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Effectiveness of Care Bundle package (DASH diet and Benson's relation therapy) on health outcome and stress level among school teachers.

Shaheen Akhtar Khan[1], Geeta Parwanda[2], Pawan Parashar[3]

[1]Ph.D Scholar, Faculty of Nursing, Swami Vivekanand Subharti University, Meerut

[2]Principal & Dean, Faculty of Nursing, Swami Vivekanand Subharti University, Meerut.

[3]HOD, Department of Community Medicine, Faculty of Medicine, Swami Vivekanand Subharti University, Meerut*

Corresponding Author: Shaheen Akhtar Khan, shaheen.sbu@gmail.com

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Hypertension, Stress, Teachers, DASH diet, Benson's relaxation technique are Bundle, Occupational health, Quasi-experimental study.

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Abstract

Background: Hypertension is a major non-communicable disease affecting working populations worldwide. School teachers are particularly vulnerable due to occupational stress, sedentary lifestyle, and irregular health practices. Despite being educated professionals, many teachers neglect preventive health measures, placing them at higher risk of hypertension and stress-related complications. **Aim**: The study aimed to evaluate the effectiveness of a Care Bundle package (DASH diet and Benson's relaxation technique) on health outcome and stress level among school teachers. **Materials and Methods**: A quasi-experimental pre-test post-test control group design was adopted. The study included 400 school teachers from selected schools in East Uttar Pradesh, divided into experimental (n=200) and control (n=200) groups using purposive sampling. Tools included a socio-demographic proforma, stress assessment scale, and lifestyle checklist. The experimental group received the Care Bundle package, while the control group continued routine practices. Data were analyzed using descriptive and inferential statistics. **Results:** A striking 65.0% to 66.5% of all school teachers started the study with abnormal blood pressure, leaving only about one-third within a healthy, normal range. The "Care Bundle" was highly effective. In the experimental group, normal blood pressure cases surged from 33.5% to 59.0%, and hypertension halved (21.0% to 10.0%; p=0.001). Conversely, the control group worsened, with hypertension rising from 20.0% to 28.0%. **Conclusion**: Hypertension and stress among teachers are strongly influenced by lifestyle and occupational factors. The Care Bundle package was effective in reducing blood pressure and stress. Workplace-based structured interventions are essential to improve teacher health and prevent long-term complications.

1.INTRODUCTION

Hypertension, defined as systolic blood pressure ≥ 140 mm Hg or diastolic blood pressure ≥ 90 mm Hg (or use of anti-hypertensive medication), is widely recognized as a "silent killer" because it often develops without symptoms but raises risks of cardiovascular disease, stroke, kidney failure and more. According to the World Health Organization, raised blood pressure was responsible for millions of deaths globally. In India, the prevalence of hypertension among adults is substantial, but awareness, treatment and control remain low. For example, a meta-analysis indicated that in rural India awareness was ~25 % and control only ~11 %.

School teachers are a critical workforce in the education system and hold a role modelling function in communities. Yet, they face occupational pressures (workload, time-demands, stress, sedentary tasks) and lifestyle challenges (irregular meal times, limited physical activity, stress response) that may elevate their risk for hypertension. Several studies among teachers indicate rising prevalence of hypertension and associated lifestyle risk-factors. For example, a cross-sectional study in Patna found hypertension prevalence of 14.1 % among government school teachers, with fast food consumption, excess salt intake and sedentary lifestyle being significant risk factors.

Okoro et al. (2024) conducted a study in Nigeria to evaluate the effect of a lifestyle-focused care bundle on hypertension among school teachers. A total of 380 teachers were recruited using convenience sampling. Data were gathered through

structured interviews and physical assessments. The study reported a 35.2% prevalence of hypertension, with 72% of participants classified as physically inactive and 61% reporting excessive salt consumption. These findings highlight the central role of modifiable lifestyle behaviors in elevating cardiovascular risk. By addressing diet and physical activity, the study emphasized the potential of workplace-based care bundles to improve hypertension outcomes among educators

Gupta R. et al. (2017) conducted a comprehensive review titled "Hypertension epidemiology in India: Emerging aspects" published in the Current Hypertension Reports. The study emphasized that the prevalence of hypertension among Indian adults is significantly increasing, with estimates showing approximately 30% in urban areas and 25% in rural populations. It also highlighted the role of modifiable risk factors such as sedentary lifestyles, unhealthy diets, obesity, and psychological stress. These findings underline the need for early preventive strategies, especially among occupational groups such as school teachers who are often exposed to these risk factors. This study supports the relevance of targeted interventions like a Care Bundle for hypertension prevention in working populations.

Kishore J. et al. (2016) conducted a cross-sectional study on the topic "Occupational stress and hypertension among teachers in Delhi", published in the Indian Journal of Community Medicine. The study revealed that a significant number of school teachers had un-diagnosed hypertension and that occupational stress was a major contributing factor. The findings indicated that 25% of the participants had elevated blood pressure levels, and stress-related factors like workload, administrative responsibilities, and lack of physical activity were prominent. The study concluded that regular health check-ups and workplace wellness programs could help in early detection and management.

