

SUMMARY AND CONCLUSION

The study entitled “Efficacy of Stress Inoculation Training (SIT) in improving the overall well – being of school students” was carried out with the rationale of employing SIT on a preventative basis to inoculate school students against their current / future stressors and investigate its direct effect in reducing their stress level. Also the students were adjudged of their enhanced physical and mental health with a desired behavioural change accompanied by improved resilient ability and possessing a gamut of stress coping repertoires. Moreover the overall effect of SIT on the academic performance was also investigated. The study was conducted with the following objectives.

- Appraise the stress level, causative factors and stress indicators of the 9th grade students and analyse the institution and gender specific difference
- Design and implement an intensive training session on SIT for the selected students
- Assess the effectiveness of SIT in reducing the stress level and minimizing its causative factor and thereby alleviating the stress indicators to a minimum.
- Identify the retention potential of SIT on the over well - being of the selected students in terms of their resilience, stress coping repertoires, and academic performance.

A combination of survey research and field experiment research was undertaken. Initial survey comprised of all 9th standard school students from all of the six schools selected, accounting to 173 government school students (N₁) and 355 private school students (N₂) totalling to 528 students as population sample (N=528). Out of these six schools two schools (one government and one private)

were selected for the experiment and one section of each of the 9th standard comprised the experimental group of students. The remaining students of other section of the experimental school constituted the control group.

A trivia of tools were formulated to secure adequate information from the students regarding their stress and its repercussions. For the survey part of the research, data was collected from the whole lot of population sample on the checklist to assess the stress level and identify the causative factors and stress indicator checklist.

However after identifying the experimental schools and categorizing the experimental and control group of sample, the checklist on resilience and stress coping repertoires were administered to them (81 experimental respondents and 119 control respondents). Simultaneously the marks obtained by these students during half yearly exams conducted in the month of December were collected from the records of school.

The three stage SIT intervention was designed to impart skills among the experimental respondents to enhance their resistance to stress. The three phases namely conceptualization or education phase, skill acquisition and rehearsal phase and application and follow through phase was formulated as per the blue print designed with an elaborate informational content.

The training programme was conducted in two batches (one in government school and the other in private school) in their own school premises. An orientation programme scheduled for one day (i.e. 6 hours) initiated the intervention wherein the students of two batches were given an orientation of what was the programme about, its importance and possible outcomes.

Following the orientation, the actual three days training programme was implemented, wherein students were facilitated to practice coping skills through activities like role play, brainstorming etc. After the completion of the three day intervention in the government and private school, the follow - up session was held for the experimental batches for a period of three hours. This session was conducted after three weeks of intensive training. It was during this session the

application of the skills that they had learnt was evaluated based on certain assignments given to them.

The necessary tools were readministered to the experimental and control group of both the schools after the follow – up phase. Also their academic performance in their annual exam conducted during the month of April was gauged. However the checklist on resilience and stress coping repertoires was again administered to the experimental and control participants after six months of SIT. Simultaneously the marks obtained in their quarterly exam of their next grade were assessed.

The analysed data was summarised into the following heads

- I. General profile of the population sample**
- II. Stress level and its repercussions among the population level**
- III. Efficacy of SIT in term of stress level and its repercussions**
- IV. Retention potential of SIT in terms of overall well- being**
- V. Feedback of the beneficiaries.**

I. GENERAL PROFILE OF THE POPULATION SAMPLE

- Fifty four per cent were boys and 45.8 per cent were girls from the entire sample.
- The ratio of enrolment of boys to girls was almost equal in private schools, but for government schools it was 2 : 1. However the overall enrolment rate in private school was double the rate of enrolment in government school.
- The highest percentage of respondents (55.3%) was aged 14 years and least number (2.8%) in their 13th year. Over 42% of them had completed their 15th birthday.
- Majority of the students from both the schools hailed from nuclear families (70.6%) and only about a quarter of them belonged to joint family (29.4%).

