

# “An Experimental Study To Assess Efficacy Of Simulation To Reduce Screen Time Usage Among Professional Students In Selected Nursing College At Durg- Bhilai, Chhattisgarh”

“An Experimental Approach to Promote Digital Well-being Among Students”

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**Abstract:** Excessive screen time among professional students has become a significant concern due to its negative impact on physical health, mental well-being, and academic performance, particularly among nursing students who extensively rely on digital devices. This study aimed to assess the efficacy of simulation in reducing screen time usage among professional students in a selected nursing college at Durg-Bhilai, Chhattisgarh. A quantitative pre-experimental one-group pre-test and post-test design was adopted among 60 B.Sc. Nursing 7th semester students selected through purposive sampling. Data were collected using a self-structured questionnaire and observational checklist to evaluate screen-time behavior before and after the intervention. The simulation-based intervention focused on improving awareness, self-regulation, and behavioral modification related to digital usage. The findings revealed a statistically significant reduction in screen time usage in post-test compared to pre-test scores ( $p < 0.001$ ), along with improved behavioral practices and awareness levels among students. The study concludes that simulation is an effective and innovative strategy for promoting healthy digital habits and recommends its integration into nursing education to enhance students' well-being and academic performance.

**Index Terms:** Simulation-based intervention, Screen time reduction, Digital behavior, Nursing students, Professional students, Digital well-being, Self-regulation, Behavioral modification, Experimental study, Nursing education.

## I. INTRODUCTION

The rapid expansion of digital technology in the 21st century has significantly transformed learning, communication, and lifestyle behaviours, particularly among university students. Digital devices such as smartphones, laptops, and tablets have become essential tools for academic activities, social interaction, and entertainment. However, this widespread use has led to increased screen exposure, raising concerns about its impact on physical health, mental well-being, and academic performance. Excessive screen time has been associated with visual strain, musculoskeletal discomfort, sleep disturbances, reduced concentration, and increased stress, especially among nursing students who rely heavily on digital platforms for education and clinical preparation.

Globally and in India, students spend an average of 6–10 hours per day on digital devices, contributing to digital dependency and unhealthy lifestyle patterns. Despite growing awareness, traditional interventions such as counselling and awareness programs have shown limited effectiveness in producing sustained behavioural change. Simulation-based learning has emerged as an innovative, experiential approach that enhances self-awareness, critical thinking, and behavioural modification through realistic scenarios and active engagement. However, its application in reducing screen time among nursing students remains underexplored, particularly in regions like Chhattisgarh. Therefore, the present study aims to assess the efficacy of simulation in reducing screen time usage among professional students, contributing evidence for integrating simulation-based strategies into nursing education to promote digital well-being and healthier lifestyle behaviours.

## II. PROBLEM STATEMENT

“AN EXPERIMENTAL STUDY TO ASSESS EFFICACY OF SIMULATION TO REDUCE SCREEN TIME USAGE AMONG PROFESSIONAL STUDENTS IN SELECTED NURSING COLLEGE AT DURG, BHILAI, CHHATTISGARH.”

## III. OBJECTIVES

1. To assess pre and post interventional screen time usage among professional students.
2. To find out the effectiveness of simulation to reduce screen time among professional students.
3. To find out the association between pre-interventional screen time usage among professional students with selected socio demographic variable.

## IV. HYPOTHESIS

- H<sub>0</sub>** There will be no significant difference between pre and post interventional screen time usage among professional studies.  
**H<sub>1</sub>** There will be no significant difference between pre and post interventional screen time usage among professional studies.  
**H<sub>2</sub>** There will be a significant association between pre and post interventional screen time usage among professional students with selected sociodemographic variables.

## V. MATERIAL & METHOD

A quantitative pre-experimental one-group pre-test and post-test design was employed to evaluate the efficacy of a simulation-based intervention in reducing screen time usage among professional students. The study was conducted at Shankaracharya Swami Swaroopanand College of Nursing, Junwani, Bhilai, Chhattisgarh. The study population comprised B.Sc. Nursing students, with 60 seventh-semester students selected through non-probability purposive sampling based on inclusion criteria such as availability, willingness to participate, and ability to understand English.

