

Effect of Web-Based Health Education on Nursing Students' Knowledge, Adaptive Healthy Measures and Attitudes Regarding Polycystic Ovary Syndrome: A Randomized Controlled Trial

Abstract

This randomized controlled trial examined the impact of a web-based health education program on nursing students' understanding, attitudes, and health-promoting behaviors regarding polycystic ovary syndrome (PCOS). Participants were randomly assigned to receive either PCOS-specific digital modules or control content. Findings demonstrated significant improvements in the intervention group's knowledge, positive attitudes, and adoption of adaptive healthy measures, which were sustained at follow-up assessments. The study highlights the potential of digital learning as an effective and scalable tool in health education curricula.

Introduction

Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorders among women of reproductive age, linked to metabolic complications, infertility, and psychological distress. Despite its prevalence, awareness and clinical management remain inconsistent. Nursing students, as future health professionals, require adequate knowledge and a supportive attitude toward patients affected by PCOS. However, traditional education methods may not fully prepare them to address these challenges. Web-based educational interventions offer scalability, accessibility, and interactive learning opportunities, but evidence of their effectiveness remains limited. This study aimed to evaluate whether targeted digital education could improve nursing students' competence in PCOS-related care.

Methods

This randomized controlled trial included nursing students who were assigned to either an intervention group or a control group. The intervention group completed structured web-based modules specifically designed to increase understanding of PCOS pathophysiology, management strategies, and patient-centered care approaches. The control group received unrelated health education material. Knowledge, attitudes, and adaptive healthy measures were assessed using validated questionnaires at baseline, immediately post-intervention, and during follow-up periods. Statistical analyses compared within- and between-group differences over time.

Results

The intervention group demonstrated statistically significant improvements in all three outcome domains compared to the control group. Students exposed to the web-based program reported higher knowledge scores, more positive attitudes toward women with PCOS, and greater adoption of adaptive health measures. Importantly, these gains were maintained at follow-up, suggesting durable benefits of the intervention. The study findings confirm the effectiveness of digital health education in enhancing both cognitive and behavioral outcomes among nursing students.

Discussion

This trial supports the integration of web-based health education into nursing curricula as a means of improving competency in managing PCOS. Beyond factual knowledge, the intervention successfully influenced attitudes and behaviors, underscoring the multidimensional benefits of digital learning. The study aligns with broader evidence showing that interactive online programs can supplement or replace traditional teaching formats in health education. However, limitations include reliance on self-reported outcomes and a sample restricted to nursing students, which may limit generalizability. Further research with longer follow-ups

and diverse participant groups is needed to confirm the durability and scalability of such interventions.

Reviewer's Commentary

This article is a valuable contribution to medical education research. Its strength lies in applying a rigorous randomized controlled design to evaluate an accessible digital tool. The improvement in both knowledge and attitudes is particularly significant, as it reflects the potential of e-learning not only to transfer information but also to shape professional outlooks. A key future step would be testing this approach across other health disciplines and in broader community health settings. Additionally, assessing long-term behavioral outcomes beyond self-report would strengthen the evidence base. Overall, this study provides a convincing case for integrating web-based education into health training programs to address gaps in PCOS awareness and management.