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SUMMARY AND CONCLUSIONS
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SUMMARY AND CONCLUSIONS

5.1 Introduction

Stress has become an important dimension in the urban
and industrial environments which will have an effect not only
on productivity, performance but also is a causative factor
for psycho-somatic diseases. In this context, though drugs do
control stress and give momentary relief but its continuous
use will not show any positive and significant impact on the
stress situation of the individual, but may lead to
detrimental affects.

Stress is a multi-dimensional phenomenon caused
through a variety of factors—environmental, social, phy-
sical and psychological—which affects ones perceptions,
thoughts and expectations. Thus stress can not be managed
solely by any one technique. If the negative effects of
stress are to be reduced, the individual’s life style must
change to a certain degree involving alterations and
relaxation.

Therefore, one of the important ways of protecting
oneself from the ravages of these stress disorders is to
adopt the ancient yoga system to suit the requirements of
modern society and follow it meticulously in order to arrest
the development of stress disorders.
Various classical yoga tests already reflect sufficiently on the use of yoga as a method of promoting, preventing and educating process for improving health status. Evidences are available of the way it has provided enormous benefit to the people all over the world at a minimal effort and cost, still yoga can play a greater role provided, proper scientific studies are conducted to establish their usefulness.

It is well recognised that yoga, an ancient Indian philosophy, is aimed at obtaining liberation through perfect control of body and mind which forms part of our life style. In addition to daily practice of asana, pranayama and meditation, certain principles are to be adhered to in day-to-day life.

The research conducted on yoga both in India and abroad is mostly confined to explaining the usefulness of yoga techniques and practically no studies have been undertaken on vital aspects of yoga system encompassing yoga principles and philosophy and its impact on management of stress. The present study is aimed at bridging this gap.

5.2 Methodology

5.2.1 Objectives

While the general objective set for the study was to assess the effectiveness of yoga and stress management, Six
specific objectives were formulated which are as given below.

i) To study the concept of stress in Patanjali yoga system.

ii) To assess the effectiveness of yoga on distress symptoms.

iii) To study the change in the number of stressors after following yoga.

iv) To assess the effectiveness of yoga on the level of control over stress situations.

v) To study the influence of yoga on reaction associated with stress situations and

vi) To study the impact of yoga on coping pattern.

5.2.2 Selection of subjects

The subjects covered in the study were 520 male participants of various training programmes conducted during 1992-93 at the N.I.R.D., and other training organisations located in Hyderabad. After a preliminary enquiry, it was found that a sample of 362 out of 520 participants satisfied all the four criteria viz., they belonged to the age group of 35-50 years, had interest in therapeutic exercises of yoga, no prior exposure to yoga and did not complain of psycho-somatic problems. However, only 250 out of 362 participants did not have any psycho-somatic problems as examined by a qualified physician whose help was sought for clinical confirmation. Distress symptoms test was constructed based on both experience & literature available on it, consisting of 30 items encompassing the three basic dimensions of mood, visceral and musculo-skeletal symptoms. List was expanded by incorporating another 10 items as suggested by the experts. The
subjects who indicated that they experienced distress 'often' or 'always' in respect of at least five out of 40 items were included for the purpose of the study while the remaining were dropped. In this exercise as many as 118 subjects were found to have satisfied this criterion where all the 132 subjects were having distress in the 'normal' measure and hence did not fall within the perview of the research study. Out of these 118 subjects, 62 subjects volunteered to form the experimental group while the 52 subjects agree to serve as the control group. However, during the study period of one year, 12 subjects from the experimental group and six from the control group dropped, the reasons being occupational compulsions, inconvenient timings of the classes of yoga and transfers. Thus the sample size finally obtained is 100 subjects, 50 each from experimental and control groups. The experimental group includes both executives and academicians consisting of 25 subjects each and so does the control group.

5.2.3 Subject-Item Matrix (SIM)

In order to facilitate a better appreciation of the changes in the intensity of occurrence of distress a matrix was constructed consisting of the subject-item as the unit. This matrix primarily depicts the movement of the subject items from pre-yoga period to the post-yoga period.
5.2.4 Stress test:

This test constitutes a careful selection of 75 items reflecting the stress situations which are classified into the mild, moderate and severe categories consisting of 25 item each, normally experienced by the people. Besides the number of stress situations, the subjects were asked to indicate the amount of control they exercised over the stress situation that they faced at both the time points. The categories of response given for this question are full control, partial control and no control over the stress situation. The subjects were further asked to react to each stress situation mentioned by them at both the time points in terms of the following adjectives: Pleasure-displeasure, relaxation-tension, dejected-happy.

