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CAN ADOPTION OF SCHOOLS BY MBBS INTERNS STRENGTHEN SCHOOL HEALTH PROGRAMME? - AN INNOVATIVE APPROACH

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Abstract

BACKGROUND : One of the wisest investments developing nations can make in their quest for long-term economic and social development is in adolescent health education. Though Government is making its efforts to strengthen adolescents through school health programme, almost 25% of girls and boys do not receive any of the four school-based services (mid-day meal, biannual health checks, biannual deworming, and weekly iron folic acid supplementation) and none met the necessary 60 minutes of outdoor sports and exercise per day as per UNICEF India report, 2019. Closing this gap is crucial to ensure healthful impact on their lifestyles throughout their lives.

OBJECTIVE: To assess the effectiveness of school adoption intervention on health behaviors among the students of grade 8th.

METHODS: A theory-based interventional study was conducted among 80 students of grade 8th at a Gov. Zilla Prishad High school, Visakhapatnam. A 2 weeks health education intervention on knowledge, attitude, and practice of health behaviors were conducted by MBBS Interns. Attitudes & practice of students towards healthy behaviours was assessed before and after intervention using a self-administered validated questionnaire.

RESULTS : The post-test responses from the students showed significant ($p<0.05$) increase in intake of fruits (77%), vegetables (47.5%), milk (58.8%) and egg (66.7%). fast food and soft drink consumption pattern decreased around (80%). Around 50% of them adopted healthy physical activity patterns. Also, The students' attitudes toward obeying to road safety rules, first aid alcohol, tobacco, and sexual hygiene also showed beneficial changes.

CONCLUSION : The MBBS Interns' school adoption intervention enhances students' commitment to healthy behaviours by reinforcing the objectives of school health programme.

KEY WORDS : High school students , Health education , school adoption by MBBS Interns , Healthy lifestyle

INTRODUCTION

Adolescence as defined by WHO to be from 10-19 years of age[1] constitutes the phase of transition that includes puberty's biological changes, the drive to become more independent, a focus on the self, and experimentation.[2] A Variety of risky behaviors for one's health first emerge at this age. Some of these behaviors include being overweight or obese, suicidal thoughts, accidents, the dangers of unprotected sexual behavior, illnesses linked to tobacco or alcohol use, and are major contributors to adolescent mortality and future morbidity in their adulthood.[3-7]

According to WHO statistics, risky adolescent behavior, such as poor eating habits, is a major contributor to 70% of adult premature deaths. One of the best investments developing countries can make in their quest for long-term economic and social development is in adolescent health education because, if major chronic disease risk factors are eliminated in the short term, at least 80% of heart disease, stroke, type 2 diabetes, and 40% of cancer could be prevented in the long run.[8]

Worldwide it has been established that School health programs can reduce the prevalence of health risk behaviors among adolescents [9] and so have a positive effect on academic performance.[10] Also schools provide an opportunity to address multiple risk behaviours and it is most effective and cost benefit approach the developing nations can adopt.[11]

By incorporating school health in the Health and Wellness section of the government of India's Ayushman Bharat programme, which aims to improve the preventive and promotive components through health promotion activities, the School Health Program has received a boost. At the school level, these initiatives will integrate and systematize health promotion, health education, disease prevention, and improved access to health care. Emerging social morbidities including injury, aggression, substance misuse, unsafe sexual activity, and psychological and emotional illnesses are receiving more attention.[12]

Though Government is making its efforts to strengthen adolescents through school health programme, almost 25% of girls and boys do not receive any of the four school-based services (mid-day meal, biannual health checks, biannual

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deworming, and weekly iron folic acid supplementation) and none met the necessary 60 minutes of outdoor sports and exercise per day as per UNICEF India report, 2019.[13] Closing these gaps is crucial to ensure healthful impact on their lifestyles throughout their lives. We aimed to know the effectiveness of school adoption by MBBS Interns in filling these gaps and performed a health education interventional study.

OBJECTIVE

To assess the effectiveness of school adoption by MBBS interns on health behaviors among the students of grade 8th.

