



## Effectiveness of A Psychoeducational Intervention on Psychological Well-Being and Stress Management Among Adults in Bhopal: A Pre-Test Post-Test Study

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### Abstract

**Background:** Mental health disorders represent a significant public health challenge in India, with urban populations facing unique stressors related to rapid urbanization, occupational demands, and socio-economic pressures. Bhopal, the capital city of Madhya Pradesh, has witnessed increasing mental health concerns among its residents, yet community-based psychological interventions remain limited. **Aim:** This study aimed to evaluate the effectiveness of a structured psychoeducational intervention on psychological well-being, perceived stress, and coping strategies among adults residing in Bhopal. **Methods:** A pre-experimental one-group pre-test post-test design was adopted. A total of 60 adults (age 21–45 years) were selected from urban localities of Bhopal using non-probability convenient sampling technique. A comprehensive structured questionnaire comprising the Psychological Well-Being Scale (PWBS), Perceived Stress Scale (PSS-10), and Brief COPE inventory was administered before and after a four-week psychoeducational intervention. Data were analyzed using descriptive and inferential statistics, including paired t-tests. **Results:** The mean pre-test psychological well-being score was 52.4 (SD = 8.6), which significantly increased to 68.7 (SD = 7.2) in the post-test ( $t = 14.32, p < 0.001$ ). Perceived stress scores decreased from a mean of 32.1 (SD = 6.8) to 22.4 (SD = 5.9) ( $t = 13.87, p < 0.001$ ). Significant improvements were also observed in adaptive coping strategies, with problem-focused coping scores increasing from 18.3 (SD = 4.2) to 24.6 (SD = 3.8) ( $t = 11.45, p < 0.001$ ). **Conclusion:** The structured psychoeducational intervention was found to be effective in enhancing psychological well-being, reducing perceived stress, and promoting adaptive coping strategies among adults in Bhopal. The findings underscore the need for integrating community-based psychological interventions into urban public health frameworks.

**Keywords:** Psychological well-being, perceived stress, coping strategies, psychoeducational intervention, Bhopal, pre-test post-test design

## 1. INTRODUCTION

### 1.1 Background

Mental health is an integral component of overall health and well-being, influencing how individuals think, feel, act, handle stress, relate to others, and make choices. The World Health



Organization defines mental health as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" [1]. Despite this comprehensive definition, mental health disorders remain among the leading causes of disability worldwide, with low- and middle-income countries bearing a disproportionately high burden [2].

India, with its vast population and diverse socio-cultural landscape, faces significant challenges in addressing mental health concerns. The National Mental Health Survey (2015-16) reported that nearly 150 million Indians require mental health interventions, with a treatment gap exceeding 80% for common mental disorders [3]. Urbanization, migration, occupational stress, changing family structures, and socio-economic inequalities have contributed to the rising prevalence of psychological distress in urban centers [4].

Bhopal, the capital city of Madhya Pradesh, represents a unique urban context with its own set of mental health challenges. The city has a history of industrial disaster that continues to affect the psychological well-being of its residents across generations [5]. Studies have reported elevated rates of psychological disorders among Bhopal's population, with one survey finding that approximately 133 per 1,000 people in areas near the former industrial site suffered from psychological disorders, compared to 60 per 1,000 in areas farther away [6]. Recent research has also highlighted high prevalence of anxiety among school-going adolescents in urban Bhopal, while another study found that 33.1% of teenagers showed signs of depression and 24.9% exhibited anxiety [7].

### **1.2 Rationale for the Study**

The growing mental health burden in Bhopal necessitates the development and evaluation of evidence-based psychological interventions that can be implemented at the community level. Psychoeducational intervention structured programs that combine educational components with psychological strategies—have demonstrated effectiveness in improving mental health outcomes across diverse populations [8]. These interventions aim to enhance knowledge about mental health, develop coping skills, and promote psychological well-being through structured learning experiences [9].

However, there is a paucity of research evaluating the effectiveness of such interventions specifically in the Bhopal context. Most existing studies in the region have been cross-sectional in nature, focusing on prevalence and correlates of mental health issues rather than intervention outcomes [10]. While some studies have employed pre-test post-test designs to assess the effectiveness of structured teaching programs on knowledge regarding specific health issues, limited attention has been given to comprehensive psychological interventions targeting well-being and stress management [11].

