

Pilot Study on Assessment of Vulnerability for Non Communicable Diseases and Effectiveness of Fit for Future Empowerment Programme on Knowledge, Perception, Biophysiological and Lifestyle Parameters Regarding Healthy Lifestyle Among Adolescents at Selected Schools

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Abstract- Introduction: The Non-Communicable Disease (NCDs) such as type II diabetes, hypertension, cardiovascular diseases, cancer and respiratory illness stands the most common cause for diseases and deaths, mainly caused by the modifiable risk factors such as physical inactivity, unhealthy diet pattern, obesity, tobacco use and alcohol consumption. Thus the researcher took major concern towards preventing diseases rather than to treat as this may lead to the development of healthy citizens in future.

Objective: To Assess the vulnerability for non communicable diseases and effectiveness of fit for future empowerment programme on knowledge, perception, biophysiological and lifestyle parameters regarding healthy lifestyle among adolescents

Methods: Quantitative Research Approach- Quasi experimental non-equivalent design was used. Adolescents aged 13 – 17 years were screened for vulnerability of NCD and recruited 40 participants by convenient sampling method who fulfilled inclusion criteria. Data was collected using structured knowledge questionnaire, 4-point likert scale for Perception, checklist for biophysiological parameters and Structured behaviour scale for Life style behaviour which was devised by the investigator based on WHO and IAP guidelines and validated by experts from respective departments. Descriptive and inferential statistics were used to analyse the results.

Results The results showed an improvement in the mean knowledge, perception and life style parameters. Mean score 13.35 with SD 2.06 and compared with control group 9.55 with SD 1.70 with the mean difference of 3.80, $t = 6.36$ at the $p = 0.001$. Perception score posttest

percentile shows 53.15 where as in control group, 38.1 infers positive perception score in study group when compared with the control group. Lifestyle parameter mean score 54.20 with SD 6.80 in study group and control group shows mean 40.70 with SD 3.40 and mean difference of 13.50 in post-test. Inferential statistics showed very high level significant improvement. There is a fair significant Correlation between knowledge and perception score and life style parameters.

Conclusion: Fit for future empowerment has been found to have significant impact in empowering healthy lifestyle among adolescents.

Keywords: Vulnerability for NCD, Fit for future empowerment programme, adolescents and life style parameters

I INTRODUCTION

The Non Communicable Disease (NCDs) such as type II diabetes, hypertension, cardiovascular diseases, cancer and respiratory illness stands the most common cause for diseases and deaths. These diseases are mainly caused by the modifiable risk factors such as physical inactivity, unhealthy diet pattern, obesity, tobacco use and alcohol consumption. The increasing burden of NCDs and large proportion of adolescent population in India; crafts the dynamics of NCD risk factors. NCD risk factors are behaviourally acquired which are due to change in lifestyle during adolescent age groups. Rapid unplanned urbanization,

globalization of unhealthy lifestyles and population ageing must be major cause.

1.1 BACKGROUND OF THE STUDY

NCDs threaten progress towards the 2030 Agenda for Sustainable Development, which includes a target of reducing the probability of death from any of the four main NCDs between ages 30 and 70 years by one third by 2030. The four major NCDs are cardiovascular diseases (CVDs), cancers, chronic respiratory diseases (CRDs) and diabetes which share four behavioural risk factors –unhealthy diet, lack of physical activity, and use of tobacco and alcohol that originate in childhood and adolescence. The India State-Level Disease Burden Initiative in 2017 by Indian Council of Medical Research (ICMR), it is estimated that the proportion of deaths due to NCDs in India have increased from 37.9% in 1990 to 61.8% in 2016.

1.2 SIGNIFICANCE AND NEED FOR THE STUDY

NCDs causing “Invisible epidemic,” responsible for 71% or 41 million of current annual deaths globally. Risk factors for NCDs during adulthood can be prevented with appropriate approaches. Aims to facilitate long-term behaviour changes in adolescents that can reduce NCD risk factors and disease onset in later-life. School-based programmes must be designed to improve childhood and adolescent health behaviours and wellbeing. It should be multidisciplinary, utilizing both educational and health expertise. Health outcomes may not be evident in the short term, but may occur with learning-related behaviour modifications, highly effective when sustained over a lifetime; as it relates to the phrase “from cradle to grave” Thus assessment must analyse short-term learning and behaviour impacts as well as long-term capability, behaviour and health outcomes. The researcher has major concern towards preventing diseases rather than to treat as this may lead to the development of healthy citizens in future.