METHODS

PARTICIPANTS AND PROCEDURE

The school adoption programme was conducted by Department of Community Medicine, Andhra Medical College during October 2022. A group of MBBS Interns were involved in the development of health education modules. One school out of the five Zilla Parishad high schools under the rural field practice area of the college was randomly (simple random sampling-lottery method) selected and all the students from grade 8th were included in the study. All participants were informed of the study purpose and gave oral informed consent. This study was approved by the Institutional Ethics Committee, Andhra Medical College and Permission was obtained from Head master of the school to conduct the study.

INTERVENTION

All the students of grade 8th received a 2-week class-based and junior doctors-led health education course, targeting health behaviors .The topics of the course (2-hour per session and a total of 4 sessions over a period of 2 weeks) included: (1) Balanced diet (2) physical activity (3) healthy sleep; (4) Road safety rules (5) First aid and wound cleaning (6) mental health and stress reduction strategies; and (7) Harmful effects of alcohol and tobacco (8)Personal hygiene (9)Sexual Health (10) Menstrual Hygiene. The course was delivered through multiple modes of health education which combined chalk and talk method, audio visuals, and demonstrations on knowledge, attitude, and practice of healthful behaviors. Attention and active participation of the students was reaffirmed after each session through the feedback.

MEASURES

The attitudes and practices of students towards health related behaviors were measured through a self-administered Pre tested semi-structured questionnaire based on the services provided and indicators mentioned in the National school health programme document (Operational_guidelines_on_School_Health_Programme_under_Ayushman_Bharat.pdf (nhm.gov.in) in the classroom twice: before the intervention and immediately following the intervention. The reliability of the instrument was checked with Cronbach's Alpha (0.832).

The questionnaire included students health-related behavior outcomes (such as (1) Dietary Patterns (2) physical activity (3) healthy sleep; (4) Road safety rules (5) First aid and wound cleaning (6) mental health and stress reduction strategies; and (7) Harmful effects of alcohol and tobacco (8) Personal hygiene (9)Sexual Health (10) Menstrual Hygiene).

Dietary pattern was assessed by the question: "1) How many times a week do you usually eat or drink? "Categories included Fruits, vegetables, Sweets, snacks, fast foods, samosa, pani poori, noodles etc., Cool drinks (coke, maaza, Fanta etc.), milk, Egg, Non veg. The responses of the participants who reported Never, Less than once a week, were coded under poor, Once a week, 2-4 days a week,5-6 days a week, were coded as good and every day. Every day, more than once were coded as satisfactory. The coding was negative for fast foods and cool drinks.

Physical activity was assessed by the 3 questions:

1. "How many days were you physically for at least 60 minutes a day in the last seven days?" The responses of the participants who reported physical activity (for at least 60 min) less than 3 days per week were coded 0 and less than 5 days were coded 1.

2. "How do you spend your free time usually? "The responses of the participants who reported, Playing video games, Chatting with friends. Browsing internet were coded 0, Watching television with family were coded 1, Playing outdoor as 2.

3. "How much time do you spend during a typical or usual day sitting and watching television, playing computer games, talking with friends, or doing other sitting activities? "The responses of the participants who reported >4 hours, 3-4 hours were coded 0, 1-2 hours as 1, <1 hour as 2.

Healthy sleep was assessed by the question "Typically, how many hours do you sleep per day? "The responses of the participants who reported <4 hours and >10 hours were coded as 0, 6-8 hours and 8-10 hours as 1, 4-6 hours as 2.

Attitude towards road safety rules was evaluated based on the response to the question "Which of the following rules should one follow for safety on roads? "The responses of the participants who checked only go slowly, observe traffic lights were coded 1, who also checked zebra crossing Wear helmet were coded as 2 and who ever checked all the options

including wear seat belt, Pedestrian lanes, don't use mobile while driving were coded as 3.

Practice of first aid and wound cleaning was evaluated by the response to the question.

"What do you do when you or your friend is injured?" The responses of the participants who opted only wash with water and apply turmeric were coded as 1, who also opted wash with soap were coded as 2 ,whoever opted all the options including apply dettol, apply tincture iodine were coded as 3.

Mental health and coping stress were assessed by the questions:

1. "How often have do you feel disturbed due to the comments from your peers, family?" The responses of the participants who reported always and Most of the time were coded as 0, who reported sometimes were coded as 1, and rarely as 2.