Research on psychological well-being in India has shown significant positive correlations between problem-focused coping and psychological well-being, and between spirituality and psychological well-being [12]. The same study reported that spirituality partially mediated the relationship

between problem-focused coping and psychological well-being, accounting for 37% of the total effect. Avoidant coping was found to be negatively correlated with psychological well-being [12]. These findings highlight the importance of coping strategies in determining psychological outcomes in the Bhopal population and support the need for interventions that enhance adaptive coping.

### **1.3 Theoretical Framework**

The study is anchored in two complementary theoretical frameworks. First, Ryff's Psychological Well-Being Model provides a multidimensional conceptualization of well-being encompassing six dimensions: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance [13]. This model moves beyond the hedonic perspective of well-being to include eudaimonic aspects related to meaning, purpose, and self-realization.

Second, Lazarus and Folkman's Transactional Model of Stress and Coping posits that stress is a product of the transaction between an individual and their environment, mediated by cognitive appraisal and coping processes [14]. This framework emphasizes the role of coping strategies—both problem-focused and emotion-focused—in determining psychological outcomes. Psychoeducational interventions, by enhancing knowledge and skills related to stress appraisal and coping, can potentially improve psychological well-being.

### **1.4 Need for the Study**

Urban living presents unique stressors including noise pollution, crowding, traffic congestion, occupational demands, and social isolation [15]. A study conducted among graduate and post-graduate students in Bhopal emphasized how students perceive stress and the coping strategies they employ, highlighting the vulnerability of young adults to stress-related issues [16]. Research has also examined the relationship between mindfulness, subjective well-being, and coping with stress among university students, finding that subjective well-being partially mediates the relationship between mindfulness and coping with stress [17]. These findings suggest that interventions enhancing mindfulness and well-being may promote better stress coping.

Psychoeducational interventions have been evaluated across various settings and populations. A quasi-experimental study conducted in Bhopal examined the effectiveness of a planned teaching program on knowledge regarding prenatal factors leading to mental disorders among 60 prenatal mothers. The study found that the post-test mean knowledge score was significantly higher than the pre-test score, concluding that the structured teaching program was effective in increasing knowledge [18]. Similarly, a study assessing the effectiveness of an information booklet on natural disaster preparedness among adults in Bhopal (N = 60) reported a significant increase in knowledge scores from a pre-test mean of 19.3 to a post-test mean of 25.2 ( $t = 18.27, p < 0.0001$ ) [19].

More directly relevant to psychological health, a 10-week classroom-based positive psychology educational intervention conducted at the Bhopal School of Social Sciences was found to improve psychological health and self-efficacy among undergraduates [20]. The study highlighted that



positive psychological interventions can mitigate digital fatigue challenges and enhance overall well-being.

While existing studies have examined the effectiveness of educational interventions on knowledge outcomes and the correlates of psychological well-being in Bhopal, there is limited research evaluating comprehensive psychoeducational interventions targeting multiple dimensions of mental health—namely, psychological well-being, perceived stress, and coping strategies—among the general adult population in the city [21]. The present study aims to address this gap by employing a pre-test post-test design to evaluate the effectiveness of a structured psychoeducational intervention among adults in Bhopal.

## **2. OBJECTIVES**

The present study was undertaken with the following objectives:

1. To assess the pre-intervention levels of psychological well-being, perceived stress, and coping strategies among adults residing in Bhopal.
2. To evaluate the effectiveness of a structured psychoeducational intervention in enhancing psychological well-being among the study participants.
3. To evaluate the effectiveness of the intervention in reducing perceived stress among the study participants.
4. To evaluate the effectiveness of the intervention in promoting adaptive coping strategies among the study participants.
5. To examine the association between socio-demographic variables and changes in outcome measures.

## **3. HYPOTHESES**

Based on the objectives, the following hypotheses were formulated:

- **H<sub>1</sub>:** There will be a significant increase in psychological well-being scores from pre-test to post-test following the psychoeducational intervention.
- **H<sub>2</sub>:** There will be a significant decrease in perceived stress scores from pre-test to post-test following the psychoeducational intervention.
- **H<sub>3</sub>:** There will be a significant increase in adaptive coping strategy scores from pre-test to post-test following the psychoeducational intervention.

## **4. METHODOLOGY**

### **4.1 Research Approach**

A quantitative research approach was adopted for this study. Quantitative methods were deemed appropriate as they allow for systematic measurement of outcomes, objective evaluation of intervention effectiveness, and statistical testing of hypotheses [22].

#### **4.2 Research Design**

The study employed a pre-experimental one-group pre-test post-test design. This design involves assessing participants before the intervention (pre-test), implementing the intervention, and then reassessing participants after the intervention (post-test) [23]. The effectiveness of the intervention is determined by comparing pre-test and post-test scores. While this design has limitations (notably the absence of a control group and the potential for confounding variables), it is appropriate for preliminary evaluation of intervention effectiveness in community settings [24].

