Union Territory of Chandigarh has a total of 187 schools (107 public, 72 private, 7 aided schools and 1 Jawahar Navodhaya Vidhalaya) in Chandigarh [9-13]. A written permission was taken from the DPI, Schools and School Health Program C cer, UT Chandigarh to undertake the study. Short listing of schools (10 governments and 10 private) was done according to their proximity to the f e`d practice area of the School of Public Health, PGIMER. First eight schools (4 governments and 4 private) that consented were enrolled for the study. ese schools were then randomly allotted to control or intervention group by toss of coin.

e prevalence of unhealthy lifestyle pattern in urban adolescents is 75% [14]. At the end of the intervention program, this prevalence is expected to reduce to 50%. Taking 95% conf dence interval and 0.05 as allowable level of error, the sample size required in each group was 60.

| 15 yrs. | 26 (13.3%) | 11 (5.7%) | 37 (19%) | 30 (15.5%) | 15 (7.8%) | 45 (23.3%) |
| Total | 107 (55.9%) | 84 (44.1%) | 191 (100%) | 103 (53.3%) | 90 (46.7%) | 193 (100%) |

Table 1: Age and sex distribution of the students in intervention and control groups.

Table 1 gives the age-wise as well as sex-wise distribution of the students enrolled in the intervention group as well as the control group in the present study.

Table 2 shows the change in the health behavior of the school children in both the groups a er the intervention. ere was a signif cant increase in the behavior of children to play outside when they had free time from 33% to 45% (p<0.05). is is in contrast to the control group where there was a reduction in the number of children opting to play outside during free time. ere was 20% increase from the baseline in the proportion of children who did some kind of physical activity (p<0.0001). In the intervention group, 18% of the children started watching television for less than 2 hours a er

intervention (p<0.0001). e health behavior of school children regarding food and nutrition has shown a signif cant rise in the proportion of children who never skipped their breakfast from 56% to 68.5% (p<0.05) contrary to no change in the control group (p=0.6).

e proportion of children who opted for fruits in case food was not prepared at home also increased from 57.4% at baseline to 67.9% (p<0.05) in intervention group against reduction in fruit intake among the   intervention group against reduction in i—MinM   int

Other name for NCDs	58 *	162*	+104*	*	13*	10*	-3*	*
Naming the NCDs	300*	417*	+117*	*	343*	364*	+21*	*
Risk factors of NCDs	284*	384*	+100*	*	231*	129*	-102*	*
*Scores were computed for these parameters								

Table 2: Changes in the health behavior of the school children in both the groups after the intervention.

Table 2 presents the knowledge of the students on the indicators of physical activity, health and nutrition, behavior and skills, body and risk factors before and after the intervention and relative change in the health behavior of both intervention and control group of school children.

The intervention also resulted in a significant change in the attitude of the students towards HIV/AIDS. At baseline, 30.4% of the students reported that they would stop talking to their friend if they knew that he had HIV/AIDS, but post-intervention only 4.4% of the children reported the same (p<0.0001). Also those children now said that they would provide all possible support to their friend with HIV/AIDS. In the control group too, there was an increase in the same attitude but the significance level was lesser as compared to the intervention group (p<0.05). The intervention produced a significant change in the attitude of the children towards their body. At baseline, only 13.1% children thought that when anything wrong happened to you, it was not because of them which increased to 32.1% post-intervention (p<0.0001). Regarding knowledge of school children about risk factors, MCQs on risk factors were asked from the children, a scoring pattern was assigned to analyze these questions.

A score of +1 was given to each right option, -1 to each wrong option, a net score of 0 was given to that student and so on. The children were asked to choose the correct formula for BMI. At baseline, only 25.1% of the children knew the correct formula for BMI which tripled after the intervention to 75.5% in the intervention group. But it remained the same as in baseline among the control group children. The score of school children on naming of risk factors increased from 300 before intervention to 417 after the intervention. In the intervention group, the scores of students on the knowledge about risk factors of NCDs improved from 284 to 384 after the intervention. However, this score decreased in the control group. It was 231 before the intervention and decreased to 129 after the intervention.

The anthropometric parameters of the study children were compared before and after study (Table 3). In the intervention group, a reduction in the mean weight of children by 0.62 kg was observed, though this reduction was insignificant. But in the control group, the mean weight of the children increased by 0.97 kg. Similarly, the mean BMI of the school children also reduced from 18.96 to 18.76 in the intervention group, and this reduction was again insignificant. In the control group, the mean BMI increased from a baseline level of 18.71 to 19.02 after the intervention. The waist hip ratio of the intervention children showed a slight insignificant rise from a mean level of 0.70 to 0.80, while it remained the same at 0.86 in the control group, before and after the intervention period.

