

Objectives & Methodology

Research is a process of inquiry that employs both informal and systemic methods of observation. Its goal, broadly speaking, is to explore, describe and confirm empirical relationships and scientific hypothesis. (Millio and Diessenhaus, 1972). In order to conduct a research, appropriate planning and design based on the nature of chosen problem as well as the aims and goals of venture, are necessary.

. We took up this study with the following objectives :

- i. To measure the subjective estimate of stress in terms of stressors and stress reactions among normal subject and patients with somatic ailments.
- ii. To study the deviations in physiological parameters viz. cardiovascular, respiratory, bio-electrical and biochemical, associated with certain somatic ailments as compared with the findings in normal subjects.
- iii. To assess the efficacy of yogic techniques in reestablishing normalcy in the deviated physiological functioning in patients with somatic ailments.
- iv. To study the role of yogic techniques in overall improvement in the sense of well-being (subjective estimate of well-being).

Generally, we distinguish psycho-physiological or functional somatic disorders from physical or biological disorders on the basis of exclusion through clinical and laboratory findings. We assume that they are mutually exclusive i.e. if we fail to find the presence of biological/physical factors, we find to conclude psychological etiology for symptoms. but the diagnosis of psychosomatic disorders mainly on the exclusion of physical findings is not a rational procedure.

In the present study we tried to find out the subjective estimate of stress levels in terms of stressors and stress reactions, in the subjects with somatic ailments and in normal healthy people without any complaints. We also assessed some physiological biochemical and psychophysiological parameters known to quantify level of stress. To study the efficacy of yogic techniques, the follow-up data of all the parameters were collected at regular intervals.

Total number of subjects included in the study was more than 500, but depending on inclusion/exclusion criteria the number of subjects taken for the analysis reduced to 340. The subjects were either the participants of basic yoga training conducted in several batches at "Yog-Niketan", Fatehgunj, and "Aarogya Mandir", Illora park, during the year 1992-1995. The subjects who did not fill the subjective assessment proforma completely and/or who fail to come for post-training data collection were excluded from the study. The subjects who completed one month of basic yoga training underwent post-training data collection, as well as who practiced the techniques regularly were included in the study.

The subjects were, 18-65 yrs. old, belonging to both the sexes, married and unmarried with various socio-economic and educational backgrounds (Table : 1). We collected the subjective estimate of stress (SES) by asking them to identify their stressors and stress reactions on a prescribed proforma (Appendix-I).

The proforma was formulated after scanning through the literature to include socio-demographic and economic data, the illness history, the exhaustive list of stressors and stress reactions, initially a pilot study was undertaken to establish the reliability and validity of the proforma prepared. The final proforma thus, evolved was utilized for this study.

As stress, and its influence on biological systems are complex issues involving a large number of confounding variables, it was difficult to objectively assess the level of stress perceived by an individual. In order to know the basal status of biological (physical) health and post training influences if any, we assessed certain cardiovascular, respiratory and biochemical parameters.

The subjects were grouped in 2 groups on the basis of illness history, the normals and the subjects with somatic ailments.

The basal data of the psychological parameters were collected on the basis of subjective reporting (visual analog Scale or Likert Scale). The physiological parameters like, weight, pulse rate (PR) blood pressure in sitting and lying down postures, [SBP(S), DBP(S), PP(S), SBP(L) DBP(L), PP(L)] were

taken. The respiratory records for respiratory rate (RR), Tidal volume (TV), vital capacity (VC), forced expiratory volume in one second and its percentage (FEV, and FEV₁%) and maximum breathing capacity (MBC), were taken on student's physiograph (Bio-device, Ambala, India). Respiratory efficiency tests like, Breath holding period (BHP) after full inspiration, 40 mm Hg endurance, maximum expiratory pressure and peak expiratory flow rate (PEFR) were recorded. In 42 participants of both normals as well as subjects with somatic ailments, biochemical estimates like fasting blood glucose (FBG) and serum cholesterol levels were carried out. The psychophysiological parameter such as Galvenic Skin Resistance (GSR) of 39 subjects of somatic ailment group and 30 normal subjects was recorded with the help of computerised bio-feedback instrument.

The time for recording all these parameters was between 8 am. to 9 am. These were taken before starting of the training (Pre-training-I), at the conclusion of one months structured yoga training (post-training-II), after one month of yogic practice (follow-up I-III) after two months of yoga practice, (follow up 2-IV) subjects were explained the whole procedure in detail and motivated prior to the beginning of yoga training.

The structured yoga training included prayer, omkar (Pranav) chanting, yogic exercises, yogic postures (asanas), breathing exercise; breath control (Pranayamas), bandhas, kriyas (Kapalbhati, Neti, Dhauti, Tratak), Progressive relaxation and differential relaxation during asanas, yognidra, meditation and theory lectures, ie. general knowledge of yoga, yoga philosophy and physiological aspects of yoga. Principles of different

techniques and control over respiratory phases were strictly followed. Practice was done under direct supervision (Appendix).

As there was follow-up data collection, after training and practice for certain period, the same subjects formed their own control, a separate control group was not necessary.

A small group of medical students was selected for the study of the effect of situational stress (examination stress - $n = 42$) and the effect of yogic techniques ($n=36$). The PR, SBP, DBP, Temp. : GSR, RT and RR were recorded a week before and a week after examination, and compared to find out the deviations. Out of these 42 subjects 36 were exposed to a training of yogic techniques (structured yoga training) and practice for a month. Pre-training and post-training values of above mentioned parameters were compared to find out the efficacy of yoga in reversal from the deviation.