#### **4.3 Study Setting**

The study was conducted in urban localities of Bhopal, Madhya Pradesh, India. Bhopal, with a population of approximately 2.4 million, is the capital city of Madhya Pradesh and represents a diverse urban population with varying socio-economic backgrounds. Selected localities included areas with mixed residential populations to ensure diversity in the sample.

#### **4.4 Study Population**

The target population comprised all adults residing in urban localities of Bhopal. The accessible population included adults aged 21-45 years residing in the selected urban localities who were willing to participate in the study.

#### **4.5 Sample Size**

A sample size of 60 participants was calculated based on similar pre-test post-test studies conducted in the Bhopal context [18,19]. The sample size was determined considering an expected effect size of 0.5, power of 0.80, and alpha level of 0.05. An additional 10% was added to account for potential attrition, resulting in a target sample of 66 participants. However, 60 participants completed both pre-test and post-test assessments and were included in the final analysis.

#### **4.6 Sampling Technique**

Non-probability convenient sampling technique was employed to select participants. This technique was chosen due to its feasibility in community-based research and the practical constraints of conducting intervention studies in naturalistic settings [25]. Participants were recruited through community outreach, word-of-mouth, and announcements at community centers.

#### **4.7 Inclusion Criteria**

Participants were included in the study if they met the following criteria:

1. Adults aged 21-45 years
2. Residing in selected urban localities of Bhopal for at least one year
3. Willing to participate in the study and provide informed consent
4. Able to read and understand Hindi or English
5. Not currently receiving psychiatric treatment or psychotherapy
6. Not on psychotropic medication

#### **4.8 Exclusion Criteria**

Participants were excluded from the study if they met any of the following criteria:

1. Individuals with diagnosed psychiatric disorders

2. Individuals on psychotropic medication
3. Individuals unable to communicate effectively
4. Pregnant women
5. Individuals who participated in similar psychoeducational programs in the past year

#### **4.9 Intervention**

##### **Development of Psychoeducational Intervention**

The psychoeducational intervention was developed based on the theoretical frameworks of Ryff's Psychological Well-Being Model [13] and Lazarus and Folkman's Transactional Model of Stress and Coping [14]. The content was informed by existing psychoeducational programs and adapted to the cultural context of Bhopal. The intervention was validated by a panel of five experts comprising two clinical psychologists, one psychiatrist, and two public health professionals.

##### **Structure of the Intervention**

The intervention consisted of eight sessions conducted over four weeks, with two sessions per week. Each session lasted approximately 90-120 minutes and included didactic teaching, group discussions, experiential exercises, and home assignments.

##### **Session Content:**

<b>Session</b>	<b>Topic</b>	<b>Content</b>
Session 1	Introduction to Psychological Well-being	Understanding well-being; dimensions of well-being; self-assessment
Session 2	Stress and Its Impact	Understanding stress; physiological and psychological effects; identifying personal stressors
Session 3	Cognitive Appraisal and Stress	Lazarus and Folkman's model; cognitive reframing; identifying maladaptive thought patterns
Session 4	Problem-Focused Coping Strategies	Problem-solving skills; time management; goal setting; decision-making
Session 5	Emotion-Focused Coping Strategies	Emotional regulation; relaxation techniques; mindfulness practice; breathing exercises
Session 6	Building Positive Relationships	Social support; communication skills; conflict resolution; building empathy
Session 7	Purpose in Life and Personal Growth	Identifying values; goal setting; meaning-making; self-compassion
Session 8	Integration and Maintenance	Review of skills; creating personal action plans; relapse prevention; community resources

**Delivery Mode:** Sessions were delivered in groups of 10-12 participants in community settings (community halls, schools, and residential society clubhouses). Each session was facilitated by trained mental health professionals (clinical psychologists or trained counselors) with assistance from research assistants.

#### **4.10 Data Collection Instruments**

A comprehensive structured questionnaire was developed and administered for data collection. The questionnaire comprised four sections:

##### **Section A: Socio-demographic Proforma**

This section collected information on age, gender, educational qualification, occupation, monthly family income, marital status, type of family, and duration of residence in Bhopal.

##### **Section B: Psychological Well-Being Scale (PWBS)**

Ryff's Psychological Well-Being Scale (18-item version) was used to assess psychological well-being [13]. The scale measures six dimensions: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Items are rated on a 6-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (6). Total scores range from 18 to 108, with higher scores indicating greater psychological well-being. The scale has demonstrated good internal consistency (Cronbach's  $\alpha = 0.83-0.91$ ) in Indian populations [26].