2. "What do you do if you feel disturbed or stressed?" The responses of the participants who reported Watch mobile were coded as 0, who reported Talk to friends or Play outdoor games were coded as 1, and Talk to parents as 2Attitude towards alcohol and tobacco were assessed by the question "Do you think having alcohol & tobacco is right? "The responses of the participants who opted after becoming adults / parties with friends / When stressed were coded as 0, who opted in family functions were coded as 1 and never as 2.

Healthful hygienic practices were assessed by the question:

What do you to keep yourself healthy? The responses of the participants who opted maintaining self-hygiene like keep myself clean and washing hands were coded as 1, who also op0ted maintaining self-hygiene and maintaining clean surroundings like keep my house clean and keeping toilets clean were coded as 2 and whoever opted all the options including closed drainage/mosquito control and maintaining sexual hygiene were coded as 3.

Menstrual practices of girl students was assessed by the question

How many sanitary napkins do you change /day during menstrual cycle? The responses of the Participants who reported using 1 pad / day were coded as 0, 2 pads /day were coded as 1 and 3 or >3 were coded as 2.

Zero (0) is taken as poor practices /attitudes , one (1) as good and two (2) as satisfactory in all the questions except attitude towards road safety rules , practice of first aid and wound cleaning , healthful hygiene practices where one (1) is taken as poor practices /attitudes , two (2) as good and three (3) as satisfactory .

STATISTICAL ANALYSIS

Descriptive statistics were reported as mean (SD) for continuous variables like (age and body mass index (BMI) and Hemoglobin % (Hb %) and frequency (percentage) for categorical variables. mc nemar test were used to see the association between pre and post-test variables. These data were entered and analyzed using SPSS software (SPSS 21.0 Version).

RESULTS

A total of 80 students aged 13 (SD: 0.00) years completed the study, Demographic characteristics of participants was shown in Table 1.

Table 1. Characteristics of study participants

Demographic characteristics	Male	Female
Age	13± 0.0	13 ± 0.0
Gender	43 (53.7%)	37 (46.2%)
BMI	17.9±4.2	18.5±3.6

27.5% of girls and 35% of boys were underweight according to WHO-Asian BMI Classification changed to 2007-WHO Reference BMI-for age BOYS and Girls.Table 2.

Table 2. Distribution of study population according to 2007 - WHO Reference BMI-for age BOYS and Girls

Gender	AGE	Severe Thinness	Thinness	Normal	Overweight	Obese
BOYS (43)	13	4 9.3%	5 11.6%	26 60.4%	4 9.3%	4 9.3%
GIRLS (37)	13	1 2.7%	2 5.4%	26 70.2%	6 16.2%	2 5.4%

Table 3. Distribution of study population according to WHO classification of anemia for children 12-14 yrs. of age

	No anemia	Mild anemia	Moderate anemia	Severe anemia	Total
Female	2 (2.5%)	4 (5%)	30 (37.5%)	1 (1.25%)	37
Male	2 (2.5%)	6 (7.5%)	31 (38.75%)	4 (1.25%)	43
Total	4 (5%)	10 (12.5%)	61 (76.25%)	5 (6.25%)	80

Mean Hb% for boys was 9.84 + 1.2 and girls was 9.84+1.6 37% girls. 38.75% boys and 37.5% girls were moderately anemic according to the WHO Anemia severity categories for children aged 12-14yrs in Table 4.

Findings of the clinical examination of students and the remarks were shown in Table 5 around 75% were normal.

Table 4. Clinical examination findings

Skin & scalp	Eyes ,ears and nose	Mouth , neck and throat
75% normal	76% normal	77% normal
14% dandruff	14% excessive ear wax	17% decay tooth
3% pediculosis	3% refractory errors	2% dental caries
2% scabies	1% bitot spots	3% tonsillitis
1% skin allergy	1% eye squint	

Table 5 .Attitudes and practices of students towards health behaviours of pre and post intervention

