Supplemental Material
Supplemental Methods

Development and implementation of the intervention

The process and implementation involved three steps. Firstly, we developed an intervention program based on the baseline survey findings, literature review, and discussion with implementation experts. The participant’s behavioural practices, including barriers to and facilitators of hypertension management, were analysed using the baseline survey data. The conceptualization of the construct of intervention components was made by an expert panel supported by the literature review of existing intervention programs. We also adopted specific components of successful models on prevention and control of hypertension and relevant intervention components from similar NCD prevention programs conducted in the state. We considered inputs from educational experts during the development of the intervention. This resulted in a pool of a list of intervention components to educate the need for control of hypertension like healthy lifestyle practices and self-management of hypertension and related NCDs and their risk factors. Briefly, we planned education classes on control of hypertension and other lifestyle risk factors, education materials such as pamphlets and educational videos, and interactive sessions at schools. Together with the above components of the intervention, we planned the feasibility of using the short message service (SMS) for educational intervention on hypertension control, regular blood pressure monitoring, and advice on medication.

In the second step, we piloted the above intervention components’ feasibility in five percent of the total schools included in the baseline survey. We also asked about the feasibility of sending healthy lifestyle messages to control hypertension through a WhatsApp group. A large majority (98%) opted out of education classes, presentations, and SMS. They chose to have a regular measurement of BP and showed a willingness to be part of the WhatsApp group. After piloting the intervention, we identified that the conventional intervention components do not apply to the educated groups like school teachers. So, we finalized the intervention components to education materials, regular monitoring of BP, advice on medication, and health education through the WhatsApp group. Finally, the intervention session was designed with self-management education, with continued support from the research team.

Finally, all eligible participants for the baseline survey, who were aware of being hypertensive or on medication for hypertension, were contacted. We implemented the multi-component intervention strategy in all intervention schools. All intervention components were delivered through trained public health nurses (women with a general nursing degree) via the intervention manager (a post-graduate social scientist). The research team gave training to the nurses and the intervention manager. The nurses delivered the intervention to teachers at schools under the supervision and monitoring of the intervention manager and the research team.

We delivered the intervention to all teachers in the selected schools, and measured BP and gave specific advice on the control of hypertension and the importance of regular medication to teachers with hypertension, and also advised on healthy lifestyle practices for better hypertension management. We conducted meetings on a fortnightly basis for three months (six sessions). We used booklets prepared for the NCD program for teachers in Kerala and used the music videos on the four major NCD risk factors such as tobacco, alcohol, unhealthy diet, and physical inactivity. Interactive sessions at schools were conducted using these
educational materials. All teachers in the intervention schools were given WHO materials (printouts) on the control of hypertension. The specific intervention was given to participants of the trial. Each meeting was divided into two approximately 30-minute sessions. During the first part, we measured participants' blood pressure and weight, and collected details on the barriers to controlling hypertension. The next part was comprised of an education component, including advice on healthy lifestyles and regular medication. Finally, the participants were given time to share their experiences on hypertension management.

A WhatsApp group was formed including all teachers with hypertension in the intervention schools. The research team regularly sent messages on hypertension control, the importance of taking medication, and other lifestyle modification messages through WhatsApp. The team also shared videos on risk factors of hypertension (tobacco, diet, physical activity, and alcohol). We also clarified doubts and answered questions from the group members through WhatsApp.
Table S1. Effectiveness of intervention on control of hypertension in people with hypertension: Results of complete case analysis.

| Study Time | Usual care group (n/N (%)) | Intervention group (n/N (%)) | Odds ratio (95% CI)* | P value |
|------------|----------------------------|------------------------------|----------------------|---------|
| Baseline   | 45/142 (31.7)              | 80/226 (35.4)                | 1.88 (1.05, 3.37)    | 0.032   |
| 3 months   | 55/142 (38.7)              | 113/226 (50.0)               |                      |         |