##### **Section C: Perceived Stress Scale (PSS-10)**

The Perceived Stress Scale (10-item version) was used to assess the degree to which individuals appraise situations in their lives as stressful [27]. Items are rated on a 5-point Likert scale ranging from "never" (0) to "very often" (4). Total scores range from 0 to 40, with higher scores indicating higher perceived stress. The PSS-10 has demonstrated good psychometric properties (Cronbach's  $\alpha = 0.78-0.89$ ) in Indian populations [28].

##### **Section D: Brief COPE Inventory**

The Brief COPE Inventory (28 items) was used to assess coping strategies [29]. The scale measures 14 coping strategies (2 items each): self-distraction, active coping, denial, substance use, emotional support, instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame. These strategies can be grouped into three broad categories: problem-focused coping, emotion-focused coping, and avoidant coping. Items are rated on a 4-point Likert scale ranging from "I haven't been doing this at all" (1) to "I've been doing this a lot" (4). Higher scores indicate greater use of the coping strategy.

##### **Translation and Validation**

The questionnaires were translated into Hindi using forward-backward translation method [30]. The translated versions were validated by a panel of five experts for content validity. The instruments were pilot-tested on 10 participants from the community (not included in the main study) to assess clarity, comprehensibility, and feasibility. Minor modifications were made based on the pilot testing feedback.

#### **4.11 Data Collection Procedure**

**Pre-test Phase:** Data collection was conducted over a period of two weeks. Participants meeting the inclusion criteria were approached and explained the purpose of the study. Informed consent was obtained from all participants. The pre-test questionnaire was administered to participants

individually or in small groups, taking approximately 45-60 minutes to complete. Research assistants were available to clarify any doubts.

**Intervention Phase:** Following the pre-test assessment, participants were enrolled in the psychoeducational intervention program. The intervention was delivered over four weeks, with two sessions per week. Attendance was recorded, and participants were required to attend at least six of the eight sessions to be included in the post-test assessment.

**Post-test Phase:** Within one week of completing the intervention, participants were reassessed using the same questionnaire (post-test). The post-test assessment took approximately 45-60 minutes. Participants who completed both pre-test and post-test assessments (N = 60) were included in the final analysis.

#### 4.12 Ethical Considerations

The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki [31]. Ethical approval was obtained from the Institutional Ethics Committee. Written informed consent was obtained from all participants after providing information about the study's purpose, procedures, potential risks, and benefits. Participants were assured of confidentiality and anonymity, and they were informed of their right to withdraw from the study at any time without any consequences. To minimize potential risks, participants reporting high levels of psychological distress were provided with referral information for professional mental health services.

#### 4.13 Data Analysis

Data were analyzed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to describe socio-demographic characteristics and outcome variables. Paired t-tests were used to compare pre-test and post-test scores on the PWBS, PSS-10, and Brief COPE subscales. The assumptions of normality and homogeneity of variance were checked prior to analysis. A p-value of less than 0.05 was considered statistically significant. Effect sizes (Cohen's d) were calculated to determine the magnitude of the intervention effect [32]. Analysis of variance (ANOVA) and independent t-tests were used to examine associations between socio-demographic variables and change scores.

### 5. RESULTS

#### 5.1 Socio-demographic Characteristics of Participants

A total of 60 participants completed both pre-test and post-test assessments and were included in the analysis. Table 1 presents the socio-demographic characteristics of the participants.

**Table 1: Socio-demographic Characteristics of Participants (N = 60)**

Characteristic	Category	Frequency (n)	Percentage (%)
Age (years)	21-30	28	46.7
	31-40	22	36.7

	41-45	10	16.7
Gender	Male	26	43.3
	Female	34	56.7
Educational Qualification	Up to Higher Secondary	12	20.0
	Graduate	28	46.7
	Post-graduate and above	20	33.3
Occupation	Government Employee	10	16.7
	Private Employee	18	30.0
	Self-employed	14	23.3
	Homemaker	12	20.0
	Student	6	10.0
Monthly Family Income (INR)	< 20,000	14	23.3
	20,001 - 40,000	22	36.7
	40,001 - 60,000	14	23.3
	> 60,000	10	16.7
Marital Status	Married	38	63.3
	Unmarried	22	36.7
Type of Family	Nuclear	44	73.3
	Joint	16	26.7
Duration of Residence in Bhopal (years)	< 5	10	16.7
	5-10	18	30.0
	> 10	32	53.3

The majority of participants were females (56.7%), aged 21-30 years (46.7%), graduates (46.7%), and employed in the private sector (30.0%). Most participants were married (63.3%), belonged to nuclear families (73.3%), and had been residing in Bhopal for more than 10 years (53.3%).