Given this background, preventive strategies targeted at school teachers are warranted. A care-bundle package is a structured set of evidence-based interventions, delivered together as a "bundle" to address multiple risk-factors simultaneously. While care bundles are more commonly used in hospital settings (for example in infection control), the concept can be adapted for non-clinical populations for prevention. In hypertension prevention, key components include lifestyle-modification (diet, physical activity, salt reduction), regular monitoring of blood pressure, stress-management, health education and peer/support systems. Educational interventions have been shown to reduce blood pressure: a meta-analysis found individual face-to-face education and counselling reduced systolic BP by ~4.4 mm-Hg at 6 months.

In this article, we describe a study that assessed the impact of a Care Bundle package on hypertension prevention among school teachers in selected schools.

2. AIM OF THE STUDY

The present study aims to evaluate the effectiveness of Care Bundle package (DASH diet and Benson's relation therapy) on lifestyle modification for positive health outcome (reduction in BP and stress level) among school teachers."

3.OBJECTIVE

- To assess the prevalence of hypertension among school teachers.
- To evaluate the effectiveness of Care Bundle package (DASH diet and Benson's relation therapy) on lifestyle modification for positive health outcome (reduction in BP and stress level) among school teachers.

4. RESEARCH HYPOTHESES: (P<0.05 LEVEL OF SIGNIFICANCE)

H1: The Care Bundle package will have significant effect on health outcome (reduction in BP and stress level) among school teachers.

5. ASSUMPTIONS

The study will be based on the following assumptions:

- School teachers may have inadequate knowledge regarding lifestyle modification for prevention of hypertension.
- After the implementation of Care Bundle package the blood pressure and the level of stress among hypertensive school teachers will be reduced.

6. CONCEPTUAL FRAMEWORK

Nola J. Pender developed the Health Promotion Model (HPM) in 1982 (revised in 1996) to complement models of health protection. The HPM focuses on promoting well-being and preventing illness by encouraging individuals to engage in health-promoting behaviors. In the context of this study:

Individual Characteristics and Experiences:
Teachers enter the study with unique personal and behavioral backgrounds that influence their risk of hypertension. These include demographic details and lifestyle patterns which serve as the baseline for intervention.

Behavior-Specific Cognitions and Affect:

The care bundle is designed to enhance the participants' awareness of the benefits of healthy living, reduce perceived barriers, and boost self-efficacy. It also considers how emotions and social support can affect health behavior decisions.

Intervention – Care Bundle Package:

The care bundle acts as the external stimulus/intervention aimed at improving knowledge, changing attitude, and encouraging behavior modification.

Behavioral Outcome: After receiving the care bundle intervention, teachers are expected to:

- Adopt healthier behaviors (balanced diet, regular exercise, stress management)
- Improve monitoring and control of blood pressure
- Prevent or delay the onset of hypertension

7. RESEARCH METHODOLOGY

Materials and methods:

A quantitative evaluative approach was adopted to assess the impact of a Care Bundle
package on lifestyle modification for positive health outcome among school teachers working in private and government schools of district Basti. A quasi-experimental pre-test post-test control group design was adopted to assess the impact of a Care Bundle package.

The study was conducted in selected private and government schools of district Basti, Uttar Pradesh.

Population and sample

Target population specifically consisted of school teachers from selected private and government schools of district Basti, Uttar Pradesh. This group was chosen because they were at risk of hypertension and likely to benefit from the Care Bundle package. The study's sample size was 400, calculated using the Cochran formula. There were 200 samples in the experimental group and 200 samples in the control group.

Sample size and sampling technique

The study's sample size was 400, calculated using the Cochran formula. There were 200 samples in the experimental group and 200 samples in the control group. A non-probability purposive sampling technique was adopted in this study.

Sample Size determination (Cochran's Formula): $S = Z^2 \times p(1-p) / M^2$

- S: Sample size for infinite population
- Z: Z-score (95% = 1.96)
- p: Population proportion (assumed 50% = 0.5)
- M: Margin of error (5% = 0.05)

$S = (1.96)^2 \times 0.5(1-0.5)/(0.05)^2$

$S = 3.8416 \times 0.25/0.0025 = 384.16$

Rounded up to 400 for practical implementation.

Inclusion Criteria:

- School teachers working in selected schools in district Basti.
- School teachers available at the time of data collection.
- School teachers who were at risk as well as suffering from hypertension.

Exclusion Criteria:

- School teachers on leave during the study period.
- School teachers unwilling to participate in the study

7. DATA COLLECTION TOOL

Based on the research problem and objectives, the following steps were undertaken to select and develop the data collection tool.

Selection of Tool: A structured interview schedule was selected based on the objectives of the study.

