Effectiveness Of Educational Handouts On Awareness Regarding Sedentary Lifestyle And Cardiovascular Risk Factors Associated With Prolonged Smart Device Use Among College Students

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Abstract

Background:

Prolonged smart device use among young adults has become increasingly common due to academic, social, and entertainment needs. Excessive screen time contributes to sedentary behaviour, which is a growing risk factor for cardiovascular diseases. College students often lack adequate awareness regarding the health consequences associated with physical inactivity and prolonged smart device exposure. Educational interventions such as handouts may serve as an effective strategy to enhance awareness and promote healthier lifestyle behaviours.

Objectives:

1. To assess the baseline awareness regarding sedentary lifestyle and cardiovascular risk factors associated with prolonged smart device use among college students.
2. To evaluate the effectiveness of educational handouts on improving awareness levels.
3. To determine the association between awareness scores and selected demographic variables.

Methods:

A quantitative pre-experimental one-group pretest–posttest design was adopted. The study was conducted among college students at a selected urban college in Gandhinagar, Gujarat. Participants were selected using a convenient sampling technique. Baseline awareness was assessed using a structured knowledge questionnaire. Educational handouts explaining sedentary lifestyle risks, cardiovascular complications, and preventive strategies were distributed. Post-test assessment was conducted after the intervention to measure improvement in awareness. Data were analyzed using descriptive and inferential statistics.

Results:

The findings revealed that students had moderate awareness during the pretest. Post-intervention scores showed significant improvement in awareness levels, indicating the effectiveness of educational

handouts. A significant association was observed between awareness scores and selected demographic variables such as daily smart device usage and physical activity levels.

Conclusion:
Educational handouts were found to be an effective, simple, and cost-effective strategy for improving awareness regarding sedentary lifestyle and cardiovascular risk factors among college students. Integrating awareness programs within college health promotion initiatives may help reduce long-term cardiovascular risk.

Keywords: Sedentary lifestyle, cardiovascular risk factors, smart device use, educational handouts, college students, awareness.

Introduction

The rapid evolution of digital technology has substantially transformed the lifestyle patterns of adolescents and young adults worldwide. Smart devices such as smartphones, tablets, and laptops have become integral components of daily life, supporting academic learning, communication, social networking, and entertainment activities. Although these technological advancements offer convenience and efficiency, excessive and prolonged use of smart devices has been associated with reduced physical activity and increased sedentary behaviour, which negatively affects overall health outcomes.

A sedentary lifestyle, characterized by prolonged sitting and minimal physical movement, has been recognized as a major modifiable risk factor for non-communicable diseases, particularly cardiovascular diseases, obesity, metabolic disorders, and mental health problems. Evidence suggests that extended screen time contributes to decreased energy expenditure, poor posture, sleep disturbances, and unhealthy lifestyle habits, all of which may increase the risk of cardiovascular complications over time. With the growing dependence on digital technology, sedentary behaviour among young populations has become an emerging public health concern.

College students represent a particularly vulnerable group due to academic workload, online learning environments, and increased engagement with digital media. Long hours spent on smart devices for study and recreational purposes often result in prolonged sitting, limited participation in physical activities, and irregular daily routines. These behaviour patterns, when sustained over time, may predispose young adults to early cardiovascular risk factors, highlighting the importance of timely awareness and preventive interventions during this developmental stage.

Health education plays a critical role in promoting awareness and encouraging healthy behavioural modifications. Educational handouts are simple, cost-effective, and easily accessible educational tools that can effectively disseminate essential health information and reinforce learning. By providing concise and structured knowledge regarding sedentary lifestyle risks and preventive strategies, such interventions may help students adopt healthier habits and reduce potential cardiovascular risks.

Therefore, the present study was undertaken to evaluate the effectiveness of educational handouts in improving awareness regarding sedentary lifestyle and cardiovascular risk factors associated with prolonged smart device use among college students.

Need for the Study

The increasing integration of digital technology into everyday life has significantly altered lifestyle behaviours among adolescents and young adults. With the widespread use of smartphones, tablets, and other smart devices, sedentary behaviour has become increasingly common among college students. Prolonged screen time often replaces physical activities, leading to reduced energy expenditure and unhealthy behavioural patterns that may negatively affect long-term health outcomes.