II. STRESS LEVEL AND ITS REPERCUSSIONS AMONG THE POPULATION SAMPLE

A. Stress Level

i. Categorization of the population sample with reference to the stress level

- Eighty per cent of the government school students against 64.5 per cent of private schools students of a total of 69.7 per cent were found to be moderately stressed.
- None of the government school students perceived themselves to be under low stress whereas 65 students (18.3%) of private school fall into this category.
- Nearly 20 per cent of the government school students suffer from severe stress against 17.2 per cent of the private school students.
- The chi - square value of 36.258 (df-2 and $p < .01$) evidently proves that the enormity of stress among the selected middle school students was found to be significant with reference to the categorization based on the level of stress – low, moderate and high.

ii. Gender - specific and Institutional - specific differences in the stress mean score

- An augmented score of 45.16 was procured by the girls against their boy counterpart scoring 44.54 which proves that the girls of government school are more stressed than their counterparts.
- Private school boys obtained a mean score of 39.90 which is more than their counterpart mean score of 34.24, and thus the female students of private school are less stressed than the boys there.
- Analysing the overall mean score of both the institutions put together, it was found that boys reported higher level of stress with a

mean score of 41.67 compared to girls who obtained a mean score 37.12. The results of the Anova (f value =21.923, $df = 1, p < 0.01$) suggest that the boys reported stress levels that were significantly higher than their girl counterparts.

- While considering the type of school for analysis an overall mean score of 44.77 was obtained by government school students against 37.06 of private school students which authentically proves that the type of school do influence the stress level of students. Also the ' f ' value of 48.283 ($df = 1, p < .01$) substantiates that the students enrolled in government school were comparatively more stressed than their private counterparts.
- The interaction effect between the type of school and gender on the stress score of the respondents, it was found to be statistically significant with a ' f ' value of 8.852, $df = 1$ and $p < .01$.
- ***Therefore the hypothesis numbered H_{a1} stating that institution and gender - specific differences does not have any effect on the stress level of the middle school students stands rejected.***

B. Causative factors

i. Correlation between stress level and the mean causative factor score

- The strong relationship between the identified causative factor and the mean stress score projects that each and every identified stress trigger contributes to the overall stress level of the high school students.
- ***The order of the stressor correlated with the stress score list hitting the government school boys were different from the list of government school girls and the order of stressors shows dissimilarity among the private boys and private girls, thereby refuting the hypothesis numbered H_{a2} .***

ii. Gender - specific and Institution - specific differences in the causative factor score

- The f value between the gender and five of the identified causative factor namely money, attitudes and feelings, school work, parents, and friends establishes the fact that the gender had a remarkable influence on those factors in response to stress. The stressor - Teacher and Exams - were found to influence both boys and girls with equal magnitude.
- F-value calculated separately for all identified causative factors and stress mean score with reference to the type of school was found to be significant at 1 per cent level.
- Also exam as a stress trigger has got equal intensity with all the respondents irrespective of the type of school they are enrolled into.
- It was found that the interaction of the main effects on the dependent variable (i.e. the causative factor score) was significant for most of the stress triggers namely money, attitudes and feelings, school work and friends.
- The interaction effect on the stressor – Teacher, Exam and Parents was not found to be statistically significant, which further substantiates that these three stress triggers affect the participants with more or less equal magnitude irrespective of the independent variable - the type of school and gender.

C. Stress Indicators

i. Categorization of the sample population with reference to their level of stress indicator

- Though only 65 students reported low stress, 186 of them secured scores between the ambits of 0-17 in the stress indicator checklist.
- Out of 368 (69.7%) participants who reported moderate level of stress, 202 of them showed moderate severity of the indicators

experienced, followed by 123 students exhibiting low response to stress.

- However 43 of them reported that their stress indicator level ranged from above moderate to high level with a mean score of more than 35.
- The correlation test between the stress mean score and the stress indicator score and (f value 226.723, df - 4 and $p < .01$) was procured and found to be significant at 1 per cent level. This proved that the stress of the students was highly correlated to the stress indicators experienced by them.

ii. Gender - specific and Institution - specific differences in the stress indicator mean score

- The girl students' exhibited all the three types of indicators in more or less similar fashion (Physiological – 5.66, Behavioural – 6.40 and Mental – 6.43).
- The boy participants cited the mental indicator as the highest response to stress (9.57) followed by physiological indicator (9.03) and behavioural symptom was reported as less with a mean score of 8.12.
- The interaction between the gender and the type of school in relation to the stress indicator score was found to be significant for each and every indicator as well as for its overall mean score ('f' value – 24.926, df-1 and $p < .01$).
- ***Hence gender and the type of institution do have an impact on the stress indicators of the respondents thereby authentically rejecting the hypothesis numbered H_{a3} .***

