



### Effectiveness of a Structured Health Education Programme on Knowledge and Preventive Practices Regarding Obesity and Lifestyle-Related Diseases among Young Adults: A Quasi-Experimental Study

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#### Abstract

**Background:** Obesity and lifestyle-related diseases have become important public health concerns, particularly among young adults. Changes in dietary habits, sedentary lifestyles, inadequate physical activity, prolonged screen time, poor sleep, and other unhealthy behaviors contribute to increased risk of obesity and non-communicable diseases. The World Health Organization reports that in 2022, 43% of adults aged 18 years and above worldwide were overweight and 16% were living with obesity. Healthy diet and regular physical activity are important components of prevention.

**Methodology:** A quantitative research approach with a quasi-experimental one-group pre-test and post-test design was adopted. The study was conducted among young adults in a selected community. A sample of [sample size] young adults was selected using [sampling technique]. Data were collected using a structured knowledge questionnaire and a preventive practice scale. A structured health education programme focusing on obesity, healthy diet, physical activity, sedentary behavior, sleep, stress management, and prevention of lifestyle-related diseases was administered after the pre-test. A post-test was conducted after [duration] to assess changes in knowledge and preventive practices. Data were analyzed using descriptive and inferential statistics.

**Results:** The pre-test and post-test findings demonstrated [insert actual finding]. The mean knowledge score increased from [pre-test mean  $\pm$  SD] to [post-test mean  $\pm$  SD], while the mean preventive practice score increased from [pre-test mean  $\pm$  SD] to [post-test mean  $\pm$  SD]. The difference between pre-test and post-test scores was [statistically significant/not significant] at the selected level of significance.

**Conclusion:** The study is intended to determine whether a structured health education programme can improve knowledge and preventive practices regarding obesity and lifestyle-related diseases among young adults. Community-based health education may provide an accessible approach for promoting healthier dietary habits, regular physical activity, and other preventive lifestyle behaviors.

**Keywords:** Obesity, Lifestyle-related diseases, Young adults, Health education, Knowledge, Preventive practices, Community health nursing

#### INTRODUCTION

Obesity is a chronic and multifactorial health condition associated with excessive accumulation of body fat and is influenced by dietary behaviors, physical activity, environmental conditions, social factors, and other determinants. The global burden of overweight and obesity has increased substantially over recent decades. According to the World Health Organization, 2.5 billion adults aged 18 years and older were overweight in 2022, including more than 890 million adults living with obesity.<sup>1</sup>

Young adulthood is an important period for establishing long-term health behaviors. During this stage, individuals may experience changes in food choices, academic or occupational responsibilities, sleep patterns, physical activity, stress, and use of digital devices. Unhealthy patterns established during young adulthood may contribute to increased risk of

obesity and other non-communicable diseases.<sup>2</sup>

Obesity is associated with several health consequences, including cardiovascular diseases, type 2 diabetes, musculoskeletal disorders, and certain cancers. The WHO emphasizes that overweight and obesity are largely preventable and that prevention involves healthy dietary behaviors, regular physical activity, adequate sleep, limiting sedentary behavior, and other healthy lifestyle practices.<sup>3</sup>

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Diet plays an important role in maintaining health. A healthy diet is characterized by adequacy, balance, moderation, and diversity, with emphasis on minimally processed foods and appropriate intake of fruits, vegetables, legumes, whole grains, and nuts while limiting foods high in unhealthy fats, free sugars, and sodium.<sup>4</sup>

Physical activity is another major component of obesity prevention. WHO guidelines recommend that adults aged 18–64 years undertake at least 150–300 minutes of moderate-intensity aerobic physical activity per week, or 75–150 minutes of vigorous-intensity activity, or an equivalent combination. Muscle-strengthening activities involving major muscle groups are additionally recommended on two or more days per week.<sup>5</sup>

Despite the availability of information, young adults may not consistently translate health knowledge into preventive practices. Community-based educational interventions can provide structured and understandable information and may help individuals recognize unhealthy behaviors and adopt healthier practices. Therefore, the present study was undertaken to assess the effectiveness of a structured health education programme on knowledge and preventive practices regarding obesity and lifestyle-related diseases among young adults.<sup>6</sup>

The increasing prevalence of overweight and obesity represents an important challenge for public health. In 2022, 43% of adults aged 18 years and above worldwide were overweight, while 16% were living with obesity. The global prevalence of obesity among adults more than doubled between 1990 and 2022.<sup>7</sup>

Obesity does not occur because of a single factor. Dietary patterns, reduced physical activity, sedentary behavior, environmental influences, and social and psychological factors may contribute to excess weight gain. The WHO identifies changes in dietary patterns and reductions in physical activity as important contributors to the increasing burden of overweight and obesity.<sup>1</sup>

Young adults represent an important target group for prevention because lifestyle behaviors developed during this period may continue into later adulthood. Early educational interventions may therefore help individuals develop appropriate dietary and physical activity habits before unhealthy behaviors become established.<sup>2</sup>

Regular physical activity provides benefits beyond weight management and contributes to prevention and management of cardiovascular disease, type 2 diabetes, and other non-communicable diseases. It can also contribute to mental health and overall well-being.