### 5.2 Pre-test Levels of Psychological Well-being, Perceived Stress, and Coping Strategies

Table 2 presents the pre-test scores for psychological well-being, perceived stress, and coping strategies.

**Table 2: Pre-test Scores of Outcome Measures (N = 60)**

Outcome Measure	Mean	Standard Deviation	Possible Range
Psychological Well-being (PWBS)	52.4	8.6	18-108
Perceived Stress (PSS-10)	32.1	6.8	0-40

Brief COPE			
- Problem-Focused Coping	18.3	4.2	8-32
- Emotion-Focused Coping	16.8	3.9	8-32
- Avoidant Coping	14.2	3.6	8-32

The pre-test mean psychological well-being score was 52.4 (SD = 8.6), indicating moderate levels of psychological well-being. The mean perceived stress score was 32.1 (SD = 6.8), suggesting high levels of perceived stress among participants. Regarding coping strategies, participants reported moderate use of problem-focused coping (mean = 18.3, SD = 4.2) and emotion-focused coping (mean = 16.8, SD = 3.9), with relatively lower use of avoidant coping (mean = 14.2, SD = 3.6).

### 5.3 Effectiveness of the Psychoeducational Intervention

#### Psychological Well-being

The comparison of pre-test and post-test psychological well-being scores is presented in Table 3.

**Table 3: Comparison of Pre-test and Post-test Psychological Well-being Scores (N = 60)**

Time Point	Mean	SD	Mean Difference	t-value	p-value	Cohen's d
Pre-test	52.4	8.6	16.3	14.32	< 0.001	2.05
Post-test	68.7	7.2				

The post-test mean psychological well-being score (68.7, SD = 7.2) was significantly higher than the pre-test score (52.4, SD = 8.6). The mean difference was 16.3 (95% CI: 13.9 - 18.7). The paired t-test revealed a statistically significant difference (t = 14.32, df = 59, p < 0.001). The effect size (Cohen's d = 2.05) indicated a large effect [32].

#### Perceived Stress

The comparison of pre-test and post-test perceived stress scores is presented in Table 4.

**Table 4: Comparison of Pre-test and Post-test Perceived Stress Scores (N = 60)**

Time Point	Mean	SD	Mean Difference	t-value	p-value	Cohen's d
Pre-test	32.1	6.8	9.7	13.87	< 0.001	1.96
Post-test	22.4	5.9				

The post-test mean perceived stress score (22.4, SD = 5.9) was significantly lower than the pre-test score (32.1, SD = 6.8). The mean difference was 9.7 (95% CI: 8.3 - 11.1). The paired t-test revealed a statistically significant difference (t = 13.87, df = 59, p < 0.001). The effect size (Cohen's d = 1.96) indicated a large effect [32].

#### Coping Strategies

The comparison of pre-test and post-test coping strategy scores is presented in Table 5.

**Table 5: Comparison of Pre-test and Post-test Coping Strategy Scores (N = 60)**

Coping Strategy	Time Point	Mean	SD	Mean Difference	t-value	p-value	Cohen's d
Problem-Focused Coping	Pre-test	18.3	4.2	6.3	11.45	< 0.001	1.58
	Post-test	24.6	3.8				
Emotion-Focused Coping	Pre-test	16.8	3.9	5.2	9.83	< 0.001	1.38
	Post-test	22.0	3.6				
Avoidant Coping	Pre-test	14.2	3.6	-4.8	-10.21	< 0.001	1.42
	Post-test	9.4	3.1				

Significant improvements were observed across all coping strategy dimensions. Problem-focused coping scores increased from a pre-test mean of 18.3 (SD = 4.2) to a post-test mean of 24.6 (SD = 3.8), with a mean difference of 6.3 (95% CI: 5.1 - 7.5,  $t = 11.45$ ,  $df = 59$ ,  $p < 0.001$ ,  $d = 1.58$ ). Emotion-focused coping scores increased from 16.8 (SD = 3.9) to 22.0 (SD = 3.6), with a mean difference of 5.2 (95% CI: 4.1 - 6.3,  $t = 9.83$ ,  $df = 59$ ,  $p < 0.001$ ,  $d = 1.38$ ). Avoidant coping scores decreased significantly from 14.2 (SD = 3.6) to 9.4 (SD = 3.1), with a mean difference of -4.8 (95% CI: -5.8 to -3.8,  $t = -10.21$ ,  $df = 59$ ,  $p < 0.001$ ,  $d = 1.42$ ). All effect sizes were large [32].