Outcome variable	Practices	Pre intervention	Post intervention	Positive shift	p-value
Fruit consumption pattern	Poor	27	6	(0-1) 77.8%	0.000
	Good	23	43	(1-2) 4.3%	<0.001
	Satisfactory	30	31		
Vegetable consumption pattern	Poor	0	0	(0-1)47.1%, (0-2)52.9%	0.004
	Good	17	8	(1-2)100%	
	Satisfactory	63	72		
Fast foods and junk food consumption pattern	Poor	13	0	(0-1) 100%	a*
	Good	35	20	(1-2) 80%	
	Satisfactory	32	60		
Soft drink consumption pattern	Poor	13	0	(0-1) 100%	a*
	Good	45	18	(1-2) 88.9%	
	Satisfactory	22	62		
Milk consumption pattern	Poor	17	7	(0-1) 58.8%	0.002
	Good	10	18	(1-2) 20%	
	Satisfactory	53	55		
Egg consumption pattern	Poor	6	2	(0-1) 66.7%	0.001
	Good	31	25	(1-2) 32.3%	
	Satisfactory	43	53		
Non- veg consumption pattern	Poor	10	6	(0-1) 40%	0.007
	Good	23	21	(1-2) 26.1%	
	Satisfactory	47	53		
Physical activity	Poor	22	12	(0-1) 45.5%	<0.001
	Good	26	26	(1-2) 38.5%	
	Satisfactory	32	42		
Activities in free time	Poor	23	9	(0-1) 60.9%	<0.001
	Good	39	30	(1-2) 59.0%	
	Satisfactory	18	41		
Time spent sitting idle	Poor	14	3	(0-1) 78.6%	<0.001
	Good	31	28	(1-2) 45.2%	
	Satisfactory	35	49		
Hours of sleep	Poor	29	13	(01)44.8%, (02)10.3%	<0.001
	Good	13	15	(1-2) 84.6%	
	Satisfactory	38	52		
Practice of road safety rules	Poor	38	10	(1-2)34.2%, (13)39.5%	<0.001
	Good	41	13	(2-3) 100%	
	Satisfactory	1	57		
Practice of first aid	Poor	42	16	(1-2)16.7%, (1-3)45.2%	<0.001
	Good	4	7	(2-3) 100%	
	Satisfactory	34	57		
Mental health (depressed/stressed)	Poor	19	9	(0-1) 47.4%	<0.001
	Good	41	40	(1-2) 26.8%	
	Satisfactory	20	31		
Methods adopted to cope stress	Poor	13	5	(0-1) 61.5%	<0.001
	Good	48	33	(1-2) 47.9%	
	Satisfactory	19	42		
Attitude towards alcohol & tobacco	Poor	8	0	(0-1)62.5%, (0-2)37.5%	a*
	Good	1	5	(1-2)100%	
	Satisfactory	71	75		
Healthful hygienic practices	Poor	34	7	(1-2)50.0%, (1-3)29.4%	<0.001
	Good	42	23	(2-3) 85.7%	
	Satisfactory	4	50		
Menstrual hygiene (optional for girls)	Poor	0	0		b*
	Good	0	0		
	Satisfactory	29	29		

*Mcnemer test was used to find the significance between the outcome variable pre and post intervention

a* Mcnemer test couldn't be performed as it can be Computed only for a PxP tabl

b* no difference in the outcome variable of pre and post intervention.

Attitudes and practices of students towards health behaviours of pre and post intervention after intervention significant changes were observed in dietary intake patterns of fruits 77.8% shifted from poor to good practices, vegetable 47.1% shifted from poor to good practices, milk 58.8% increased their intake, egg 66.7% started including in regular diet and non-vegetarian foods, also 100% participants in fast foods and soft drinks categories have shifted their practices from poor to good and over 80% shifted their practices from good to satisfactory. 45% participants with poor practices of physical activity shifted to good and 38.5% with good practices upgraded to satisfactory, more than half of the participants with poor practices showed significant improvement towards good practices in the free time activities, also time spend sitting idle was decreased and healthy sleeping habits were adopted. Attitudes of students towards road safety rules and approaches to first aid and wound cleaning were significantly improved. Significant change in observed in participants approach towards handling mental health issues 61.5% with poor practices shifted towards good practice and 47.9% upgraded their practices from good to satisfactory. Attitudes, practices and approaches of the participants towards hygiene were significantly improved 50% from the poor practices adopted good practices and 85.9% with good practices upgraded to satisfactory approaches. All the girls in our study were using >2 sanitary napkins per day during their menstrual cycles.

REPORTING AND INTERVENTION PLANNING

All the results regarding the physical examination, nutritional status and clinical examination were discussed with Head Master, chief medical officer of the attached rural health centre, District coordinator of hospital services, Health visitor, ANM and ASHA workers and the children were treated.

