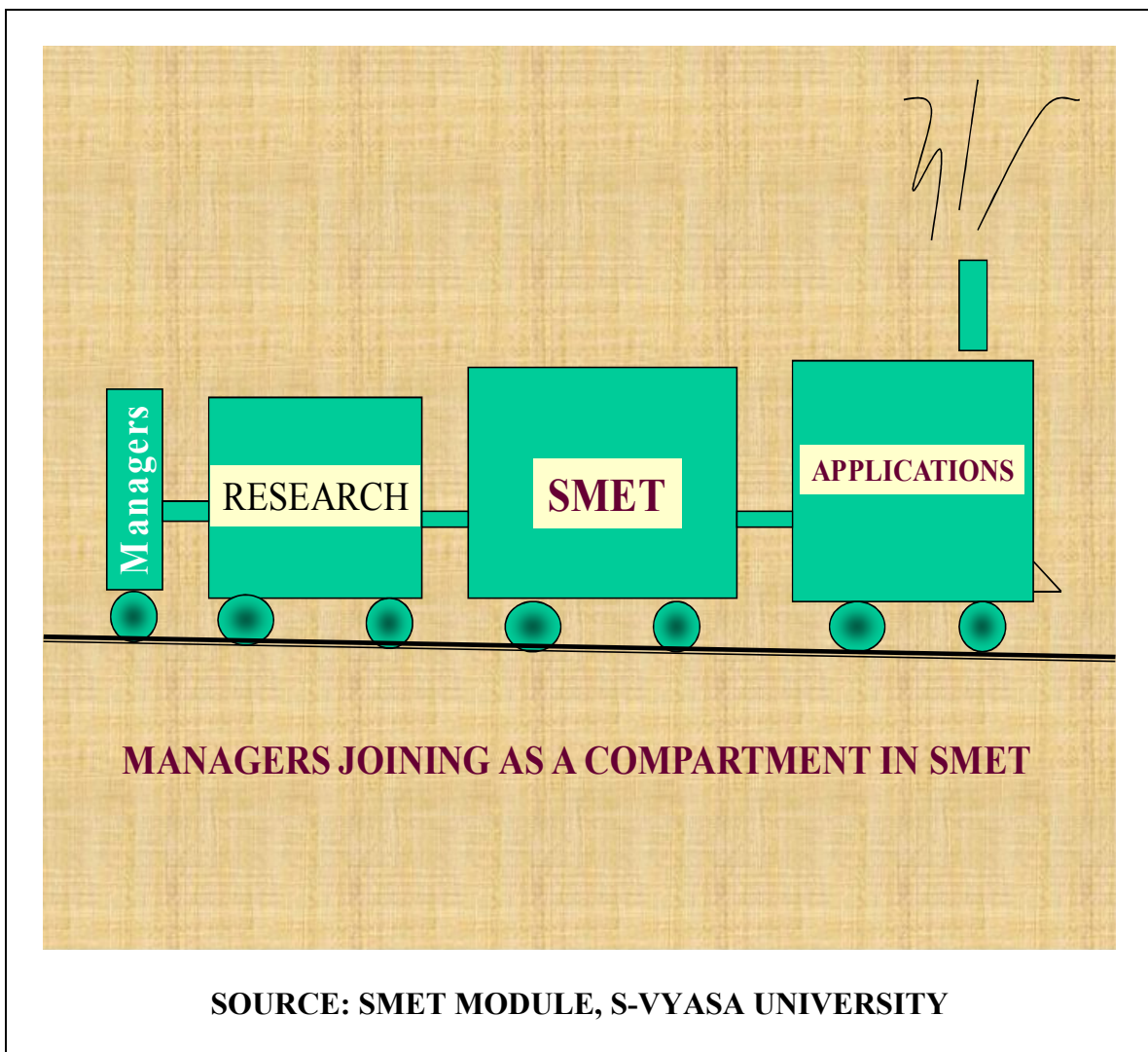
8.6 Suggestions for the future study

- a. Randomized control trial with long term follow up.
- b. Study including equal number of males and females to assess gender effect.
- c. Further studies should be done to measure links between SMET and EQ, Intelligent Quotient (IQ) and Spiritual Quotient (SQ) as also SMET's ability to improve general emotional well-being in managers.
- d. Long-term studies to assess long term impact of SMET for ME.
- e. While this study has pointed to the beneficial effect of SMET, bigger sample size with stratification of bottom, middle and top line male & female managers from different companies can be taken up to throw light on the usefulness of SMET.
- f. Physiological, neuro-physiological and fMRI studies on SMET influences on the above categories of managers would be necessary to understand the emotional mechanisms involved in the unique stimulation-relaxation based integrated Yoga module.