CI, confidence interval. *Odds ratio was obtained from mixed-effects logistic regression models, accounting for clustering of participants within schools and adjusting for baseline hypertension control.
Table S2. Effectiveness of intervention on control of hypertension in people with hypertension: Results of sensitivity analysis (ITT analysis).

| Study Time | Usual care group (n/N (%) | Intervention group (n/N (%)) | Odds ratio (95% CI)* | P value |
|------------|---------------------------|-------------------------------|----------------------|---------|
| Baseline   | 50/157 (31.9)             | 87/245 (35.5)                | 1.94 (1.04, 3.65)    | 0.038   |
| 3 months   | 60/157 (38.2)             | 120/245 (49.0)               |                      |         |

CI, confidence interval; ITT, intention-to-treat. *Odds ratio was obtained from mixed-effects logistic regression models, accounting for clustering of participants within schools and adjusting for baseline hypertension control, age, sex, education, school type, religion, teaching section, current tobacco use, physical activity, fruit and veg intake, weight, self-reported diabetes, self-reported high cholesterol, and family history of hypertension.
Table S3: Changes in risk factors from baseline to 3 months among people with hypertension in the intervention and control groups: Results of complete case analysis.

|                                    | Usual care group | Intervention group | Difference (95% CI) or Odds ratio (95% CI)* | P value |
|------------------------------------|------------------|--------------------|---------------------------------------------|---------|
|                                    | Mean change from baseline to 3 months (SD) or n/N (%) | Mean change from baseline to 3 months or n/N (%) |                |         |
| Weight (kg)                        | 0.59 (7.20)      | -0.01 (5.96)       | -0.60 (-1.93, 0.72)                         | 0.37    |
| Body mass index (kg/m²)            | -0.06 (4.82)     | -0.17 (3.77)       | -0.11 (-0.90, 0.68)                         | 0.78    |
| Waist circumference (cm)           | -6.86 (8.68)     | -6.96 (9.40)       | -0.05 (-1.83, 1.72)                         | 0.95    |
| Waist-to-hip ratio                 | -0.12 (0.12)     | -0.09 (0.13)       | 0.024 (0.001, 0.046)                        | 0.037   |
| MET-min/week                       | 109.92 (596.20)  | 94.25 (614.32)     | -15.67 (-130.85, 99.51)                     | 0.79    |
|                                    | 42 (29.6)        | 66 (29.2)          | 1.20 (0.73, 1.96)                           | 0.48    |
| ≥600 MET-min/week                  | 54 (38.0)        | 76 (33.6)          |                                             |         |
| Fruit and vegetable servings/week  | 13.27 (13.73)    | 17.43 (18.60)      | 4.16 (0.86, 7.45)                           | 0.013   |
| Systolic BP (mmHg)                 | -4.2 (14.9)      | -8.6 (18.4)        | -4.4 (-7.7, -1.2)                           | 0.008   |
| Diastolic BP (mmHg)                | -3.4 (10.1)      | -4.7 (12.2)        | -1.3 (-3.5, 0.9)                            | 0.24    |
| Taking anti-hypertensive medications | 69 (48.6)       | 122 (49.6)         | 1.65 (1.07, 2.54)                           | 0.023   |
|                                    | 78 (54.9)        | 151 (66.8)         |                                             |         |

SD, standard deviation; CI, confidence interval; BP, blood pressure; MET, metabolic equivalent task. *Difference in mean change in continuous variables between study groups and odds ratio were obtained using mixed-effects linear regression and logistic regression models, respectively, accounting for clustering of participants within schools and adjusting for baseline values.
Figure S1. Details of intervention given to usual care and intervention group.

Eligible participants

Usual Care Group
- Baseline BP checking
- Educational leaflet at baseline

Intervention Group
_Nurse-led intervention Program_
- Educational intervention
  - Education materials
  - Educational Videos
  - Advice on medication
  - Health education through the WhatsApp group
  - Interactive session for those with hypertension
    - Individual-based approach
- Regular Monitoring of blood pressure and weight