1.3 STATEMENT OF THE PROBLEM

A quasi study to assess the vulnerability for non-communicable diseases and effectiveness of Fit for Future Empowerment Programme on level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy lifestyle among adolescents at selected schools.

1.4 OBJECTIVES

1. To identify the vulnerability for non-communicable diseases among adolescents
2. To assess and compare pre and posttest level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy life style among adolescents in study and control group.
3. To assess the effectiveness of fit for future empowerment programme on level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy life style among adolescents in study and control group.
4. To correlate the mean differed level of knowledge with perception, biophysiological and lifestyle parameters regarding healthy life style among adolescents in study and control group.
5. To associate the selected background variables with the mean differed level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy life style among adolescents in study and control group.
6. To associate the selected background variables of adolescent's parents with the mean differed level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy life style among adolescents in study and control group.

II METHODS

Quantitative research approach, Quasi experimental, non-equivalent control group design was adopted to assess the vulnerability for non-communicable diseases and effectiveness of fit for future empowerment programme on level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy lifestyle among adolescents aged 13 to 18 years studying 8th and 9th standard in selected schools, Chengalpet district, Tamilnadu, India. Ethical approval from IRB and the head of institution was obtained. All the ethical principles were followed during study period. Assent and parental consent obtained before collecting data. About 20 participants in each group based on inclusion criteria was recruited by convenient sampling method. Background variables of adolescents and their participants were collected with Multiple choice questions, Structured knowledge questionnaire for assessing knowledge, 4-point likert scale for Perception and Structured

behaviour scale for Life style behaviour. The data collection tool was utilized after obtaining content validity and reliability of the tool. Test and retest, Cronbach alpha method and Inter rater method were used to measure reliability of tool and it showed 0.82, 0.83, 0.88 and 0.9 which is highly reliable. Descriptive statistics and Inferential statistics were used to analyse the data. Frequency and percentage distribution used to analyse the demographic data and vulnerability assessment for non communicable diseases. Mean and Standard deviation used to analyze pre and post test level of knowledge, perception,

biophysiological and lifestyle parameters within the group Inferential statistics such as student paired 't' test, independent 't' test, Karl Pearson correlation coefficient and ANOVA 'F' test were used to test the effectiveness of Fit for future empowerment programme, correlate the post test level of knowledge, with the level of perception, biophysiological and lifestyle parameters score in both group and test the association between mean differed level of knowledge, perception, biophysiological and lifestyle parameters score with selected demographic variables viz versa.

III RESULTS

Objective 1: To identify the vulnerability for non-communicable diseases among adolescents