III. EFFICACY OF SIT IN TERM OF STRESS LEVEL AND ITS REPERCUSSIONS

A. Stress Level – pre and post SIT

i. Categorization of the experimental and control group based on their stress level

- Four and 12 students of experimental group enrolled in government school and private school respectively had been pigeonholed under high level of stress prior the intervention.
- After intervention there was a considerable decline to only one student subject in total (contributed by the private school respondent) in the category of high stress.
- An augmentation in the number of respondents being categorised under low level of stress was vivid.
- Looking into the control group irrespective of the type of institution, the number of student subjects increased in the category of high level of stress and declined in the moderate level.
- ***Thereby the hypothesis numbered H_{b1} , which states that ‘the SIT does not have an impact on the stress level of the selected beneficiaries’ stands rejected.***

ii. Impact of SIT on stress mean score of the experimental and control group

- The experimental participants of government school (both boys and girls) who had higher stress mean score could tremendously bring down their level of stress as evident in their lowered mean score (boys from 41.86 to 21.57 with ‘t’ value - 9.670, df - 13 and $p < .01$ and girls from 39.81 to 25.67 with ‘t’ value - 16.385, df - 26 and $p < .01$).
- The experimental participants of the private school also gave a similar finding as their counterpart, with a significant lowered mean

score of 26.37 from 38.33 with 't' value - 4.740, df - 26 and $p < 0.01$ among boys and 25.08 from 42.15 with 't' value - 4.740, df - 12 and $p < 0.01$ among girls.

- On an average the stress mean score of all other control participants was found to decline to a value of 1 – 2, though not significant.

B. Impact of SIT on causative factors

- The beneficiaries irrespective of the gender procured a lower stress mean score on all the identified factors after SIT in comparison with the pre assessment score. The difference in mean score was found to be significant at 1 per cent level amongst all factors.

C. Stress Indicators – pre and post

i. Categorization of the experimental and control group based on the difference in their stress indicators level - prior and post SIT

- The overall percentage (rounded off) of respondents turned down immensely from 17 per cent to none in their high level category of stress,
- Whereas declined hugely from 65 percent to 4 per cent for the students claiming moderate mean scores on stress indicator between the ambit of 17 and 30.
- Subsequently, in the low level category an enormous augmentation to 96 per cent from 17 per cent was observed.

ii. Gender Specific and Institution Specific difference of the experimental and control group based on the mean stress indicators score prior and post SIT

- The overall stress indicator score shows a remarkable decline in the average mean score on stress indicator as reported post SIT in comparison with pre SIT (i.e., Government boys – 27.57 to 9.43 and Government girls – 27.37 to 12.41; Private boys – 20.59 to 7.48; Private girls – 25.92 to 9.08).

- The indicators – physiological, behavioural and mental - exhibited by the student subjects of control group remained more or less same.
- The present finding provides a strong substantiation to refute the hypothesis numbered H_{b2} that states ‘the SIT do not reduce the number of signs and symptoms experienced and behaviour manifested (in terms of stress indicators) among the selected beneficiaries’.

IV. RETENTION POTENTIAL OF SIT IN TERMS OF OVERALL WELL – BEING

A. Retention potential of SIT on resilience

- The mean scores of government boys in the area of vision has increased from 0.21 to 1.64, determination from 0.57 to 2.29, interaction from 0.64 to 1.50, relationships from 1.21 to 3.36, problem solving from 0.79 to 2.29, organization from 0.71 to 2.29 and self – confidence from 0.71 to 2.14 and for government girls vision from 0.52 to 1.78, determination from 0.67 to 2.48, interaction from 0.52 to 1.67, relationships from 1.44 to 3.56, problem solving from 0.74 to 2.67, organization from 0.74 to 2.52 and self – confidence from 0.63 to 2.19 and the ‘t’ - value was also found to be significant at 1 per cent level for each and every area of resilience.
- A uniform trend of drastic augmentation in mean score of the experimental group of private school from pre and post SIT (6 months after SIT) as that of the government school respondents was observed in each and every area of resilience.
- Hence, the hypothesis numbered, H_{b3} that had stated that ‘the retention potential of SIT in terms of resilience was not observed among the selected beneficiaries’ had to be strongly refuted.