Theme	Health behavior improved	Intervention group				Control group			
		Pre-intervention (N=191)	Post-intervention (N=184)	Change% (Post-Pre)	P value	Pre-intervention (N=193)	Post-intervention (N=187)	Change% (Post-Pre)	P value
Anthropometry	Weight (Kg) [Mean(SD)]	47.25 (11.02)	16.63 (10.92)	-0.62	0.6	46.35 (8.98)	47.32 (9.33)	0.97	0.3
	Body Mass Index [Mean(SD)]	18.96 (2.91)	18.76 (2.83)	-0.2	0.6	18.71 (2.82)	19.02 (2.99)	0.3	0.3
	Waist Hip Ratio [Mean(SD)]	0.79 (0.12)	0.80 (0.05)	0.01	0.5	0.86 (0.07)	0.86 (0.06)	0	-
Biochemical measurements		Pre-intervention (n=81)	Post-intervention (n=184)	Change% (Post-Pre)	P value	Pre-intervention (N=193)	Post-intervention (N=187)	Change% (Post-Pre)	P value
	Total Cholesterol [Mean(SD)]	148.11 (25.54)	152.38 (29.51)	4.2	0.3	145.76 (19.42)	149.22 (32.99)	3.46	0.6
	HDL [Mean(SD)]	37.62(5.85)	39.23(6.05)	1.6	0.1	40.65 (6.66)	39.18 (7.31)	-1.37	0.3

LDL [Mean(SD)]	90.99(22.64)	90.83(25.82)	-0.16	0.96	89.97 (14.81)	94.18 (31.29)	4.19	0.4
VLDL [Mean(SD)]	19.5(9.59)	21.85(11.6)	-2.35	0.06	15.14 (7.08)	15.48 (3.23)	0.34	0.8
Triglycerides [Mean(SD)]	97.5(47.93)	96.99(26.42)	-0.51	0.9	75.69 (35.41)	78..48 (18.3)	2.78	0.7

Table 3: Changes in the anthropometric and biochemical parameters of the school children in both groups a er the intervention.

Table 3 shows the mean scores of the school children on anthropometry and biochemical parameters before and a er the intervention in the present study and relative change in the parameters both among the intervention and control group.

Changes in the biochemical parameters of children are shown in Table 3. e intervention produced a rise in the mean HDL levels from 37.62 mg to 39.23 mg albeit statistically insignif cant (p=0.1). e mean triglyceride level also showed reduction in the intervention group. All other parameters showed a slight increase in the intervention group, however they were not statistically signif cant. In the control group, it was observed that all the biochemical measurements showed an increase except HDL which was reduced by 1.47 mg, although the di erence was not statistically signif cant.

Discussion

e study was a community-based intervention study to assess the e ect of a short term, school based lifestyle intervention program on the health behavior and anthropometric measurements of school going adolescents and determine the factors inf uencing adoption of healthy lifestyle practices among the school going adolescents. A total of 384 students were enrolled in the study (191 in intervention group and 193 in control group. e age of the participating children varied from 13-15 years in both the groups. 371 participants were evaluated a er the intervention. is reduction was due to the daily variation in the attendance of the school children. However, the follow up rate of 96.6% was achieved.

Awareness was created among the children a er the intervention that physical activity can be routinely implemented in daily life. ere was a statistically signif cant increase in the behavior of children to play outside when they had free time (p<0.05). e children were encouraged by the parents at home as they had been explained the benef cia` e ects of physical games and harmful e ects of playing computer games. ere was 20% increase from the baseline in the children who did some kind of physical activity, of which 15% did it regularly. e children had also been taught simple physical exercises.

e children had also been taught simple physical exercises during the sessions which could be easily done at home.

A similar increase in physical activity was observed in CATCH study [15], where the time spent in moderate physical activity in physical education classes increased from 40% to 50% a er the intervention. In the intervention group, 20% of the children started watching television for less than 2 hours a er intervention. Another school health program-Planet Health also produced similar reduction in television watching and this was possible due to e orts of the parents [6]. is shows that parents are also vital stakeholders in a school based intervention program. But behavior change should be facilitated in children regarding TV watching rather than through enforcement by parents. Substitution of this leisure time with outdoor games should be promoted and caution should be taken that parents might very well exploit their children to academic activities and shun their leisure activity.

5 er the intervention, there has been signif cant rise in the proportion of children who never skipped breakfast from 56% to 68.5%. During the session on diet, it was found that most children were skipping breakfast to reduce weight and having an excuse of getting late to school. But the importance of taking breakfast was clearly explained during the sessions. e proportion of children who opted for fruits in case food was not prepared at home also increased from 57.4% at baseline to 67.9% and fruit intake among children. About 16.3% of the students in the intervention group had also restricted their frequency of intake of fast foods to once a month and this change in the behavior being very signif cant. is change could be attributed to the intervention in the schools' canteen, support from the parents and the awareness generated among the children regarding harmful e ects of junk food. Other studies have also resulted in increased fruit intake in children like Be Smart [16], CATCH [15], and APPLES [17].

In the intervention group, 22% of the children no more found it di cu t to handle things that resulted from their body in adolescent changes and this change was statistically signif cant. is was one area which had not been studied in any other study. e intervention also resulted in a signif cant change in the attitude of the students towards HIV/AIDS. At baseline, 30.4% of students reported that they would stop talking to their friend with HIV/AIDS and post-intervention only 4.4% reported the same and this change was statistically signif cant. is could be attributed to external factors like the mass media where a lot of advertisements of National AIDS Control Program ref ect the same things. e intervention produced a signif cant change in the self-reported attitude of children towards their body. At baseline, only 13.1% of children thought that when anything wrong happened to them, it was not because of them which increased to 32.1% a er the intervention,

incorporate healthy lifestyle practices into their daily lives [18].   ere was a signif cant