Development of Tool: A structured questionnaire, blood pressure measurement protocol, and lifestyle practices checklist were prepared to assess the impact of the Care Bundle package on blood pressure scores, stress levels, and lifestyle practices among school teachers. The tools were developed:

• After reviewing related literature.
• Based on the experience of the investigator.
• Through guidance and consultation with subject experts.
• In consultation with a statistician.

The tool is divided into four parts:

Part 1: Demographic Variables

This section includes key demographic variables related to the school teachers and consist of age, gender, marital status, residence location, educational background, years of teaching experience, Prior Exposure to Health Education Programs and Participation in Similar Interventions.

Part 2: Blood Pressure Measurement Protocol

Blood pressure (BP) was assessed using a standardized digital sphygmomanometer (e.g., Diamond BP DG 124 or similar device) following World Health Organization (WHO) guidelines to ensure accuracy and consistency.

Scoring Interpretation:

Category	Systolic (mmHg)	Diastolic (mmHg)
Normal	< 120	< 80
Prehypertension	120–139	80–89
Stage 1 Hypertension	140–159	90–99
Stage 2 Hypertension	≥ 160	≥ 100

Part 3: Stress Level Questionnaire

A structured and standardized Stress Level Questionnaire was used to assess the stress levels among school teachers. This tool was designed to capture various dimensions of stress including work-related pressures, personal life stressors, and the individual's coping mechanisms. It helped in evaluating the overall psychological well-being of the participants.

Number of Items: 30

Domains Covered:

1. **Work-related stress**: workload, deadlines, responsibilities, administrative duties, student behavior
2. **Personal stress**: family concerns, health issues, financial problems, work-life balance
3. **Coping strategies**: problem-solving, emotional regulation, support-seeking behavior, relaxation practices

Score Range	Stress Level
0–13	Low Stress
14–26	Moderate Stress
27–40	High Stress

Part 4: Lifestyle Practices Checklist

A checklist to assess lifestyle practices related to diet, physical activity, smoking, alcohol consumption, and sleep patterns. It consists of 20 items, with each correct practice scored as 1 and incorrect/omitted practice scored as 0.

Score Interpretation:

Total Score	Lifestyle Modification Level
4–5	High LSM
2–3	Medium LSM
0–1	Low LSM

8. ETHICAL CONSIDERATIONS

Prior to data collection, ethical clearance was obtained from the Institutional Ethics Committee of Swami Vivekanand Subharti University, Meerut, ensuring compliance with institutional and national research ethics guidelines. Formal permission was also secured from the principals of the participating schools at Basti. All participants were informed about the purpose, objectives, and procedures of the study, and written informed consent was obtained before participation.

Confidentiality and anonymity of responses were strictly maintained throughout the research process. Participation was entirely voluntary, with the right to withdraw at any time without penalty. The study adhered to the ethical principles outlined in the Indian Council of Medical Research (ICMR) 2017 guidelines and the Declaration of Helsinki (2013), ensuring respect for human dignity, privacy, and the right to informed decision-making.

8. DATA COLLECTION PROCESS

A structured and well-planned approach was followed in the present study to collect data from school teachers regarding stress levels, lifestyle practices, and blood pressure measurements, before and after the intervention.

1. **Preparation Phase**: Before initiating data collection, formal approval was obtained from the institutional ethics committee and Permissions were secured from the heads of selected schools in district Basti. Written informed consent was from all the participants was obtained. The data collection tools, including the Demographic Performa, Stress Level, Questionnaire, Lifestyle Practices Checklist, and Blood Pressure Measurement Protocol, were finalized after validation and pilot testing.
2. **Group Allocation**: The participants were divided into two groups: experimental group and control group, each consisting of 200 school teachers. Randomization was used to assign participants to the respective groups to ensure comparability.
3. **Baseline Data Collection (Pre-Test):**
   - Demographic information was collected from each participant using a structured proforma.
   - The Stress Level Questionnaire and Lifestyle Practices Checklist were administered in a quiet, distraction-free environment.
   - Blood pressure was measured using a standardized digital sphygmomanometer following WHO guidelines. Two readings were taken after a 5-minute rest period and the average value was recorded.
4. **Intervention Phase:**
   - The experimental group received the planned intervention (Care Bundle package), which was delivered over a specified period.
   - The control group did not receive any intervention during this phase but continued with their regular routine activities.

The above bundle was implemented for a 3-month period. After intervention, a post-assessment was conducted at the end of the 3 months (and ideally a follow-up at 6 months to assess sustainability).

5. **Post-Test Data Collection:**
   - After the completion of the intervention period (30 days), the same tools were administered again to both groups to assess changes in stress levels, lifestyle practices, and blood pressure.
   - The post-test data were collected using the same procedure and protocols as in the pre-test to ensure consistency and reliability.
6. **Data Management and Confidentiality:**
   - All collected data were reviewed for completeness and accuracy.
   - Participant identities were anonymized through unique codes to maintain confidentiality.