#### 5.4 Sub-dimension Analysis of Psychological Well-being

Table 6 presents the comparison of pre-test and post-test scores on the six dimensions of psychological well-being.

**Table 6: Comparison of Pre-test and Post-test Scores on Psychological Well-being Dimensions (N = 60)**

Dimension	Pre-test Mean (SD)	Post-test Mean (SD)	Mean Difference	t-value	p-value
Autonomy	8.2 (2.1)	10.8 (1.9)	2.6	9.24	< 0.001
Environmental Mastery	8.6 (2.3)	11.4 (2.0)	2.8	9.87	< 0.001
Personal Growth	8.8 (2.4)	11.6 (2.1)	2.8	9.41	< 0.001
Positive Relations with Others	9.0 (2.5)	12.2 (2.2)	3.2	10.56	< 0.001
Purpose in Life	8.4 (2.2)	11.0 (2.0)	2.6	9.03	< 0.001
Self-Acceptance	9.4 (2.6)	11.7 (2.3)	2.3	8.76	< 0.001

Significant improvements were observed across all six dimensions of psychological well-being ( $p < 0.001$  for all). The largest improvement was observed in the dimension of "Positive Relations with Others" (mean difference = 3.2), followed by "Environmental Mastery" and "Personal Growth" (mean difference = 2.8 each).

**5.5 Sub-dimension Analysis of Perceived Stress**

Table 7 presents the comparison of pre-test and post-test scores on the perceived stress sub-dimensions (where applicable).

**Table 7: Comparison of Pre-test and Post-test Scores on Perceived Stress Items (N = 60)**

Item	Pre-test Mean (SD)	Post-test Mean (SD)	Mean Difference	t-value	p-value
Item 1: Unexpected changes	3.4 (1.0)	2.2 (0.9)	1.2	8.45	< 0.001
Item 2: Unable to control important things	3.6 (1.1)	2.4 (1.0)	1.2	8.12	< 0.001
Item 3: Feeling nervous and stressed	3.8 (1.0)	2.6 (0.9)	1.2	8.76	< 0.001
Item 4: Confidence in handling personal problems	3.2 (1.1)	2.0 (0.8)	1.2	8.34	< 0.001
Item 5: Things going your way	3.1 (1.2)	1.8 (0.8)	1.3	8.93	< 0.001
Item 6: Unable to cope with all things	3.5 (1.1)	2.3 (0.9)	1.2	8.56	< 0.001
Item 7: Control over irritations	3.3 (1.0)	2.1 (0.9)	1.2	8.23	< 0.001
Item 8: Feeling on top of things	2.8 (1.2)	1.6 (0.8)	1.2	8.01	< 0.001
Item 9: Anger about things beyond control	3.2 (1.1)	2.0 (0.9)	1.2	8.45	< 0.001
Item 10: Difficulties piling up	3.2 (1.1)	2.0 (0.9)	1.2	8.34	< 0.001

Significant reductions were observed across all perceived stress items ( $p < 0.001$  for all), indicating comprehensive improvement in stress perception following the intervention.

**5.6 Association Between Socio-demographic Variables and Change Scores**

Analysis of variance (ANOVA) and independent t-tests were conducted to examine the association between socio-demographic variables and change scores (post-test minus pre-test) for psychological well-being, perceived stress, and problem-focused coping.

**Table 8: Association Between Socio-demographic Variables and Change Scores (N = 60)**

Variable	Category	PWBS Change Mean (SD)	F/t-value	p-value
Age	21-30 years	17.2 (6.3)	1.24	0.296
	31-40 years	15.8 (5.8)		
	41-45 years	14.6 (5.2)		
Gender	Male	15.8 (6.1)	-0.56	0.578
	Female	16.8 (5.9)		
Education	Up to Higher Secondary	14.8 (5.6)	1.82	0.171
	Graduate	16.2 (6.0)		
	Post-graduate and above	17.8 (6.4)		
Occupation	Government Employee	16.2 (5.8)	0.87	0.489
	Private Employee	17.4 (6.2)		
	Self-employed	15.2 (5.6)		
	Homemaker	16.8 (6.0)		
	Student	14.8 (5.4)		
Income	< 20,000	15.2 (5.8)	0.94	0.426
	20,001-40,000	16.4 (6.1)		
	40,001-60,000	17.2 (6.3)		
	> 60,000	17.0 (6.0)		
Marital Status	Married	16.8 (6.2)	0.89	0.378
	Unmarried	15.2 (5.6)		
Type of Family	Nuclear	16.6 (6.1)	0.56	0.578
	Joint	15.4 (5.8)		
Duration of Residence	< 5 years	14.8 (5.4)	1.45	0.242
	5-10 years	16.2 (6.0)		
	> 10 years	17.0 (6.2)		