5.2.5 Coping Behaviour Pattern test:

40 items were included in the questionnaire in order to study the coping behaviour pattern of the subject, based on the literature review coupled with discussions with the subject matter specialists (SMS). As per the procedure followed in regard to this dimension the subjects were required to rate each coping behaviour item according to the degree in which they were able to cope with each of the 40 identified distress situations which are in the form of a five point scale items. For each subject, a total score was computed based on the responses given by him (in the form of
likhet) scale on all the 40 items. A further classification was attempted of these 40 items into those which are problem oriented and affective oriented in nature. The number of items falling in two categories are 13 and 27 respectively. A further sub-classification was made of the latter category of 27 items into adaptive and mal-adaptive coping items. While eight items fall in the former category, the latter category includes the remaining 19 items. The differences in the total scores obtained on all the 40 items at both the time points is attributable to the effectiveness of yoga, called yoga effectiveness score (YES). Items which reflected larger differences are identified through ranking procedure. Rank correlations were computed for examining the similarity of ranking pattern of the items at both the time periods.

5.2.6 Hypotheses:

The study is based on pre-yoga and post-yoga experimental design. Some specific hypotheses were formulated based on the literature available on the subject and they are as follows:

i) Practice of yoga would result in lesser incidence of distress

ii) Yoga would reduce the symptoms, intensity and frequency of occurrence of distress symptoms

iii) Yoga would help people in the reduction of the number of stress situations.

iv) The extent of control over the stress situations will be higher among the persons practicing yoga.

v) Exposure to yoga would lead to positive reaction to stress situation.
vI) Extent of coping up with stress situations would be higher among yoga followers.

5.2.7 Statistical tools applied:

Paired t-tests were carried out for assessing the significance of the difference in the scores from pre-yoga to post-yoga period with reference to the dimension under question. Rank correlations were computed for examining the ranking pattern obtained for the coping behaviour pattern at two points of time.

5.3 Analysis and discussions

5.3.1 Yoga sutras and stress management:

The first objective deals with the studying concept of Patanjali yoga system. In this it is observed, the source of stressors their varieties, stress reaction and stress management have been dealt with in greater detail. Stress being the response representing mental pain "Dukha" in Patanjali yoga sutras the results of stress would include the mental pain leading to nervousness, disturbance, leading to 'panic' currents ultimately leading to psycho-somatic disfunctions. It was further observed that change, anxiety, habituation and the conflict between temperament of body and modifications of mind would serve as a fundamental source for anything leading to stressor. The varieties of stressors include: languor, doubt, carelessness, laziness, wordly
mindfulness, delusion, non-attachment stage, instability, greed, angry, improper thoughts and emotions. Friendliness towards happiness, compassion towards misery, gladness towards virtue and indifference towards vice are a few important coping mechanism to tackle the psycho-social stresses. Expiration and retention of breath, meditation on areas like higher senses, luminous, free from attachment, dreams and dreamless sleep could also inhibit the stress reaction and prevent psycho-somatic dis-function. The Patanjali yoga system also indicates that when the mind is disturbed by improper thoughts, constant pending over past things given act as a cognitive restructure mechanism. Austerity, self-study and resignation to ISWARA (kriya-yoga) could tackle the hindrance to mental process effectively by achieving self-discipline. Astanga yoga (eight components of yoga practices) could manage stress by removing hindrance of mental process. It also helps in developing awareness of reality by dispensing with ignorance which is a hindrance to mental process and also the root cause for the three appraisals viz., self-appraisal, object appraisal and threat appraisal.

5.3.2 Distress symptoms

Based on the analysis carried out using the subject item matrix, it is shown that within the experimental
group, the academicians group was at a slightly more advantageous position than their counterpart group of executives in that nearly 51 per cent of the subject items fall in the category of 'never' both at initial and final stages, whereas for the executive group the corresponding figure is 43 per cent only. However, the performance at the overall level is higher in the latter group (executives). The percentage index computed through the matrix developed for monitoring the movements of SIs (subject items) across the four distress symptoms categories were 63, 53 and 58 for executives, academicians and overall groups under the experimental category. Similar exercise carried out for control group subjects show a decline in the percentage index to the extent of 14, 12, and 14 points in respect of executives, academicians and overall group. This clearly shows that the subjects who had an exposure to yoga have found significant improvement to the extent referred to above. While the control group did not have the benefit. Moreover, in respect of latter group, things were taking a turn for the worse in the absence of yoga, although, to a smaller extent.