Sedentary lifestyle has been identified as an important modifiable risk factor for cardiovascular diseases and other non-communicable disorders. Early adoption of inactive habits during young adulthood may contribute to obesity, hypertension, metabolic disturbances, and increased cardiovascular risk later in life. Despite the growing prevalence of smart device use, many students remain unaware of the potential health consequences associated with prolonged sitting and excessive screen exposure.

Awareness-based interventions are essential to promote lifestyle modification and encourage preventive health practices among young populations. Educational interventions, particularly simple and cost-effective methods such as handouts, can effectively disseminate health information and improve knowledge levels. Conducting educational programs at the college level provides an opportunity to reach a large youth population and promote early adoption of healthy behaviours.

Therefore, the present study was undertaken to evaluate the effectiveness of educational handouts in improving awareness regarding sedentary lifestyle and cardiovascular risk factors associated with prolonged smart device use among college students. The findings of this study may contribute to preventive health promotion strategies and support the implementation of educational initiatives aimed at reducing the burden of non-communicable diseases among young adults.

Objectives of the Study

1. To assess pretest awareness regarding sedentary lifestyle and cardiovascular risk factors associated with prolonged smart device use.
2. To evaluate the effectiveness of educational handouts on awareness among college students.
3. To find the association between awareness levels and selected demographic variables.

Hypothesis

H1: There will be a significant difference between pretest and posttest awareness scores regarding sedentary lifestyle and cardiovascular risk factors after administration of educational handouts.

Materials and Methods

Research Design

A quantitative pre-experimental one-group pretest–posttest research design was adopted to evaluate the effectiveness of educational handouts on awareness regarding sedentary lifestyle and cardiovascular risk factors associated with prolonged smart device use.

Study Setting

The study was conducted at a selected urban college in Gandhinagar, Gujarat.

Study Population

The target population comprised college students who regularly used smart devices for academic as well as personal purposes.

Sample Size and Sampling Technique

The sample consisted of college students selected using a convenient sampling technique based on the inclusion criteria established for the study.

Data Collection Tool

Data were collected using a structured awareness questionnaire developed by the investigator. The tool consisted of the following sections:

- Demographic variables
- Awareness regarding sedentary lifestyle
- Awareness of cardiovascular risk factors associated with prolonged smart device use
- Preventive measures and healthy lifestyle practices

Intervention

The educational intervention included distribution of structured educational handouts designed to improve awareness among students. The handouts covered:

- Meaning and causes of sedentary lifestyle
- Effects of prolonged screen time on health
- Cardiovascular risk factors associated with inactivity
- Lifestyle modification strategies
- Recommendations for regular physical activity

Data Collection Procedure

A pretest was conducted to assess baseline awareness among participants. Following the pretest, educational handouts were distributed and explained to the students. A posttest was conducted after the intervention to assess the effectiveness of the educational handouts in improving awareness levels.

Data Analysis

Collected data were analyzed using descriptive and inferential statistical methods. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize the data. Inferential statistics, including paired t-test and chi-square test, were applied to determine the effectiveness of the intervention and the association between awareness scores and selected demographic variables.

Results

Table 1: Distribution of Participants According to Level of Awareness in Pretest and Posttest (N = 100)

Awareness Level	Pretest n (%)	Posttest n (%)
Poor	25 (25%)	5 (5%)
Moderate	50 (50%)	20 (20%)
Good	20 (20%)	45 (45%)
Excellent	5 (5%)	30 (30%)