8. DATA ANALYSIS & INTERPRETATION

To analyze collected data statistically and interpret findings.

Data analysis plan and statistical tests:

1. Data Organization and Preparation:

The data obtained from the School teachers were organized, coded, and analyzed using the Statistical Package for the Social Sciences (SPSS), version 26.0. Descriptive and inferential statistics were employed to summarize findings and test hypotheses at a 0.05 level of significance. All collected data were coded manually and entered into SPSS software.

2. Descriptive Statistics:

Descriptive analysis was used to describe demographic characteristics and health education exposure of the participants on similar intervention . Frequency and percentage distribution was used to summarize sample characteristics. Mean, Standard Deviation, Range was used to describe central tendency and variability.

3. Inferential Statistics:

Inferential analysis was performed to test research hypotheses and determine the effectiveness of the Care Bundle Package on Health Outcomes and Stress Level. Paired t-test was used to assess reduction of blood pressure and stress level after implementation of care bundle package. Independent t-test was used to assess the effectiveness care bundle package for reduction of blood pressure and stress level. All
statistical tests were two-tailed, and results were interpreted as follows: $p < 0.05$ (Statistically significant).

9. RESULTS

Table 1: Distribution of School Teachers According to Socio - Demographic Variables 0

S. No	Demographic Variable	Category	Experimental		Control	
			F	%	F	%
1	Age	21–30 years	57	29.0	58	29.0
		31–40 years	47	24.0	44	22.0
		41–50 years	54	27.0	43	22.0
		>50 years	42	21.0	55	28.0

S. No	Demographic Variable	Category	Experimental		Control	
			F	%	F	%
2	Gender	Male	90	45.0	94	47.0
		Female	110	55.0	106	53.0
3	Marital Status	Single	39	20.0	41	21.0
		Married	151	75.5	149	74.5
		Divorced	6	3.0	7	3.5
		Widowed	4	2.0	3	1.5
4	Residence Location	Rural	66	33.0	65	33.0
		Semi-urban	62	31.0	72	36.0
		Urban	72	36.0	63	32.0
5	Educational Background	Diploma	39	20.0	40	20.0
		UG	50	25.0	42	21.0
		PG	44	22.0	41	21.0
		M.Phil.	38	19.0	38	19.0
		PhD	29	15.0	39	20.0
6	Years of Experience	<5 years	48	24.0	50	25.0
		5–10 years	53	27.0	54	27.0
		11–15 years	50	25.0	52	26.0
		>15 years	49	25.0	44	22.0
7	Health Education Exposure	Health Education	71	36.0	67	34.0
		Workshops	69	35.0	66	33.0
		Awareness Programme	60	30.0	67	34.0
8	Similar Interventions	Research Studies	61	31.0	62	31.0
		Educational Modules	67	34.0	67	34.0
		Intervention Programme	72	36.0	71	36.0

The majority of participants in both the experimental (29.0%) and control (29.0%) groups were in the 21–30 years age category. The experimental group comprised 45.0% males and 55.0% females, while the control group included 47.0% males and 53.0% females. The marital status distribution among participants shows that the majority were married in both groups. terms of residence, 33.0% of both groups belonged to rural areas. Semi urban residents accounted for 31.0% in the experimental and 36.0% in the control group, while urban participants represented 36.0% and 32.0% respectively. Participants in both groups had diverse educational qualifications. Participants with less than 5 years of experience made up 24.0% and 25.0% of the experimental and control groups, respectively. Those with 5–10 years of experience were 27.0% in both groups, while 11–15 years of experience was reported by 25.0% (experimental) and 26.0% (control). More than 15 years of experience was seen in 25.0% of the experimental and 22.0% of the control group. Regarding exposure to health education, less than half of the participants in both groups have attended similar health education, workshops and awareness programmes. A total of 31.0% in both groups had previously participated in research studies. Educational modules were used by 34.0% in each group, while 36.0% of the experimental and control participants had been part of intervention programmes.

Table 2 Frequency and percentage distribution of blood pressure scores in Experimental group

N=400

S.No.	Blood pressure classification	Frequency	Percentage	Mean	Standard deviation
1.	Normal	67	33.5	2.15	± 1.03
2.	Prehypertension	64	32.0		
3.	Stage 1 Hypertension	42	21.0		
4.	Stage 2 Hypertension	27	13.5		

Table 3 Frequency and percentage distribution of blood pressure scores in control group

N=400

S.No.	Blood pressure classification	Frequency	Percentage	Mean	Standard deviation
1.	Normal	70	35.0	1.95	± 0.87
2.	Prehypertension	80	40.0		
3.	Stage 1 Hypertension	40	20.0		
4.	Stage 2 Hypertension	10	5.0		

Table 2 and table 3 presents a comparative analysis of the baseline blood pressure classifications, frequencies, percentages, means, and standard deviations for both the experimental and control groups (N = 200 per group).