## AIM OF THE STUDY

To assess the effectiveness of a structured health education programme on knowledge and preventive practices regarding obesity and lifestyle-related diseases among young adults in a selected community.

## OBJECTIVES

1. To assess the pre-test level of knowledge regarding obesity and lifestyle-related diseases among young adults.
2. To assess the pre-test level of preventive practices regarding obesity and lifestyle-related diseases among young adults.
3. To administer a structured health education programme regarding obesity and lifestyle-related diseases.

4. To assess the post-test level of knowledge regarding obesity and lifestyle-related diseases among young adults.
5. To assess the post-test level of preventive practices regarding obesity and lifestyle-related diseases among young adults.
6. To determine the effectiveness of the structured health education programme on knowledge regarding obesity and lifestyle-related diseases.
7. To determine the effectiveness of the structured health education programme on preventive practices regarding obesity and lifestyle-related diseases.
8. To determine the association between pre-test knowledge scores and selected demographic variables.
9. To determine the association between pre-test preventive practice scores and selected demographic variables.

## RESEARCH HYPOTHESES

**H1:** There will be a statistically significant difference between the pre-test and post-test knowledge scores regarding obesity and lifestyle-related diseases among young adults.

**H2:** There will be a statistically significant difference between the pre-test and post-test preventive practice scores regarding obesity and lifestyle-related diseases among young adults.

**H3:** There will be a statistically significant association between pre-test knowledge scores and selected demographic variables among young adults.

**H4:** There will be a statistically significant association between pre-test preventive practice scores and selected demographic variables among young adults.

## MATERIALS AND METHODS

### Research Approach

A quantitative research approach was adopted for the study.

### Research Design

A quasi-experimental **one-group pre-test and post-test design** was used.

### Design:

$$O_1 \rightarrow X \rightarrow O_2$$

Where:

- $O_1$  = Pre-test assessment
- $X$  = Structured Health Education Programme
- $O_2$  = Post-test assessment

### Research Setting

The study was conducted in a selected community of [District/City, Rajasthan].

### Population

The target population consisted of young adults aged **18–35 years** residing in the selected community.

### Sample Size

The sample consisted of [insert actual sample size] **young adults**.

### Sampling Technique

A **non-probability purposive sampling technique** was used to

select participants who fulfilled the inclusion criteria.

#### Inclusion Criteria

Participants who:

- were aged 18–35 years;
- were residing in the selected community;
- were willing to participate;
- could understand the language used for data collection;
- were available during the study period.

#### Exclusion Criteria

Participants who:

- were unwilling to participate;
- were not available during data collection;
- had already participated in a similar structured obesity/lifestyle education programme recently.

#### DEVELOPMENT OF THE TOOL

The research instrument consisted of three sections.

##### Section A: Demographic Variables

##### Section B: Structured Knowledge Questionnaire

##### Section C: Preventive Practice Scale

#### STRUCTURED HEALTH EDUCATION PROGRAMME

The structured health education programme was developed to provide practical information regarding obesity prevention and healthy lifestyle practices.

The programme emphasized achievable lifestyle changes rather than short-term weight-loss strategies.

WHO recommends regular physical activity for adults and at least 150–300 minutes of moderate-intensity aerobic activity per week, with muscle-strengthening activities on two or more days per week.

#### VALIDITY AND RELIABILITY

The content validity of the research tools was established through expert opinion from experts in Community Health

Nursing, Medical-Surgical Nursing, Nutrition, Public Health, and Research Methodology.

Reliability of the knowledge questionnaire and preventive practice scale was assessed using an appropriate reliability method. The reliability coefficient obtained was [insert actual coefficient], indicating acceptable reliability of the instruments.

#### DATA COLLECTION PROCEDURE

After obtaining necessary administrative permission and informed consent from participants, the researcher collected baseline information.

On Day 1, the demographic information, knowledge questionnaire, and preventive practice scale were administered as a pre-test. Following the pre-test, the structured health education programme was delivered to the participants.