B. Retention potential of SIT on stress coping repertoires

- The overall mean score of the experimental respondents of government school among boys from 10.50 to 23.29 and girls from

10.22 to 23.26 on the identified seven areas of stress coping repertoires namely relaxation techniques, deep breathing, muscle relaxation, guided imagery, toolbox of positive coping thoughts, changing negatives into positives and time management was found to increase significantly from their pre score.

- The post SIT score obtained after six months of SIT of the experimental boys and girls of private school had seen an increase when compared to pre SIT mean score (boys from 10.79 to 26.46 and girls from 9.69 to 25.38).
- The data relevant to the coping repertoires has authentically proved that SIT was efficacious in retaining the potential of the student respondents in coping with stress by possessing a gamut of stress coping skills and using it whenever needed. Thereby the hypothesis H_{b4} had to be strongly rejected.

C. Retention potential on academic performance

- The amplification in the number of experimental students of both the government and the private in the category of 60 - 80 per cent and 80-90 percent from prior to post - 1 of SIT and then again to post - 2 of SIT was observed.
- Subsequently, a decline in the number of students of the experimental group in the categories of 20 - 40 per cent and 40 - 60 per cent has been observed in the government as well as private school from pre to post - 1 and post - 1 to post – 2.
- Therefore the hypothesis numbered H_{b5} that stated 'the retention potential of SIT in terms of improved academic performance was not observed among the selected beneficiaries' was strongly rejected.

V. FEEDBACK OF THE BENEFICIARIES

- Ninety per cent of the students were positive about the trainer's effectiveness of teaching coping skills and her responsibility of attending to their queries and difficulties.
- Ninety five per cent of them could understand the concepts of stress and its coping strategies dealt during the intervention.
- Seventy three percent of the students after the intervention learnt four coping skills namely deep breathing, muscle relaxation, guided imagery and positive thoughts thoroughly.
- Seventy seven percent of them expressed their confidence in using the learnt coping skills.
- The feedback from the parents and teachers of the experimental student subjects were encouraging and promising.

To conclude, the findings of the present study enlighten the educators, researchers and policy makers that the stress level of the high school students was startling that necessitates immediate consideration. However, the intervention called Stress Inoculation Training abbreviated as SIT with its three interlocking phases conceptualization or education phase, skill acquisition and rehearsal phase and application and follow - through phase tailored for the level and needs of the high school students have found to be effectual in lessening their stress level of students.

Also the SIT had alleviated the stress indicators in terms of signs and symptoms in response to stress among the school students. Also these students were found to confront the common stress triggers namely teachers, money, attitudes and feelings, school work, exams, parents and friends. SIT on the whole after follow up was found to persuade the overall well - being of the experimental high school students, in terms of resilience, stress coping repertoires and enhanced academic performance. The study has also brought out the fact that the improved well-being of the students was retained even after six months.

From the findings, the investigator strongly recommends that SIT should be made a part of the curriculum for the students of high school so that the stress management repertoires of these students will be built with a strong foundation. These repertoires of coping skills would certainly address the current as well as future stressors of these students.

Limitations and Directions for Future Research

Even though this study had many strengths, results were tempered by a consideration of several methodological limitations.

- First, this analysis relied on self-report information. Subjects might either over-report or under-report their perceptions regarding personal variables. Some students may over-report their stress to make an excuse; whereas others may under-report stress to disguise their true feelings and create the image that they are mentally healthy. It is suggested future research be conducted using physiological measures to examine stress.
- Second, the study population was restricted to high school students of a district. Therefore, results of the study may not be generalized to other population (elementary or high school students) of other places.
- Third, the demographics section did not have a choice for age, educational status and working status for parents and analyze the differences that may exist with this variable among the student population.
- Fourth, the survey did not sufficiently address environmental conditions such as home setting of the students, and the extra classes taken up them.
- Fifth, it has to be admitted that having students respond to the same questionnaire at different times during the school year may yield different results. Stress levels may be different closer to final exam time, or at the very beginning of a calendar school year. However the present study had no other options.