- g. New questionnaires of BWC, EQ, GHQ & PI for managers based on the Yoga & spiritual understanding have to be developed to bring out the in-depth & holistic perspectives of Indian heritage.
- h. To check does different level of BWC, EQ and GHQ have an impact on different personality traits?

8.7 The hope and the future perspective

It may be hoped that the Managing Directors and the General Managers of different organizations may review the available knowledge on stress management program and may incorporate SMET in their work place for organizational success. This may help to encourage, create and enhance healthy atmosphere in work place.

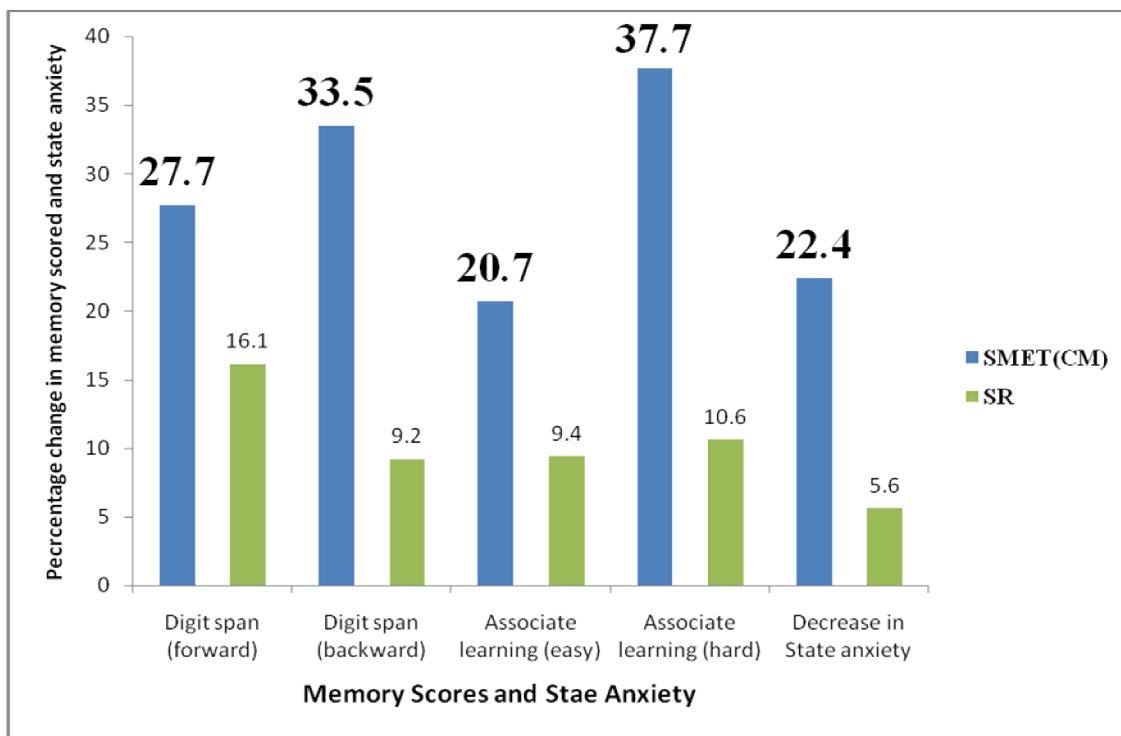
SMET program is useful for health, happiness and harmony in organizational culture.



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EFFECT OF SMET PRACTICE (CM) AND SUPINE REST (SR) ON MEMORY SCORES AND STATE ANXIETY REVEALS THAT PERFORMANCE IN ATTENTION AND MEMORY TASKS WAS MORE IN SMET PRACTICE (CM) THAN AN EQUAL AMOUNT OF TIME IN SR.



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