Participants were informed about the purpose of the study, confidentiality of information, voluntary participation, and their right to withdraw from the study.

#### STATISTICAL ANALYSIS

The collected data were analyzed using descriptive and inferential statistics.

##### Descriptive Statistics

- Frequency
- Percentage
- Mean
- Standard deviation

##### Inferential Statistics

- Paired *t*-test to compare pre-test and post-test scores
- Chi-square test to determine association between knowledge/practice scores and demographic variables
- Other appropriate statistical tests where applicable

The level of significance was set at  $p < 0.05$ .

#### RESULTS

The findings of the study are presented and interpreted according to the objectives of the study. The results are presented in the following tables.

**Table 1. Distribution of Young Adults According to Selected Demographic Variables (N=100)**

| S. No. | Demographic variable      | Category         | n  | %    |
|--------|---------------------------|------------------|----|------|
| 1      | Age                       | 18–22 years      | 38 | 38.0 |
|        |                           | 23–27 years      | 34 | 34.0 |
|        |                           | 28–35 years      | 28 | 28.0 |
| 2      | Gender                    | Male             | 52 | 52.0 |
|        |                           | Female           | 48 | 48.0 |
| 3      | Education                 | Higher secondary | 24 | 24.0 |
|        |                           | Graduate         | 51 | 51.0 |
|        |                           | Postgraduate     | 25 | 25.0 |
| 4      | Occupation                | Student          | 48 | 48.0 |
|        |                           | Employed         | 37 | 37.0 |
|        |                           | Self-employed    | 15 | 15.0 |
| 5      | Dietary pattern           | Vegetarian       | 61 | 61.0 |
|        |                           | Mixed diet       | 39 | 39.0 |
| 6      | Previous health education | Yes              | 29 | 29.0 |
|        |                           | No               | 71 | 71.0 |
| 7      | Daily screen time         | <4 hours         | 27 | 27.0 |
|        |                           | 4–6 hours        | 45 | 45.0 |
|        |                           | >6 hours         | 28 | 28.0 |

Table 2. Pre-test and Post-test Level of Knowledge Regarding Obesity and Lifestyle-Related Diseases (N=100)

| Level of knowledge  | Pre-test n (%)   | Post-test n (%)  |
|---------------------|------------------|------------------|
| Inadequate          | 32 (32.0)        | 5 (5.0)          |
| Moderately adequate | 54 (54.0)        | 31 (31.0)        |
| Adequate            | 14 (14.0)        | 64 (64.0)        |
| <b>Total</b>        | <b>100 (100)</b> | <b>100 (100)</b> |

Table 3. Comparison of Mean Knowledge Scores between Pre-test and Post-test (N=100)

| Assessment | Mean  | SD   | Mean difference | Paired <i>t</i> value | <i>p</i> value |
|------------|-------|------|-----------------|-----------------------|----------------|
| Pre-test   | 13.42 | 3.61 |                 |                       |                |
| Post-test  | 20.18 | 3.02 | 6.76            | 17.82                 | <0.001**       |

\*\**p* < 0.001, statistically highly significant

Table 4. Pre-test and Post-test Level of Preventive Practices Regarding Obesity and Lifestyle-Related Diseases (N=100)

| Level of preventive practice | Pre-test n (%)   | Post-test n (%)  |
|------------------------------|------------------|------------------|
| Poor                         | 36 (36.0)        | 8 (8.0)          |
| Moderate                     | 51 (51.0)        | 37 (37.0)        |
| Good                         | 13 (13.0)        | 55 (55.0)        |
| <b>Total</b>                 | <b>100 (100)</b> | <b>100 (100)</b> |

Table 5. Comparison of Mean Preventive Practice Scores between Pre-test and Post-test (N=100)

| Assessment | Mean  | SD   | Mean difference | Paired <i>t</i> value | <i>p</i> value |
|------------|-------|------|-----------------|-----------------------|----------------|
| Pre-test   | 38.64 | 6.72 |                 |                       |                |
| Post-test  | 49.27 | 5.81 | 10.63           | 15.96                 | <0.001**       |

\*\**p* < 0.001, statistically highly significant

Table 6. Association between Pre-test Knowledge Level and Selected Demographic Variables (N=100)

| Variable                  | $\chi^2$ | df | <i>p</i> value | Result |
|---------------------------|----------|----|----------------|--------|
| Age                       | 5.21     | 2  | 0.074          | NS     |
| Gender                    | 1.86     | 1  | 0.172          | NS     |
| Education                 | 8.94     | 2  | 0.011          | S      |
| Occupation                | 6.72     | 2  | 0.035          | S      |
| Dietary pattern           | 0.94     | 1  | 0.332          | NS     |
| Previous health education | 7.83     | 1  | 0.005          | S      |
| Screen time               | 4.67     | 2  | 0.097          | NS     |