A leader by name chinnari doctor was allotted for a group of every 10 students. Chinnari doctors were allotted with the responsibilities to examine the lunch boxes and maintain health diaries of their group which they would be reporting to the junior doctors during every visit.

PERSPECTIVES OF INTERNS

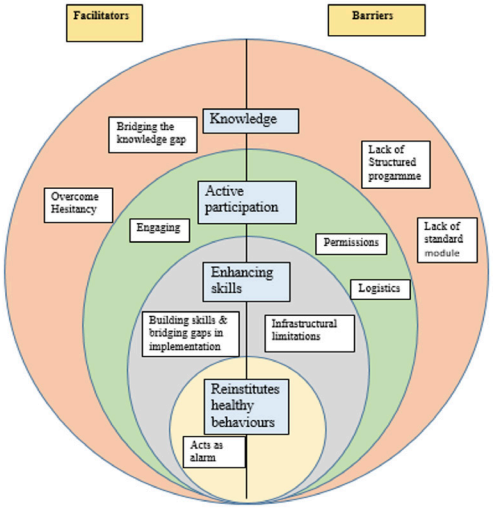

Figure 1: Perspectives of Interns

After the completion of the programme, a Focus Group Discussion (FGD) was conducted at Department of Community Medicine with 10 interns to know their reflections. After general introductions, icebreaking was done to make the participants comfortable. The key points of the FGD were being documented by a pre-identified note-taker. After seeking consent, audio recording was done. Debriefing was done at the end of the FGD. Any points that were missed were added. Thematic analysis was done for the FGD using descriptive analysis following an inductive and deductive approach. Data was analyzed by maintaining an "etic" perspective, familiarization was established by listening to the audiotapes and then transcribed by anonymizing sensitive data. Initial coding was done by the principal investigator and then was jointly coded by all the three investigators who were previously identified and had been trained in qualitative research. The codes were then grouped into subcategories and organized at a broader conceptual level into the following themes. 1) Knowledge 2) Active Participation 3) Enhancing skills 4) Reaffirming forgotten behaviours.

Facilitators:

Knowledge

The participants felt this kind of programme gives them an opportunity to bridge the knowledge gaps and overcoming the hesitancies in delivering health education

"An intern is more qualified to deliver health education" (intern 5)

"We are trained to speak silenced topics" (intern 8)

Active participation

Participants felt it gives an opportunity for active participation of both students and junior doctors. An intern said

"These activities are more engaging to both us and the students "(intern 3)

Enhancing skills

The participants felt it builds their skills and awareness of the ground level realities in implementation of National health programmes also acts as a bridge to interact with the families and fill service delivery gaps through students.

"Builds the skills on attitudes, ethics & communications" (intern 1)

"Gives an opportunity to gain knowledge on the ground level implementation of national health programmes" (intern 9)

"Gives an opportunity to influence families through students "(intern 4)

"Not all students comes to hospitals and get treated, we can bridge the gap" (intern 5)

"An opportunity to get exposure to working with the community. (Intern 2)

Reaffirming forgotten behaviours

The participants felt it reinstitutes their healthy behviours which were forgotten during their transition into the hectic life styles.

"We have almost forgotten the lessons we learnt, it givens an opportunity to correct our behaviours too" (intern 10)

Barriers:

Knowledge

Participants felt though they were knowledge they need structured programme and standardization of modules

"We don't have a standardized programme so building a module has been a little tough" intern 3

Active participation

To ensure active participation of students and them by themselves they need to have certain Permissions & logistics

"Schedules of schools has to be pre matched and it would have been easy if we have an teacher in this group" intern 9

Enhancing skills

To conduct meeting and to engage parents and community administrators' schools should have the facilities of meeting halls and proper Infrastructure

"There isn't a sufficient hall to conduct the classes." Intern 1

The schools don't have a seminar hall to project videos & presentations" intern 7

DISCUSSION

This study investigated the current health status of the students and effectiveness of a health education intervention on student's attitudes and practices towards health related behaviors. In this study, 70.2% of girls and 60.4% boys were normal due to ongoing DBT Scheme called "AMMA VODI" in Andhra Pradesh which mandates the school attendance of the students which in turn makes them benefited from all the school health services, This is in contrast to the report by UNICEF INDIA which states that 50% of Indian adolescents (10-19) were malnourished.[14]

In this study 2.5% of girls and boys were with no anemia and majority of both girls and boys were under the category of moderate anemia (over 40%). The report by UNICEF INDIA which stated In India, 40 per cent of girls and 18 per cent of boys (aged 10-19) are anemic. The increased prevalence of anemia among boys may be attributed to their during the times of COVID 19 pandemic and shortage of drugs.[15]

After the 2-week health education intervention, participants showed favorable changes and significant positive shift in the attitudes and practices towards healthy behaviors.