Recommendations for further research

Several approaches could be taken to improve on this research project. The recommendations for similar future research and policy decisions include the following:

- Researches had advocated for more mental health services on school campuses particularly because of the significant burden of depression and substance abuse among this population. Kitzrow (2003) reviewed the mental health needs of adolescents and suggested that faculty, staff, and the institutions themselves must respond to the growing need for services due to increased depression, suicide, stress, and anxiety in this population. In this manner, the investigator also suggests that each and every school should have student-counsellingcentres within their campus.
- The administrators and therapists at counsellingcentres can partner with health educators to try to improve several aspects of mental health services on their campuses. For instance, trained educators can assist the counselling centres in disseminating information about counselling centre services and they can also help create classes on stress management strategies. Educators can also help target certain high priority populations through written materials such as brochures, flyers, and other educational materials.
- Future studies should examine the correlation evidence found in this research to see if the reduction of stress really persists over time among SIT students and whether positive coping strategies increase or decrease over time. Additionally, given the unique stressors reported by these students, the school authority through the counselling centres may conduct follow-up sessions once in three months and promote improvements in relaxation response and stress in this population.
- With improvements in methodology and increased resources, researchers will be able to conduct more SIT interventions with control groups and even with other similar population to be able to make more sound conclusions about the benefits of this intervention.

- Many private schools are already providing counselling to student so as to help them overcome their stress and perform better. Unfortunately the counsellors are in the regular teaching work rather than offering it as a professional support. While it may be financially unviable for all schools to recruit counsellors, it will be better to explore the possibility of the several of professional counsellors on a week basis and/or rational basis. Such support will go a long way to bring down the stress level among students.
- A more desirable system of education that would give students credit for a wider range of skills besides the narrow skills of memorization that are tested by current examination system has to come into existence. This will surely allow students alternative ways to dominate their knowledge and abilities and provide more second chances, so that need not live in fear that one poor exam performance will permanently harm their future success in life.
- Several public policy recommendations and initiatives follow from the results of the present study. School administrators and policymakers should continue to investigate ways to increase a parent's positive attitude about their child's education and demonstrate to parents that their attitude is related to their child's well being. As the literature provide evidence that the parents moderately spur their own stress on their children, future policy should focus on developing and promoting school programmes that enable parents to increase a child's perception of life and how they could be a component behind their betterment. Also future research has to be carried out to better understand the mechanisms by which this occurs.
- School administrators should consider ways to improve the student-teacher relationship, given its important relation with the child's well being. For instance, school administrators may set aside time in the curriculum for team building exercises between students, teachers, and parents.
- A study to detect whether those who perceive less stress in their lives also perceive a higher quality of life would be interesting.

- It would be interesting to see if there are differences in preferred methods of stress management techniques based upon personality types such as those relating to locus of control.

Educational implications

The findings of the present study have practical educational implications for parents, teachers, educational planners, and of course for students as mentioned below:

- Students can be rest assured that there is a positive relationship between stress and academic achievement.
- Parents should be aware of the fact that few related areas of stress are essential for the better performance of their children. They should identify level of stress of their children and should treat them accordingly.
- Teachers can understand that stress has a positive impact on a students' academic achievement and stress does not always correlate academic achievement negatively. Teachers should not be over concerned of students' academic life. Instead they should help the students to remain concerned on their academic matter seriously. Teacher should maintain discipline and should not give unnecessary leniency to students, so that students take required stress or expectation from themselves in relation to their academic matters.
- Guidance services should be provided to develop confidence among students for better adjustment in classroom, family and society, to use their potential and talents which would help to achieve success in life.
- There should be adequate planning in academic work such that there would be enough intervals between the periods of examinations and continuous assessment tests.

Taken together, the present study has identified mechanism through SIT by which the student could be insulated from stress and adapt to the ever-changing

environment through practicing the coping skills to encounter even their future stressors. Thus, Stress Inoculation Training can be brought out as a practical programme of study apart from their core subjects and allow the students to undergo the training before they get into public exam system. The training might be spread over a year of short sessions, so that the students will not be burdened of learning something new. It is also expected that these findings would lead to further research and new policies to strengthen the child's stress management repertoires and increase his / her well - being.