The baseline data indicates that both the groups have highly comparable blood pressure profiles:

Normal Blood Pressure: Roughly one-third of the participants in both groups registered a normal baseline reading, representing 33.5% (f = 67) of the experimental group and 35% (f = 70) of the control group.

Prehypertension: This category held the highest concentration of participants across the entire sample, accounting for 32% (f = 64) of the experimental group and 40% (f = 80) of the control group.

Hypertension (Stage 1 & 2): Clinical hypertension was highly prevalent at baseline. In the experimental group, 21% (f = 42) had Stage 1 hypertension and 13.5% (f = 27) had Stage 2 hypertension. Similarly, in the control group, 20% (f = 40) fell into Stage 1, while a smaller 5 (f = 10) presented with Stage 2 hypertension.

The Experimental Group achieved a baseline mean score of 2.15 (SD= ± 1.03$).

The Control Group achieved a baseline mean score of 1.95 (SD = ± 0.87$).

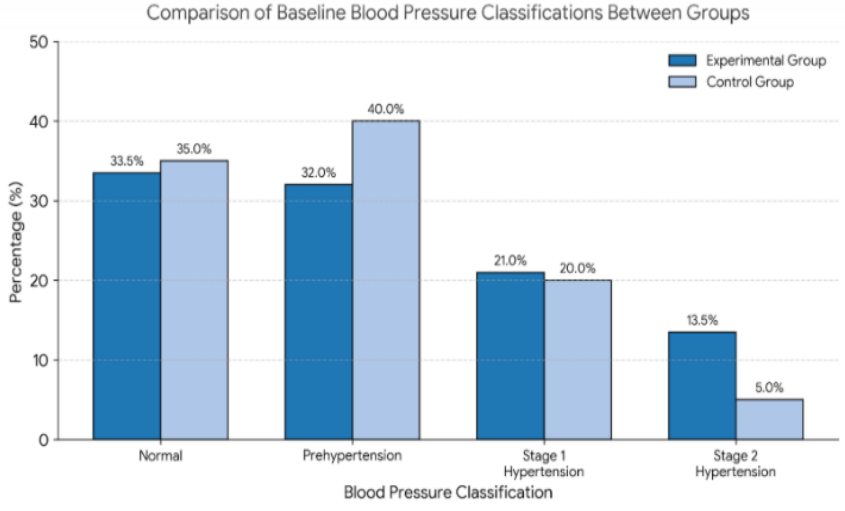

Table 4 Frequency and percentage distribution of participants' blood pressure scores in experimental and control groups during both the pre-test and post-test phases.

(N-400)

Blood Pressure Category	Experimental group				Control group			
	Pre-Test		Post-Test		Pre-Test		Post-Test	
	(f)	%	(f)	%	(f)	%	(f)	%
Normal	67	33.5	118	59.0	70	35.0	65	32.5
Prehypertension	64	32.0	62	31.0	80	40.0	79	39.5
Hypertension	42	21.0	20	10.0	40	20.0	56	28.0
Total	200	100	200	100	200	100	200	100

=

Baseline (Pre-Test): Both groups started at an equivalent level. Only about 33% to 35% of participants had normal blood pressure, while the rest exhibited prehypertension or hypertension. This is confirmed by the near-identical baseline mean scores (Experimental: 2.15; Control: 1.95), which place both groups on the borderline of prehypertension.

Experimental Group (Post-Test): The intervention yielded highly successful results. Normal blood pressure cases surged from 33.5% to 59.0%, while hypertension cases were cut in half (dropping from 21.0% to 10.0%). This is backed by a highly significant drop in mean systolic blood pressure of 12.24 mm Hg ($t = 12.86$, $p < 0.001$).

Control Group (Post-Test): Participants who did not receive the intervention showed no clinical improvement. Their normal blood pressure rates slightly dropped (from 35.0% to 32.5%), and actual hypertension cases noticeably increased from 20.0% to 28.0%.

The data proves the clinical efficacy of the intervention

Table 5 Comparison of Pre-Test and Post-Test Blood Pressure Scores between Experimental and Control Groups among School Teachers

(N = 400)

Group	Pre-Test Mean ± SD	Post-Test Mean ± SD	Mean Difference	t-value	p-value	Significance
Experimental Group (n=200)	1.88 ± 0.81	1.51 ± 0.67	-0.37	4.98	0.001	Highly Significant ($p < 0.01$)
Control Group (n=200)	1.85 ± 0.75	1.96 ± 0.77	+0.11	-1.45	0.149	Not Significant ($p > 0.05$)

Df (199), 't' tabulated value-1.972 at 0.05 level of significance (P<0.05)

In Experimental Group, the average blood pressure severity score dropped significantly from 1.88 to 1.51 (a mean difference of -0.37). The *t*-value of 4.98 and an incredibly low p-value ($p = 0.001$) prove that the intervention was highly effective and the improvement was not a result of random chance.