In this study, after intervention significant changes were observed in dietary intake patterns of fruits, vegetable, milk, egg and non-vegetarian foods, also 100% participants in fast foods and soft drinks categories have shifted their practices from poor to good and over 80% shifted their practices from good to satisfactory. This findings are similar to the findings of studies done by T.Vijayapushpam et[16,17] except they couldn't find significant improvement in milk consumption pattern and a systematic review by Wang D et al supports that school based nutrition programmes and health promotion through school could bring significant changes in the dietary patterns of adolescents.[18]

In this study, after the intervention, 45% participants with poor practices of physical activity shifted to good and 38.5% with good practices shifted to satisfactory, more than half of the participants with poor practices showed significant improvement towards good practices in the free time activities, also time spend sitting idle was decreased and healthy sleeping habits were adopted. Physical activity interventions in the school setting. These findings were supported by a systematic review by Demetrio Y et al.[19]

In this study, post intervention attitudes of students towards road safety rules were significantly improved. There isn't much literature on the success of road safety education programmes but if the attitudes of the students could be changed now, it would bring out more responsible drivers when they were licensed. More studies are need to explore the benefits of road safety education at schools.

In this study, following the intervention participants showed a significant change in approaches to first aid and wound cleaning with is similar to the study conducted by Mehreen et al.[20]

In this study, following the intervention participants showed a significant change in handling mental health issues 61.5% with poor practices shifted towards good practice and 47.9% upgraded their practices from good to satisfactory which were supported by the findings of systematic review by Ma KK et al which states school-based interventions effectively improve mental health literacy and reduce mental health stigma.[21]

In this study post intervention the attitudes of the participants towards harmful effects of alcohol and tobacco showed a significantly improved similar to the study by Radhakrishnan Jayakrishnan et al.[22]

In this study post intervention the attitudes, practices and approaches towards of the participants towards hygiene were significantly improved 50% from the poor practices adopted good practices and 85.9% with good practices upgraded to satisfactory approaches which were similar to the findings of the study by Shrestha A et al.[23]

According to UNICEF – India At least 42 per cent of girls in India use cloth rather than disposable sanitary napkins.[24] In contrast, all the girls in our study were using >2 sanitary napkins per day during their menstrual cycles. These hygiene practices can be attributed to the free sanitary napkin distribution programme at schools by Gov. of India.[25]

Therefore, this study provides evidence that a junior doctors led class-based health behaviors intervention may render an effective change on students in their early adolescence and the school health approach renders an opportunity for bringing long lasting changes in the attitudes and practices of students towards health promoting behaviors.

The findings of the focus group discussion with interns similar to the perspectives of CDC's perspective of health promotion through schools.[26] Though, there are several challenges regarding the exposure to get familiarized with the government national programme at ground level, lack of

standardized modules, structured programme, logistics and infrastructural limitations. These findings were similar to the study by Abdul Kadir et al.[27]

LIMITATIONS

It's important to acknowledge some of this study's limitations. First, this study was only conducted for a brief period of time. Future research with a longer intervention assessment is warranted. Second, this study wasn't conducted using a made standardized questionnaire. Finally, students were recruited from only one school hence it's not possible to generalize our study findings.

CONCLUSION

Our study found that the MBBS Interns' school adoption intervention effectively enhances students' commitment to healthy behaviours by reinforcing the objectives of school health programme.

More such studies are needed as there is huge lacuna in the availability of standardized questionnaires and programme structures to effectively involve interns in school health interventions.

There is a need for committed teams including teachers, parents and teachers and student representatives for the students of each grade in the schools to bring the holistic changes in student's behaviours.

CONFLICTS OF INTEREST

There are no conflicts of interest in this study.

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