The paired t-test carried out for testing the hypotheses that a frequency of occurrence of distress symptoms will be on the decline as a result of exposure to yoga, shows that there was a significant decline in the dimension under consideration (t-test values 19.1, 14.0 and 19.3 for executives, academicians and overall group.
respectively of the experimental group subjects). However, similar test carried out in respect of the three categories of the control group shows that there has been significant increase in the frequency of occurrence of distress symptoms in the control group (t-ratios 2.6, 2.2 and 3.4 for executives, academicians and overall group respectively). Thus, both subject-item matrix (SIM) and the paired t-test have clearly proved that the yoga is a mechanism which, if effectively adopted, can help in the reduction of both the number of distress symptoms and the frequency of their occurrence.

5.3.3 Stress situations

In respect of this dimension, three aspects have been examined - i) stress situations ii) control over the situations faced by the subject iii) reaction to the stress situation.

As for the first aspect, the paired t-test applied in respect of total set of items shows that there has been a significant decline in the number of stresses from before yoga period to after yoga period in respect of the experimental executives, academicians and overall group. Similar trends are also in evidence in respect of the mild and moderate categories of stress situations implying that the subjects due to exposure to yoga experienced in the reduction of number of the stress situations which are either
mild or moderate in nature. However, as far as severe nature of stress situations is concerned, no decline has been noticed.

As expected, among the control group subjects belonging to both executives and academicians and also the overall group, the number of stress situations remained more or less the same from pre-yoga period to the after-yoga period as judged by the non-significance of paired t-test values. Thus, the experimental group is found to have an edge over control group in respect of decline in the stress situation.

5.3.4 Stress Control

The extent of control exercised by the subjects over the stress situation. At both the time points was quantified and compared through the paired t-test. The stress control index (SCI) has been worked out both for experimental and control group subjects. It is observed that the SCI was of the order of 2.65 units BETY (before exposure to yoga) among executives, academicians and overall groups of experimental subjects. This suggests that a majority among the group mentioned that they had no control over the stress situation which they faced BETY but due to exposure to yoga the subjects of the groups referred to above managed to exercise relatively greater control over the stress situations - the SCIs for the three groups of
executives, academicians and overall are 2.3386, 2.3840 and 2.3980 respectively. This fact was established by the significant value of the paired t-test carried out to examine the significance of decline in SCI (or improvement in the degree of control) from pre-yoga period to the post-yoga period. The values of paired t-test worked out to 3.85, 3.88 and 3.49, all significant at one per cent level, in the case of executives, academicians and overall groups respectively.

Similar tests carried out in the case of executives, academicians and overall group of the control subjects show that though initially (before exposure to yoga) the executives and academicians of the control group looked alike as their counterparts in the experimental group, the SCIs remain the same even at the post-yoga period in the case of former. Thus, yoga has made a favourable and significant impact on the experimental group in enabling them to exercise greater control over the stress situations as compared to the control group subjects among whom the amount of control that was exercised over stress did not undergo any significant change.

5.3.5 Reaction to Stress Situations

The analysis carried out for the data on the reactions to the stress situations clearly shows that the executives have an edge over the academicians of experimental group in having larger percentage of positive situations to
the total number of situations which they have reported to have faced (3.6 and 3.24 respectively) for the pre-yoga period. The corresponding figures for the post-yoga period have substantially risen (to 6.68 and 13.82 respectively). The paired t-test confirms this trend where the value of t-ratio 3.17 and 2.75 respectively both significant at 1 per cent level. Similar trends are also witnessed in respect of the overall group of experimental subjects.

Mixed trends obtain in respect of control group subjects. While executives registered no decline in the percentage of positive stress situations to the total number of stress situations, the academicians strike a new path. The reduction in the percentage is found statistically significant at 5 per cent level (even at the overall level similar trend is noticed).

Thus, the above discussion boils down to the fact that judged by the significance of paired t-ratios only in respect of experimental group (but not in the case of control group), yoga has made a favourable and significant impact on the subjects in the reduction of the number of stress situations and also in exercising better control over the stress situations. The reactions of the subjects as expressed in terms of percentage of positive stress situations to total number of situations are favourable (found decline in the percentage from pre-yoga period to
post-yoga period) among the experimental group subjects. Another observation is in respect of academicians of control group. This group registered an increase in the percentage of positive items from pre-yoga period to post-yoga period. This being an unexpected trend, it merits further investigation.