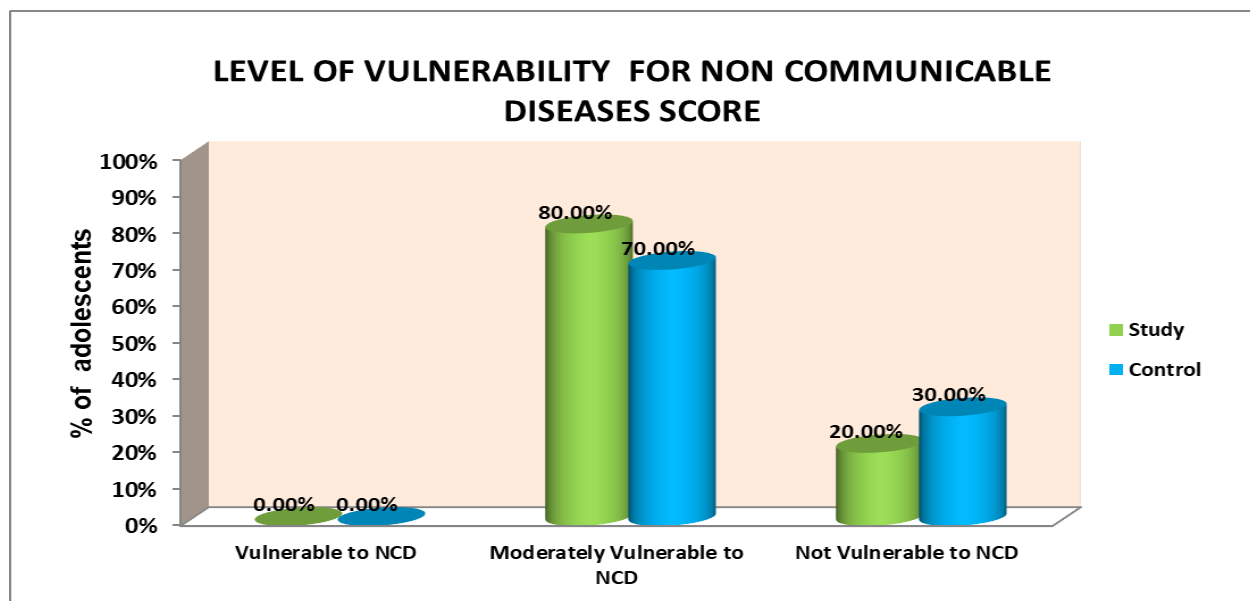


Fig 1: Vulnerability for non-communicable diseases among adolescents

The above figure 1 shows that, 80% from study group were moderately vulnerable to NCD and 30% from control group were not vulnerable to NCD.

Demographic Data: The demographic data shows that, majority 60% were 13 years, 60% from study group and 55% from control group were males, 50% from study and 60% control group were first born, 75% of study and 80% of control group having one sibling, 50% of study and 55% of control group were 8th standard studying students. 75% of study and 85% of control were belongs to Hindus, 45% of study and 35% of control group residing in urban area. 60% of study and 50% of control group were belongs nuclear

family, 55% of them having four members as total number of family members. 90% of study and 80% of control group of parental marital status was non-consanguineous.

In regard to parenting style, 70% of study and 50% of control group were permissive type of parenting style. 90% of study and 75% of control group having family monthly income as Rs.10001 & Above, 75% of study and 65% of control group spent extra timing spent in the school other context with reason, 30% of study and control favorite subject is English and Maths viz versa, 90% of study and 85% of control group had no medical history of NCD and 100% of both groups had

no surgical history. 65% of study and 70% of control group father's age is 41-45 years, 70 % of study and 55% of control group mother's age is 36- 40 years. 75% of study and 85% control group father's were graduate and above as education status. 65% and 75% of mother's education status is graduate and above from study and control group viz versa. 45% of study and 55% of control group father's were professionals as occupation. 55% of study and 50 % of control

mothers were home makers. 80 % of study and 65% of control group family history had no medical history related to NCD and 100 % of both groups had no surgical history.

Objective 2: To assess and compare pre and posttest level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy life style among adolescents in study and control group.

Table 1: Percentage difference of adolescents knowledge gain score among study and control group N=40

Group	Assessments	Knowledge score			
		Maximum knowledge score	Mean knowledge score	% knowledge score	% of knowledge gain score
Study	Pretest	20	8.55	42.75%	24.00%
	Posttest	20	13.35	66.75%	
Control	Pretest	20	8.95	44.75%	3.00%
	Posttest	20	9.55	47.75%	

P≤0.001 very high significant, S= significant, NS=not significant

Table 1 shows that the pretest mean knowledge score is 8.55 with percentage knowledge score of 42.75 and posttest mean knowledge score is 13.35 with percentage knowledge score of 66.75 and 24% of mean knowledge gain score among study group. Where as in control group, the pretest mean knowledge score is 8.95 with percentage knowledge score of 44.75 and posttest mean knowledge score is 9.55 with percentage knowledge score of 47.75 and

3% of mean knowledge gain score, which shows that there is significant difference between the study and control group.

Objective 3: To assess the effectiveness of fit for future empowerment programme on level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy life style among adolescents in study and control group.

Table 2: Comparison of knowledge score among adolescents between study and control group

N=40

Assessments	Group				Mean difference	Student independent t-test
	Study		Control			
	Mean	SD	Mean	SD		
Pretest	8.55	1.54	8.95	1.73	-0.40	t=0.77 p=0.44(NS)
Posttest	13.35	2.06	9.55	1.70	3.80	t=6.36 p=0.001***(S)

P≤0.001 very high significant, S= significant, NS=not significant

Table 2 shows that the study group, pretest mean score of 8.55 with 1.54 standard deviation shows mean difference of -0.40 with the control group mean score

of 8.95 and standard deviation 1.73 which is not significant at t= 0.77 at p = 0.44 level.

Where as in the posttest, study group shows mean score 13.35 with standard deviation 2.06 and in control group shows mean score 9.55 with standard deviation

1.70 with the mean difference of 3.80, $t=6.36$ at the $p=0.001$ infers very high level of significant difference between study and control group.