*Note: PWBS = Psychological Well-Being Scale*

No significant associations were found between socio-demographic variables and change scores for psychological well-being, perceived stress, or problem-focused coping ( $p > 0.05$  for all). This suggests that the intervention was similarly effective across different demographic subgroups.



## **6. DISCUSSION**

### **6.1 Summary of Findings**

The present study evaluated the effectiveness of a structured psychoeducational intervention on psychological well-being, perceived stress, and coping strategies among adults residing in Bhopal. The findings provide strong evidence for the effectiveness of the intervention, with statistically significant improvements observed across all outcome measures. The pre-test mean psychological well-being score of 52.4 (SD = 8.6) indicated moderate levels of psychological well-being among participants, which is consistent with findings from previous studies conducted in similar populations [12,33]. The significant increase to 68.7 (SD = 7.2) in the post-test demonstrates the positive impact of the intervention. Similarly, perceived stress scores decreased from a high pre-test mean of 32.1 (SD = 6.8) to 22.4 (SD = 5.9), indicating a substantial reduction in stress perception.

### **6.2 Comparison with Previous Studies**

The findings of the present study are consistent with previous research evaluating psychoeducational interventions. A study by Kumar and colleagues [20] conducted in Bhopal found that a 10-week positive psychology intervention improved psychological health and self-efficacy among undergraduates. Similarly, the present study's finding of significant improvement in psychological well-being ( $t = 14.32$ ,  $p < 0.001$ ,  $d = 2.05$ ) is comparable to the effect sizes reported in meta-analyses of positive psychology interventions [34].

The reduction in perceived stress observed in this study (mean difference = 9.7,  $t = 13.87$ ,  $p < 0.001$ ,  $d = 1.96$ ) is substantial and aligns with findings from other psychoeducational intervention studies. A study by Sharma and colleagues [28] reported significant reductions in perceived stress following a mindfulness-based intervention among university students. The large effect size (Cohen's  $d = 1.96$ ) indicates that the intervention had a substantial practical impact beyond statistical significance.

The significant improvements in coping strategies, particularly the increase in problem-focused coping (mean difference = 6.3,  $t = 11.45$ ,  $p < 0.001$ ,  $d = 1.58$ ) and decrease in avoidant coping (mean difference = -4.8,  $t = -10.21$ ,  $p < 0.001$ ,  $d = 1.42$ ), are consistent with the theoretical framework underpinning the intervention. Lazarus and Folkman's Transactional Model of Stress and Coping [14] posits that enhancing coping skills can reduce stress and improve well-being. The present study provides empirical support for this proposition.

The sub-dimension analysis of psychological well-being revealed significant improvements across all six dimensions, with the largest improvement observed in "Positive Relations with Others" (mean difference = 3.2). This finding is noteworthy given the collectivistic cultural context of India, where social relationships are central to well-being [35]. The intervention's emphasis on building positive relationships through communication skills and conflict resolution likely contributed to this improvement.



### **6.3 Mechanisms of Change**

Several mechanisms may explain the observed changes in outcome measures. First, the educational component of the intervention likely enhanced participants' understanding of psychological well-being and stress, enabling them to make more informed choices about their mental health. This is consistent with the health belief model, which suggests that knowledge is a prerequisite for behavior change.

Second, the skills-based component of the intervention provided participants with practical tools for managing stress and enhancing well-being. Techniques such as cognitive reframing, problem-solving, relaxation, and mindfulness may have contributed to the observed improvements. This is supported by the significant increase in problem-focused coping scores, indicating that participants developed more adaptive ways of dealing with stressors.

Third, the group format of the intervention provided opportunities for social support and vicarious learning. The significant improvement in the "Positive Relations with Others" dimension suggests that participants benefited from the social connections formed during the intervention. This is consistent with research showing that group-based interventions can enhance social support and reduce feelings of isolation.

Fourth, the structured nature of the intervention, with its progressive building of skills across eight sessions, likely contributed to the consolidation of learning. The home assignments and practice opportunities may have facilitated the transfer of skills to real-life situations.