Data were collected using a validated self-structured instrument consisting of three sections: socio-demographic variables, a 20-item multiple-choice questionnaire assessing screen-time usage and knowledge, and a 20-item observational checklist evaluating behavioural changes and the effectiveness of the simulation intervention. Content validity was established through expert review, and reliability was confirmed via a pilot study.

The procedure involved administering a pre-test to assess baseline screen-time behaviour, followed by a structured simulation-based intervention designed to enhance awareness, self-regulation, and behavioural modification. A post-test was conducted using the same tools to measure changes after the intervention. Data were analysed using descriptive and inferential statistics to determine the effectiveness of the intervention.

## VI. METHOD OF DATA ANALYSIS

**SECTION-I:** Distribution of subjects according to socio-demographic variables using frequency and percentage.

**SECTION-II:** Analysis of pre-test and post-test level of knowledge and efficacy of simulation to reduce screen time usages among professional students by using frequency and percentage.

**SECTION-III:** Criteria-wise analysis of pre-test and post-test level of knowledge and efficacy of simulation to reduce screen time usages among professional students by using Mean, Mean Percentage, and Standard Deviation.

**SECTION-IV:** Evaluation of the efficacy of simulation to reduce screen time by using paired t-test.

**SECTION-V:** Chi-square test to determine the association between pre-test level of knowledge and efficacy of simulation to reduce screen time usages among professional students with their selected socio-demographic variables.

## VII. MAJOR FINDINGS OF THE STUDY

The study findings demonstrated a significant improvement in both knowledge and efficacy related to reducing screen time usage among professional students following the simulation-based intervention. In the pre-test, 36.67% of students had poor knowledge, 51.67% had average knowledge, and only 11.66% had good knowledge; however, in the post-test, none of the students remained in the poor category (0%), 23.33% had average knowledge, and a majority of 76.67% achieved good knowledge. Similarly, pre-test efficacy levels showed that 43.33% of students had poor efficacy, 50% had moderate efficacy, and only 6.67% had good efficacy, whereas post-test results revealed no students in the poor category (0%), 30% with moderate efficacy, and 70% with good efficacy. The mean knowledge score significantly increased from  $8.23 \pm 3.237$  in the pre-test to  $15.5 \pm 2.254$  in the post-test ( $t = 14.148$ ,  $p < 0.05$ ), while the mean efficacy score improved from  $16.98 \pm 5.194$  to  $30.23 \pm 4.026$  ( $t = 15.485$ ,  $p < 0.05$ ), indicating statistically significant enhancement after the intervention. Furthermore, criteria-wise analysis showed complete elimination of poor knowledge and poor efficacy categories in the post-test, along with increased mean percentages in good knowledge (83%) and good efficacy (81.12%). These findings clearly confirm that the simulation-based intervention was highly effective in improving knowledge, self-regulation, and behavioural practices related to screen time reduction among nursing students.

## VIII. RECOMMENDATIONS

1. Similar studies may be conducted on a larger sample across multiple nursing colleges to improve the generalizability of results.
2. Future studies can incorporate a control group to strengthen the research design and validate the effectiveness of the simulation.
3. Long-term follow-up assessments should be carried out to determine the sustained impact of the intervention on screen time usage.
4. Practical behaviour-assessment or observational checklists may be included to evaluate actual changes in screen-use habits.
5. Regular workshops, seminars, and simulation-based training sessions on digital wellness are recommended for nursing students.
6. Educational interventions can be extended to students from other semesters and academic streams.
7. Comparative research may be conducted to analyse the effectiveness of different teaching approaches (e.g., pamphlet-based teaching, video-assisted learning, or blended methods).
8. Nursing administrators should consider developing standardized guidelines and educational modules on screen-time reduction.
9. Integration of simulation-based digital wellness education into routine academic activities or orientation programs is suggested.
10. Further research can explore the impact of screen-time reduction interventions on academic performance, mental health, and overall student well-being.

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