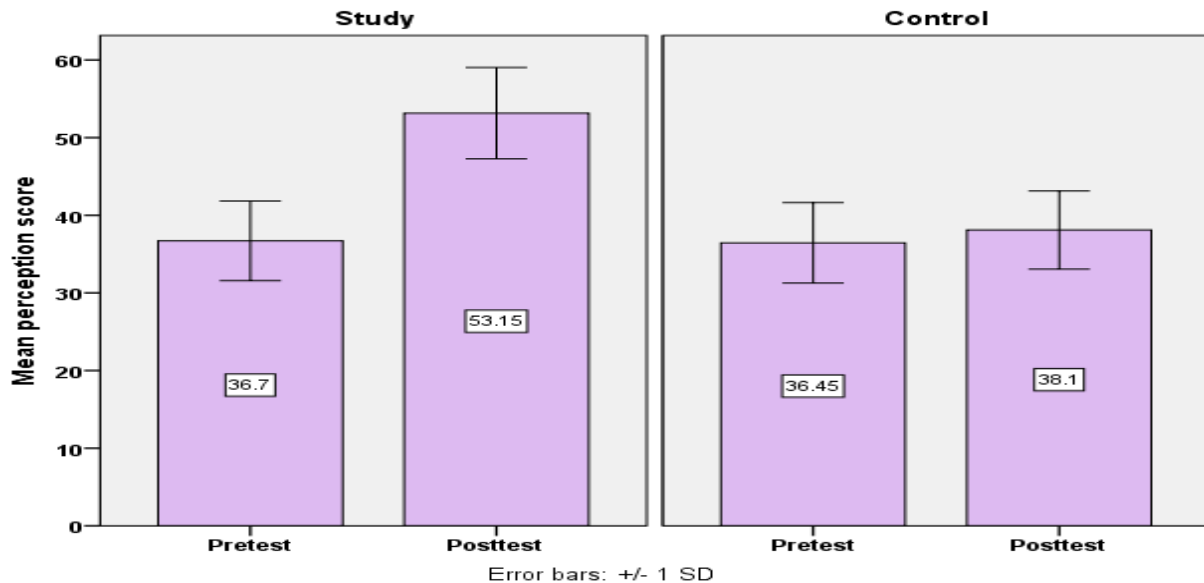


Fig 2: Comparison of perception score between pretest and posttest among adolescents in study and control group

The above figure 2 shows the perception score 36.7 in pretest and posttest percentile shows 53.15 where as in control group, 36.45 at pretest and posttest percentile shows 38.1 infers positive perception score in study group when compared with the control group.

Table 3: Comparison of behaviour score among adolescents between study and control group

Assessments	Group				Mean difference	Student independent t-test
	Study		Control			
	Mean	SD	Mean	SD		
Pretest	38.40	5.69	39.85	3.10	-1.45	t=1.00 p=0.32(NS)
Posttest	54.20	6.80	40.70	3.40	13.50	t=7.94 p=0.001(S)

$P \leq 0.001$ very high significant S= significant

The above table 3 shows the pretest mean 38.40 with standard deviation of 5.69 in study group, in control group shows mean 39.85 with 3.10 SD and mean difference of -1.45 at $t=1.00$. where as in the posttest level, study group shows 54.20 mean with 6.80 in study group and control group shows mean 40.70 with SD 3.40 and mean difference of 13.50 with $t=7.94$ at $p=0.001$ infers very high significant level of

behaviour score difference observed between study and control group.

The biophysiological variables of adolescents between study and control group shows no significant difference between study and control group.

Objective 4: To correlate the mean differed level of knowledge with perception, biophysiological and

lifestyle parameters regarding healthy life style among adolescents in study and control group.

Correlation between mean differed knowledge with perception, behaviour and biophysiological parameters score (study group)

- Considering knowledge, there is a fair significant Correlation between knowledge and perception score,
- Considering perception, there is a fair significant Correlation between knowledge score and behaviour score

- Considering behaviour, there is a fair significant Correlation between Behaviour, knowledge, perception SBP score
- Considering SBP, there is a fair significant Correlation between SBP and knowledge score

Objective 5: To associate the selected background variables with the mean differed level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy life style among adolescents in study and control group.