5.3.6 Problem Oriented Coping Behaviour Pattern (CBP)

Out of the 13 CBP items constituting this dimension 'draw on past experience to help you handle the situation', 'try out different ways of solving problem to see which works out best', and 'look out the problem more objectively' occupy the first three respective positions (BETY) in respect of experimental group. Except for the first two items, the third item retained its position even after exposure to yoga in respect of experimental group subjects. While 'try to maintain some control over situation' occupies the first position BETY (after exposure to yoga) 'draw on past experience to help you handle the situation' ranks second BETY.

As was shown in the analysis, the subjects of this group substantially improved their scoring position in regard to the CBP items of 'try to maintain some control over situation', 'look at the problem more objectively' and 'try to find meaning in the situation' from pre-yoga period to post-yoga period. The subjects on the whole registered an
increase of 75, 58 and 54 points over the initial positions of 120, 124 and 100 respectively and hence it can be concluded that yoga has been more effective in respect of these three CBP items.

The control group seems to be identical to the experimental group in its preferences of items to cope with the problem oriented situation at the pre-yoga stage. Further, as is observed in the analysis, the decline is substantial in respect of the three CBP items in the control group, as against a significant increase in respect of the same set of CBP items in the experimental group.

5.3.7 Adaptive and Affective Oriented Coping Behaviour Pattern

This dimension included only eight CBP items, of which 'Trust in God', 'seek help or comfort from family or friends', 'don't worry about it; everything will probably work out fine' are the most preferred ones before the experimental group was exposed to yoga. However, a substantial jump in the positive direction is noticed, as indicated by the differences in the scores in respect of the CBP items of 'Pranayama', 'meditation' and 'work off tension with physical activity'. As a matter of fact, these were the best preferred items before exposure to yoga. As the data suggest, the control group was on the same footing as far as its preferences at the pre-yoga period are concerned.
5.3.6 Mal-adaptive and Affective Oriented Coping Behaviour Patterns

This dimension primarily indicates the stance taken by the subject in a bid to cope up with the negative situation when they are confronted with. Out of 19 CBP items constituting this dimension, the top ranking ones include: 'worry', 'blame others' and 'eat and smoke' at pre-yoga stage. However, the list has undergone slight change as far as the first three ranking items are concerned at the post-yoga stage. The item 'blame himself', 'do nothing hoping the problem will take care of itself, resign yourself to the situation because it is your fate/'worry' occupy the first three positions AETY.

The hypothesis postulated to examine the ranking patterns of the CBP items will be the same at both the time points regardless of their differences in the total score was tested both in respect of experimental and control subject groups under the three CBP categories as well. It is shown that the rank order correlations are high. Among all, the largest magnitude (0.92) is noticed in regard to problem oriented CBP in the control group followed by mal-adaptive oriented CBP (0.9) in the same group. Among the correlations which are significant, the experimental group registered the least (0.81) in regard to the problem-oriented CBP items. This high rank order correlations indicate that there is a good deal of agreement in the rank order of CBP items
implying further that the same CBP items emerge as the most/least preferred items in regard to post-yoga period as well.

5.4 Main conclusions:

Yoga is a mechanism which can be effectively adopted for the reduction in the number of distress symptoms.

The hypothesis that yoga leads to a decline in the number of stressors significantly has been accepted. However, as far as severe nature of stress situations is concerned, no decline has been noticed.

It is observed that the Stress Control Index (SCI) has been lower for the subjects after yoga period than the corresponding figure before yoga period, in respect of experimental group. The paired t-test has confirmed this trend implying a significant decline in SCI among the subjects who had an exposure to yoga.

The analysis shows that the percentage of positive reactions has gone up in the experimental group as compared to the control group.

The analysis shows that the problem oriented and adaptive oriented coping mechanisms have shown positive response with practice of yoga. Further, yoga facilitated the decline in mal-adaptive coping behavioural pattern.
5.5 Limitations:

1. Only male subjects to the age group of 35-50 are included.

2. This study mainly focused on stimulus and effect but not on process (intermediary) variables like personality patterns etc.

3. Being a psychological experiment the findings and conclusions are primarily based on information as provided by the subjects.

4. The impact of some of the psycho-social variables like "Resources and Learning History" on the results should not be lost sight of.

5. The items include in regard to the aspects of distress, stress and coping behaviour do not constitute scale, hence no reliability and validity are worked out.