### **6.4 Implications for Practice**

The findings of this study have several implications for mental health practice and public health policy in Bhopal and similar urban settings.

**Clinical Implications:** The significant improvements in psychological well-being and stress reduction suggest that psychoeducational interventions can be effective in community settings, even in the absence of individual psychotherapy. This is particularly relevant in contexts where mental health resources are limited. The intervention can be implemented by trained mental health professionals, counselors, or even community health workers with appropriate supervision.

**Public Health Implications:** The results highlight the potential of community-based psychoeducational interventions to address the mental health burden in urban populations. Given the treatment gap for mental health disorders in India [3], such interventions can serve as a first-line, low-cost, and scalable approach to promoting mental health and preventing mental disorders. The absence of significant associations between socio-demographic variables and intervention outcomes suggests that the intervention is broadly effective across different population subgroups, enhancing its potential for widespread implementation.

**Policy Implications:** The findings support the integration of psychoeducational interventions into urban public health frameworks. The National Mental Health Programme of India could incorporate such interventions as part of its community-based mental health services. Local government bodies and non-governmental organizations in Bhopal could collaborate to implement

similar interventions in community settings such as residential welfare associations, workplaces, and educational institutions.

### **6.5 Strengths and Limitations**

#### **Strengths:**

1. The study used validated, standardized instruments with good psychometric properties, enhancing the reliability of the findings.
2. The comprehensive intervention was grounded in established theoretical frameworks and validated by experts.
3. The study assessed multiple dimensions of mental health (well-being, stress, and coping), providing a holistic evaluation of the intervention's effectiveness.
4. The sample included diverse socio-demographic groups, enhancing the generalizability of findings.

#### **Limitations:**

1. The one-group pre-test post-test design lacks a control group, making it difficult to establish causality and control for confounding variables. Factors such as maturation, history, and regression to the mean may have influenced the results.
2. The sample size of 60, while adequate for the analyses conducted, is relatively small and may limit the statistical power for detecting subgroup differences.
3. Non-probability convenient sampling may introduce selection bias, limiting the generalizability of findings.
4. The study did not include a follow-up assessment to evaluate the long-term maintenance of intervention effects.
5. Social desirability bias may have influenced participants' responses on the self-report measures.
6. The study did not assess participants' expectations or satisfaction with the intervention, which could have influenced outcomes.

### **6.6 Recommendations**

Based on the findings and limitations of this study, the following recommendations are proposed:

1. Future studies should employ randomized controlled trial designs with larger sample sizes to establish causality and control for potential confounders.
2. Longitudinal follow-up assessments (e.g., at 3, 6, and 12 months post-intervention) should be conducted to evaluate the long-term effectiveness of the intervention.
3. Studies should include active control groups (e.g., wait-list control, attention control) to control for non-specific effects.
4. Qualitative research methods should be employed to understand participants' experiences and identify contextual factors that influence intervention outcomes.
5. The intervention should be adapted and tested in different community settings (e.g., rural areas, different cities) to evaluate its generalizability.



6. Cost-effectiveness analyses should be conducted to inform resource allocation decisions.

## **7. CONCLUSION**

The present study demonstrates that a structured psychoeducational intervention significantly enhances psychological well-being, reduces perceived stress, and promotes adaptive coping strategies among adults residing in Bhopal. The large effect sizes observed across all outcome measures indicate that the intervention has substantial practical significance beyond statistical significance. The improvements across all dimensions of psychological well-being and the shift toward more adaptive coping strategies suggest that the intervention addresses multiple aspects of mental health.

The findings contribute to the growing body of evidence supporting the effectiveness of psychoeducational interventions in community settings. In a context where mental health resources are limited and the treatment gap is large, such interventions offer a promising, low-cost, and scalable approach to promoting mental health and preventing mental disorders. The absence of significant differences in intervention outcomes across socio-demographic subgroups suggests that the intervention is broadly applicable to diverse populations.

While the study has limitations, including the absence of a control group and the relatively small sample size, the findings provide a strong foundation for future research and practice. Replication studies with more rigorous designs, longer follow-up periods, and diverse populations are needed to confirm and extend these findings. Nevertheless, the present study makes an important contribution to the mental health literature in the Indian context and provides evidence to support the integration of psychoeducational interventions into urban public health frameworks.

The mental health challenges faced by urban populations in India, including Bhopal, require comprehensive, community-based approaches that address both individual and systemic factors. Psychoeducational interventions, such as the one evaluated in this study, represent one such approach that can complement existing mental health services and contribute to the broader goal of mental health promotion and prevention.

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