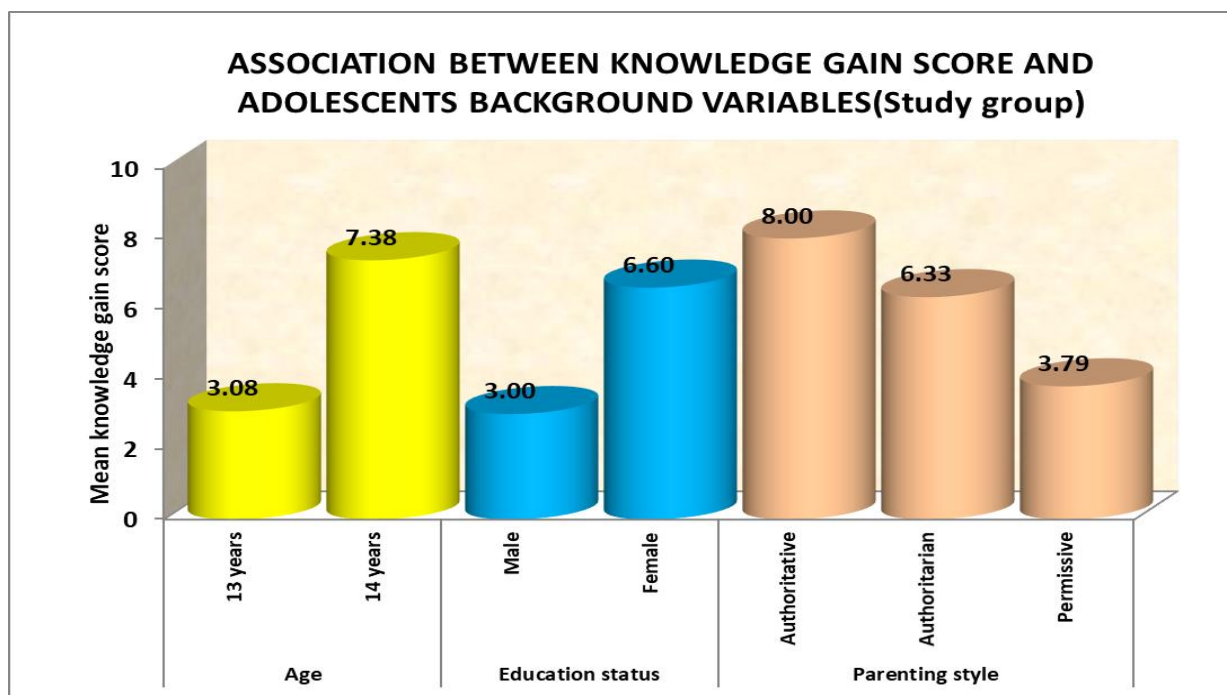


Fig 3: Association between knowledge gain score and adolescents background variables (Study group)

The above figure 3 shows, the association between knowledge gain score and adolescents demographic variables among Study group. 14 years, 9th standard and authoritative parenting style adolescents are gained more knowledge score and not for the other variables such as Gender, Birth order, Number of

Siblings, Religion, Area of residence, type of family, total No of family Member, Parental marital history and Family monthly income. Statistical significance was assessed using one way analysis of variance F-test and student independent t-test.