In Control Group the average score slightly increased from 1.85 to 1.96 (a mean difference of +0.11). However, the *p*-value (0.149) is well above the standard 0.05

threshold, meaning this minor fluctuation is statistically meaningless—their blood pressure essentially stayed the same or followed a normal random variation. Hence, the hypothesis, H1 was accepted which statistically revels that the intervention was effective.

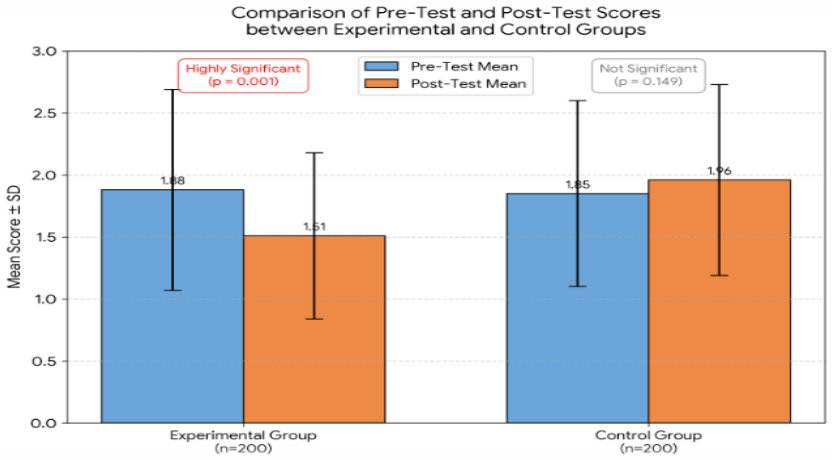

Table 6 Frequency and percentage distribution of participants' stress scores in experimental and control groups during both the pre-test and post-test phases.

N=400

Stress Level	Experimental group				Control group			
	Pre-Test		Post-Test		Pre-Test		Post-Test	
	(f)	%	(f)	%	(f)	%	(f)	%
Low Stress	22	11.0	35	17.5	4	2.0	4	2.0
Moderate Stress	165	82.5	157	78.5	191	95.5	192	96.0
High Stress	13	6.5	8	4.0	5	5.0	4	2.0
Total	**200**	**100**	**200**	**100**	**200**	**100**	**200**	**100**

Experimental Group showed positive improvement. The percentage of people with Low Stress increased (from 11.0% to 17.5%), while Moderate Stress (82.5% to 78.5%) and High Stress (6.5% to 4.0%) both decreased.

Control Group showed almost no change. Stress levels remained stagnant across all categories (e.g., Low Stress stayed at exactly 2.0%). The intervention was effective in shifting participants from higher to lower stress levels

.

Table 7 Comparison of Pre-Test and Post-Test Stress Scores between Experimental and Control Groups among School Teachers

(N = 400)

Group	Pre-Test Mean ± SD	Post-Test Mean ± SD	Mean Difference	t-value	p-value	Significance
Experimental Group (n=200)	1.96 ± 0.41	1.87 ± 0.44	-0.09	2.115	0.035	Significant (p < 0.05)
Control Group (n=200)	2.03 ± 0.23	2.00 ± 0.20	-0.03	1.393	0.165	Not Significant

Df (199), 't' tabulated value-1.972 at 0.05 level of significance (P<0.05)

Experimental Group experienced a significant decrease in scores (from 1.96 to 1.87). The change is statistically reliable (p = 0.035, which is < 0.05), meaning the intervention worked.

Control Group showed a negligible, non-significant decrease (from 2.03 to 2.00). The change is likely due to random chance ($p = 0.165$, which is > 0.05). The intervention caused a real, measurable drop in scores for the experimental group, while the control group remained statistically unchanged. Hence, the hypothesis, H1 was accepted which statistically revels that the intervention was effective

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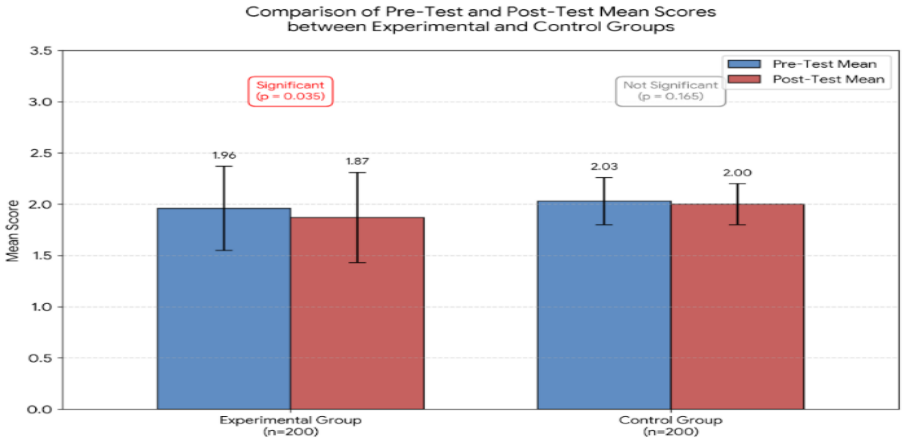

Table 8 Frequency and percentage distribution of participants' life style modification scores in experimental and control groups during both the pre-test and post-test phases.