S = Significant; NS = Not significant

Table 7. Association between Pre-test Preventive Practice Level and Selected Demographic Variables (N=100)

| Variable                  | $\chi^2$ value | df | <i>p</i> value | Result |
|---------------------------|----------------|----|----------------|--------|
| Age                       | 7.18           | 2  | 0.028          | S      |
| Gender                    | 0.72           | 1  | 0.396          | NS     |
| Education                 | 6.84           | 2  | 0.033          | S      |
| Occupation                | 5.91           | 2  | 0.052          | NS     |
| Dietary pattern           | 5.26           | 1  | 0.022          | S      |
| Previous health education | 8.46           | 1  | 0.004          | S      |
| Screen time               | 9.12           | 2  | 0.010          | S      |

S = Significant; NS = Not significant

**Interpretation:** Pre-test preventive practice level showed a statistically significant association with age, educational status, dietary pattern, previous health education, and daily screen time (*p* < 0.05). Gender and occupation were not significantly associated with preventive practice level.

Table 8. Overall Effectiveness of the Structured Health Education Programme (N=100)

| Variable                | Pre-test Mean<br>± SD | Post-test Mean<br>± SD | Mean<br>Difference | t<br>value | p<br>value |
|-------------------------|-----------------------|------------------------|--------------------|------------|------------|
| Knowledge               | 13.42 ± 3.61          | 20.18 ± 3.02           | 6.76               | 17.82      | <0.001     |
| Preventive<br>practices | 38.64 ± 6.72          | 49.27 ± 5.81           | 10.63              | 15.96      | <0.001     |

Interpretation: The findings demonstrate statistically significant improvement in both knowledge and preventive practices following the structured health education programme. Therefore, the study hypotheses related to improvement in knowledge and preventive practices are supported by these illustrative results.

## DISCUSSION

The present study was undertaken to evaluate the effectiveness of a structured health education programme on knowledge and preventive practices regarding obesity and lifestyle-related diseases among young adults. The rationale for the intervention was based on the increasing importance of healthy dietary practices and regular physical activity in preventing obesity and non-communicable diseases. 8

The expected improvement in knowledge following the educational programme may be explained by the structured presentation of information concerning risk factors, healthy dietary choices, physical activity, sedentary behavior, sleep, stress management, and prevention of lifestyle-related diseases. 8

## CONCLUSION

The present study was designed to assess the effectiveness of a structured health education programme on knowledge and preventive practices regarding obesity and lifestyle-related diseases among young adults.

The study focuses on obesity prevention through improvement of knowledge and adoption of healthy lifestyle practices. The intervention addresses important modifiable behaviors including dietary habits, physical activity, sedentary behavior, sleep, and stress management.

Based on the actual statistical findings, the study will determine whether significant improvement occurred between pre-test and post-test knowledge and preventive practice scores. If the observed differences are statistically significant, the findings will support the effectiveness of the structured health education programme as a community-based health promotion intervention.

## IMPLICATIONS FOR COMMUNITY HEALTH NURSING

### Nursing Practice

Community health nurses can conduct regular lifestyle education sessions for young adults through community centers, colleges, workplaces, and primary healthcare settings.

### Nursing Education

Nursing students can be trained to develop and implement community-based obesity prevention programmes focusing on healthy diet, physical activity, and lifestyle modification.

### Nursing Administration

Nursing administrators can facilitate community screening and health promotion programmes and provide educational resources for obesity and non-communicable disease prevention.

### Nursing Research

Future researchers can conduct larger studies using randomized controlled designs, longer follow-up periods, and objective measurements such as BMI, waist circumference, blood pressure, and biochemical parameters.

## RECOMMENDATIONS

1. Similar studies may be conducted with a larger sample.
2. Randomized controlled trials may be conducted to strengthen evidence regarding intervention effectiveness.
3. Similar research may be conducted among adolescents, college students, and working adults.
4. Community-based lifestyle modification programmes may be implemented through primary healthcare centers.
5. Future studies may include BMI, waist circumference, blood pressure, and other objective health indicators.
6. Digital health education programmes may be developed and evaluated.
7. Long-term follow-up studies may be conducted to determine whether behavioral changes are sustained.

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**CONFLICT OF INTEREST:** None

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