Description

Table 1 shows the distribution of participants according to awareness levels before and after the educational intervention. In the pretest, the majority of students (50%) had moderate awareness, while 25% demonstrated poor awareness. Following administration of educational handouts, awareness levels improved considerably, with 45% of students achieving good awareness and 30% showing excellent awareness in the posttest. This indicates a positive impact of the educational intervention.
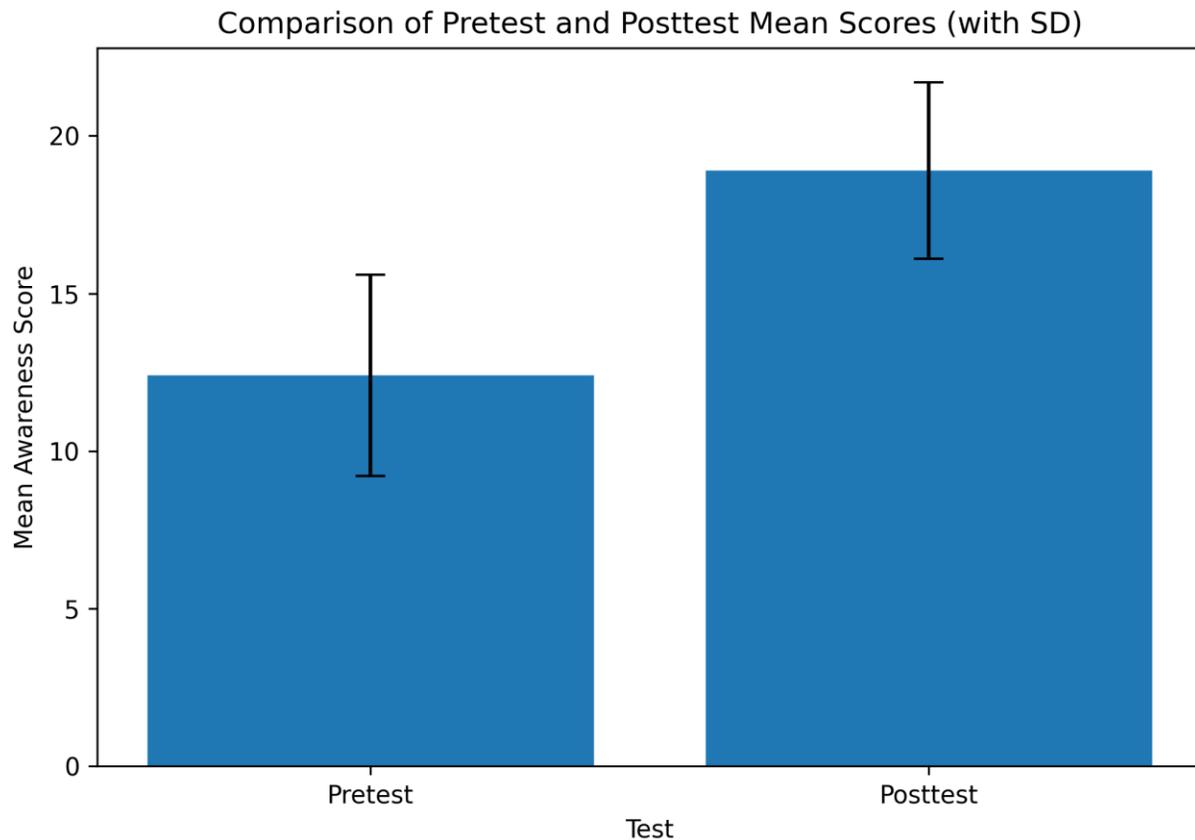
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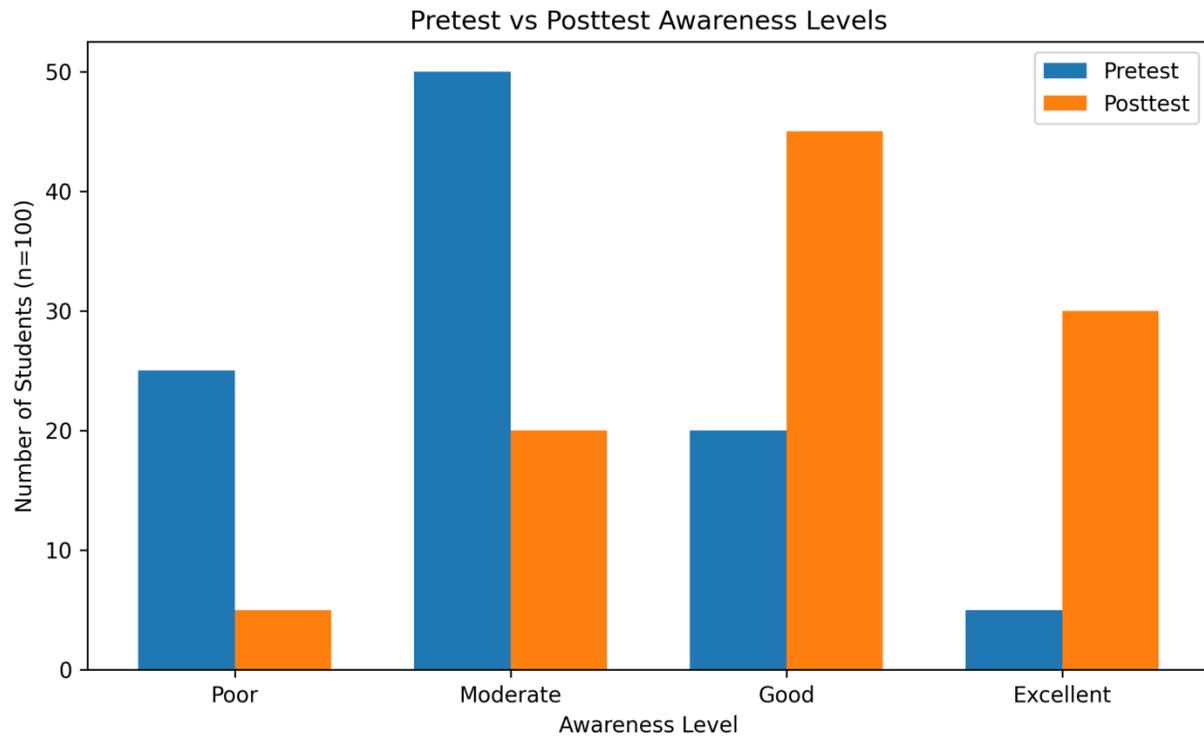
Table 2: Comparison of Pretest and Posttest Awareness Scores (N = 100)