N=400

Stress Level	Experimental group				Control group			
	Pre-Test		Post-Test		Pre-Test		Post-Test	
	(f)	%	(f)	%	(f)	%	(f)	%
High	10	5.0	51	25.5	30	15.0	28	14.0
Medium	97	48.5	112	56.0	136	68.0	138	69.0
Low	93	46.5	37	18.5	34	17.0	34	17.0
Total	**200**	**100**	**200**	**100**	**200**	**100**	**200**	**100**

Experimental Group experienced a massive surge in stress levels. Those reporting High Stress jumped from 5.0% to 25.5%, while those with Low Stress plummeted from 46.5% to 18.5%. Control Group remained completely stable. The percentage of participants in High (14-15%), Medium (68-69%), and Low (17%) stress categories barely budged. The intervention or event uniquely affected the experimental group, causing a clear and dramatic shift toward higher stress levels, while the control group was unaffected.

Table 8 Comparison of Pre-Test and Post-Test life style modification Scores between Experimental and Control Groups among School Teachers

N = 400

Group	Pre-Test Mean ± SD	Post-Test Mean ± SD	Mean Difference	t-value	p-value	Significance
Experimental Group (n=200)	1.96± 0.41	1.87± 0.44	-0.09	2.115	0.035	Significant ($p < 0.05$)
Control Group (n=200)	2.03± 0.23	2.00± 0.20	-0.03	1.393	0.165	Not Significant

Df (199), 't' tabulated value-1.972 at 0.05 level of significance (P<0.05)

Experimental Group showed a significant decrease in scores (from 1.96 to 1.87). Because p = 0.035 (< 0.05), this change is statistically reliable and indicates the intervention was effective. Control Group showed a negligible, non-significant change (from 2.03 to 2.00). Because p = 0.165 (> 0.05), this minor difference is due to random chance. The lifestyle modification scores changed reliably only for the experimental group, proving the intervention had a genuine effect. Hence, the hypothesis, H1 was accepted which statistically revels that the intervention was effective

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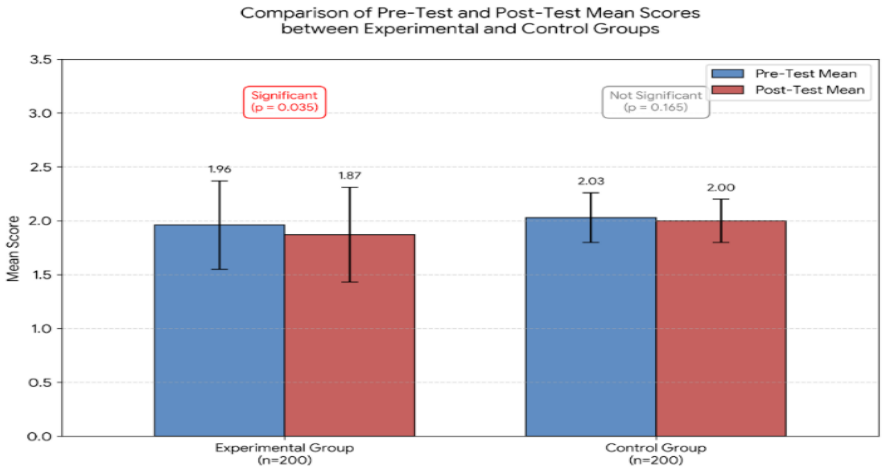

10. SUMMARY

This study utilized a quasi-experimental pre-test/post-test control group design to evaluate the impact of a "Care Bundle" intervention on 400 school teachers in East Uttar Pradesh who face a high risk of stress and hypertension due to sedentary habits and occupational pressures. Participants were divided equally into an experimental group (n=200), which received face-to-face counseling on the DASH diet and training in Benson's relaxation technique, and an untreated control group (n=200). Data encompassing socio-demographic profiles, stress levels, lifestyle practices, and blood pressure measurements were collected before and after the intervention period, and the resulting data were evaluated using descriptive and inferential statistics to determine the package's effectiveness.

11. MAJOR FINDINGS

- **Baseline Uniformity:** Both groups (n=200 each) were socio-demographically identical at baseline, with the majority being married females aged 21–30, ensuring a well-controlled study.
- A striking 65.0% to 66.5% of all school teachers started the study with abnormal blood pressure, leaving only about one-third within a healthy, normal range.
- **Blood Pressure Improvement**: The "Care Bundle" was highly effective. In the experimental group, normal blood pressure cases surged from 33.5% to 59.0%, and hypertension halved (21.0% to 10.0%; p=0.001). Conversely, the control group worsened, with hypertension rising from 20.0% to 28.0%.
- **Stress Reduction**: The experimental group saw a significant shift toward lower anxiety, with "Low Stress" individuals rising from 11.0% to 17.5% (p=0.035). The control group's stress levels remained entirely stagnant.
- **Lifestyle Modification**: The experimental group achieved a statistically significant improvement in lifestyle behaviors (p=0.035), whereas the control group showed no meaningful change (p=0.165).