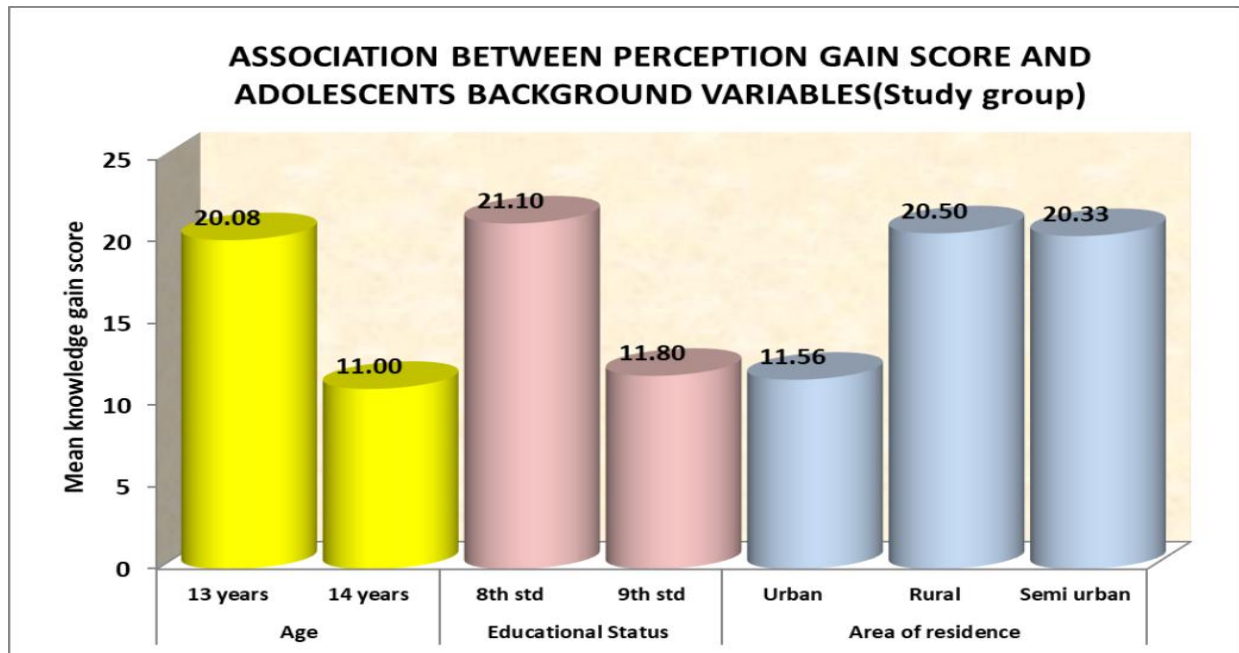


Fig 4: Association between perception gain score and adolescents background variables

Above figure 4 shows the association between perception gain score and adolescents demographic variables among Study group. 14 years, 9th standard and urban adolescents are gained more knowledge score and not for the other variables such as Gender, Birth order, Number of Siblings, Religion, type of family, total No of family Member, Parental marital history and Family monthly income. . Statistical significance was assessed using oneway analysis of variance F-test and student independent t-test

- The association between behavior gain score and adolescents demographic variables among Study group shows, none of the variable are significant. Statistical significance was assessed using one-way analysis of variance F-test and student independent t-test.

Objective 6: To associate the selected background variables of adolescent's parents with the mean differed level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy life style among adolescents in study group.

- The association between the selected background variables of adolescent's parents with the mean differed level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy life style among adolescents in

study and control group shows none of the variable are significant.

- Statistical significance was assessed using one way analysis of variance F-test and student independent t-test.

IV DISCUSSION

The present study results revealed that the fit for future empowerment programme was effective in improving the level of knowledge, perception, biophysiological and lifestyle parameters regarding healthy life style among adolescents at selected schools. The study results were consistent with the previous study done by Raghunandan, V., e.tal., (2025). A study to evaluate implementation and effectiveness of the program "Fit for Life Initiative." A study evaluating the Fit for Life Initiative (FFLI) among Indian Air Force personnel used a convergent parallel mixed-methods design to assess program implementation, participant engagement, and health outcomes. Data collected from 530 personnel showed high awareness (96.4%) and positive attitudes toward the program. Although core activities such as health education sessions were consistently implemented, gaps were observed in regulating unhealthy food options in cafeterias. Importantly, BMI outcomes indicated significant improvement, with many overweight and obese

participants moving to healthier categories within one year. The study highlights the effectiveness of structured health promotion programs in improving awareness and reducing obesity, while emphasizing the need for stronger policy enforcement and continuous health education

CHALLENGES FACED AND REALISED DURING DATA COLLECTION

- ❖ Few participants felt that the questionnaire was too long to read and complete.
- ❖ Few participants hesitated to participant in the life style mentoring on positive living
- ❖ Few participants hesitated to do Yoga asanas and Mudras

Statistician Opinion and suggestion

Statistician appreciated the study and suggested that the techniques adopted were fit for the study and encouraged to proceed the study

V.CONCLUSION

The main aim of the pilot study was to identify the reliability of the tool and feasibility of the study. The pilot study revealed the tool was reliable and the study is practicable and feasible to carry on with adolescents. The inputs of the pilot study have revealed that the tool was reliable, practicable, and feasible for collecting relevant data. The findings of the study have given a promising relevance and usability of this interventional package for the main study. The felt needs of the participants and the researcher will be ensured during the main study data collection. The suggestions of the pilot study were incorporated in the main study.

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Conflict of Interest: None

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