Test	Mean Score	Standard Deviation (SD)	Mean Difference	t Value	p Value
Pretest	12.4	3.2			
Posttest	18.9	2.8	6.5	15.42	< 0.001

Description

Table 2 depicts the comparison between pretest and posttest awareness scores. The mean posttest score (18.9 ± 2.8) was higher than the pretest score (12.4 ± 3.2), indicating a marked improvement in awareness following the intervention. The paired t-test revealed a statistically significant difference between pretest and posttest scores ($p < 0.001$), confirming the effectiveness of educational handouts.

Comparison of Pretest and Posttest Mean Scores (with SD)

Table 3: Association Between Posttest Awareness Level and Selected Demographic Variables (N = 100)

Demographic Variable	Category	χ² Value	p Value	Significance
Duration of smart device use	≤4 hrs / >4 hrs	8.12	0.004	Significant
Physical exercise habits	Regular / Irregular	6.45	0.011	Significant
Age	18–20 / 21–23 years	2.10	0.147	Not Significant
Gender	Male / Female	1.35	0.245	Not Significant

Description

Table 3 illustrates the association between posttest awareness levels and selected demographic variables. A statistically significant association was found between awareness levels and duration of smart device use as well as exercise habits. However, age and gender did not show a significant association with posttest awareness scores.

Overall Interpretation of Results

The study findings demonstrated that most students initially had moderate awareness regarding sedentary lifestyle and cardiovascular risk factors associated with prolonged smart device use. Following the educational intervention, awareness scores improved significantly. The statistical analysis confirmed that educational handouts were effective in increasing awareness among college students. Behavioural factors such as duration of smart device use and exercise habits were significantly associated with awareness levels.

Discussion

The findings support previous studies emphasizing the importance of educational interventions in promoting awareness among young adults. Educational handouts serve as an effective method due to

their simplicity and ability to reinforce health information. Improved awareness among students highlights the potential role of nursing and health educators in promoting preventive cardiovascular health strategies in educational institutions.

Conclusion

Educational handouts significantly improved awareness regarding sedentary lifestyle and cardiovascular risk factors associated with prolonged smart device use among college students. Regular health education programs in colleges are recommended to encourage active lifestyles and prevent future cardiovascular complications.

Implications for Nursing Practice

- Nurses can conduct awareness programs in educational settings.
- Educational materials can promote early preventive health behaviour.
- Community health nurses can integrate lifestyle education into youth health programs.

Recommendations

- Similar studies can be conducted with larger samples.
- Comparative studies using different educational strategies may be undertaken.
- Long-term follow-up studies may be conducted to assess behavioural change.

(Sample) References – APA 7th Style

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