12. DISCUSSION OF FINDINGS

The study findings demonstrate that high prevalence rate of hypertension among school teachers A striking 65.0% to 66.5% of all school teachers started the study with abnormal blood pressure, leaving only about one-third within a healthy, normal range.

The finding aligns with previous study that shows similar outcome. A specialized community-based cross-sectional study conducted by Chetia et al. (2017) focused specifically on high school teachers (N=335). The results demonstrated a remarkably high overall prevalence of clinical hypertension at 45.4%. Crucially, teachers reporting significant work-related stress exhibited the highest cluster of high blood pressure (84.6%).

Care bundle package was highly effective for reduction in blood pressure and stress level among school teachers confirming findings from a comprehensive literature review on non-pharmacological essential hypertension protocols by Sukmawati et al. (2026) extracted 15 independent studies evaluating the therapeutic impact of Benson's Relaxation Technique. The findings concluded that the technique triggers a strong, mathematically significant reduction in systolic and diastolic blood pressure values.

Effectiveness of Care bundle package also confirms with another study An experimental clinical trial by Hassan et al. (2026) compared the isolated effects of the DASH diet versus a dual-approach combining the DASH diet with relaxation therapy. The trial demonstrated that while nutritional adaptations (DASH) successfully manage electrolyte volume biochemically, pairing them with structured relaxation acts as a neural stabilizer. The combined group demonstrated superior outcomes in lowering overall systemic vascular resistance and cardiovascular risk profiles compared to cohorts utilizing dietary modifications or relaxation techniques alone."

13. LIMITATIONS

- The study was limited to teachers of selected schools at District Basti, Uttar Pradesh, which may affect generalization.
- The sample was chosen using purposive sampling; hence randomization was not applied.
- The duration of follow-up was short (one month), so long-term effects of the intervention could not be assessed.
- Self-reported lifestyle practices may have introduced reporting bias.
- External factors such as family stress or dietary variations outside school hours were not fully controlled.

14. CONCLUSION

This study confirmed that hypertension and stress are common among school teachers, largely influenced by lifestyle choices and occupational pressures such as long working hours, administrative workload, and lack of physical activity. Teachers with hypertension were found to experience significantly higher levels of stress compared to those without hypertension.

The Care Bundle package, which combined the DASH diet and Benson's relaxation technique, proved to be effective in reducing both blood pressure and stress among teachers in the experimental group. In contrast, the control group showed no meaningful improvement, highlighting the value of structured, multi-component interventions.

Overall, the results indicate that workplace-based, structured health interventions are essential to improve the well-being of teachers, reduce the prevalence of hypertension, and prevent long-term complications related to cardiovascular health.

15. RECOMMENDATION

- **For Practice:** Regular screening of teachers for hypertension and stress should be institutionalized in schools. School health programs should integrate lifestyle counseling and stress management workshops.
- **For Education:** Nursing curricula should emphasize community-based interventions for lifestyle diseases. Training programs should include hands-on practice in teaching DASH diet and relaxation techniques.
- **For Administration:** Educational authorities should establish wellness clinics in schools. Policies should mandate annual health check-ups for teachers and promote a supportive work environment.
- **For Research:** Future studies should evaluate the long-term impact of Care Bundles with larger, randomized samples. Comparative studies can be conducted across different professions to assess occupational risk differences.
- **For Public Health:** Large-scale awareness campaigns should target teachers as influencers in their communities.

16. DECLARATIONS

Conflict of Interest:

The authors declare that there is no conflict of interest regarding the conduct, analysis, authorship, or publication of this research study. No financial, professional, or personal relationships influenced the outcomes or interpretations presented herein. This study was carried out purely for academic and research purposes, following the ethical standards of the institution.

Funding Statement:

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Ethical Approval:

Ethical clearance for conducting this study was obtained from the Institutional Ethics Committee of Swami Vivekanand Subharti University, Meerut. Formal

permission was also secured from the principals of the participating schools at Basti. All participants were informed about the purpose, objectives, and procedures of the study, and written informed consent was obtained before participation. Confidentiality and anonymity were maintained throughout the research process, in accordance with the Declaration of Helsinki (2013) ethical principles for research involving human subjects

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Author Contribution:

1. **Shaheen Akhtar Khan:** Conceptualization, methodology design, data collection, statistical analysis, and manuscript preparation.
2. **Dr. Pawan Parashar:** provided academic supervision, critical feedback, and editorial revisions throughout the research process.
3. **Geeta Parwanda:** provided academic supervision, critical feedback, and editorial revisions throughout the research process.

All authors have read and approved the final version of the manuscript.

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