

Effect of Educational Guidelines on Medical Surgical Nursing Students' Knowledge and Practices Regarding Sustainable Development Goals

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Abstract:

Background: Nursing education has a major impact on the Sustainable Development Goals. In addition to outlining the variables influencing health, the Sustainable Development Goals offer nurses treatment recommendations. **The study** aimed to determine the effect of educational guidelines on medical-surgical nursing Students' knowledge and practices regarding sustainable development goals. **Research design:** A Quasi-experimental research design was utilized to achieve the aim of the study. **Setting:** The study was conducted at the nursing faculty at Sohag University, Egypt **Subjects:** A convenient Sample that consisted of the 1st academic years (no. =700). **Tools for data collection:** A knowledge and practice of Sustainable Development Goals questionnaire. **Results:** The study's findings demonstrated that medical surgical nursing students had good knowledge and practices related to the Sustainable Development Goals post implementation of the educational guidelines than pre-educational guidelines implementation. **Conclusion:** The implementation of academic guidelines has a significant effect on improving nursing students' knowledge as well as practice regarding sustainability development goals. **Recommendations:** The sustainability development education program periodically should be implemented, refreshed, and implemented and its objectives frequently, and the principles of sustainability development to nursing students' curricula.

Keywords: Educational Guidelines, Knowledge and Practices, Medical-Surgical Nursing Students, Sustainable Development Goals

Introduction:

Nursing has been identified as a pivotal profession to drive action toward the achievement of the SDGs, with demonstrated alignment between health and each of the 17 goals. Yet, how and when nurses recognize their role and impact on the SDGs is not well known. Across the profession, there is a pressing need for earlier education on global goals (Schwerdtle et al., 2020). It has been proposed that this should start within higher education nursing studies (Fields et al., 2021), with the undergraduate nursing curriculum presenting an opportunity for initial exploration (Fields et al., 2021; Schwerdtle et al., 2020).

A global sustainable development agenda through 2030 was created during the United Nations (UN) Summit on Sustainable Development in September 2015 in New York. The summit also defined a list of targets to be achieved over the next fifteen years. The Sustainable Development Goals are a set of objectives that provide a shared framework for global peace and prosperity for both present and future generations. Another term for it is the "No One Left Behind" 2030 Agenda. 193 countries resolved to pursue these goals. They selected 17 Sustainable Development Goals, all of which the world's countries must immediately adopt. 169 objectives and 230 indicators were included in to

improve the state of the globe (**Sustainable development, 2021**).

In nursing, sustainability is conceptually defined as the long-term goal of preserving a safe environment for both the current and future generations. The healthcare sector urgently has to become more environmentally sensitive and sustainable, based on the moral need to implement a health-in-all-policies approach (as in "do no damage first"). The provision of healthcare affects the situation and contributes to climate change. As a result, nursing education should cover how nurses use and discard natural resources in the clinical setting as well as how they affect the situation. According to **Richardson et al. (2021)**, sustainability issues need to be incorporated into nursing courses in a way that makes them "locally more" and more applied to clinical settings.

The seventeen objectives outlined in the UN blueprint for a better world by 2030 include the following: the first is to end poverty; the second is to end hunger; the third is to promote good health and well-being; the fourth is to improve education; the fifth is to promote gender equality; furthermore, the sixth objective is to provide clean water and sanitation; the seventh is to provide affordable and clean energy; the eighth is to promote decent work and economic growth; and the ninth is to promote industry, innovation, and infrastructure; Furthermore, reducing inequality ranks 10th; sustainable cities and communities rank 11th; and responsible consumption and production rank 12th; Moreover, the thirteenth is taking action against climate change; the fourteenth is life below the surface of the ocean; the fifteenth is life on land; the sixteenth is peace, justice, and robust institutions; and the seventeenth is cooperation towards the goals (**Jati et al., 2019**).

A vital component of Sustainable Development Goal 3 is promoting health and well-being for people of all ages, and nursing is undoubtedly a significant part of achieving this goal. Nonetheless, the work of nurses also significantly influences other Sustainable Development Goals, sometimes known as the socioeconomic determinants of health (**International Council of Nurses, 2020**), such as increasing access to education and eradicating

poverty. Integrating ecological, globalized, and holistic perspectives is sustainability, which forms the basis of nursing practice. Since its concept takes environmental factors into account at all scales, its application will lead to innovations that conserve the situation for the benefit of the present and the next generation.

Ensuring healthy lives for everyone and improving the well-being of all employees of all ages are two of the UN Sustainable Development Goals that the healthcare sector is explicitly mandated to achieve. Community-wide changes will be necessary to address these effects, especially in the area of nursing education, where new nurses should be prepared to face and resolve challenging situations (**Anâker et al., 2021**).

Higher education is clearly interested in sustainability, but it's unclear how much more students are learning about it right now (**Michael et al., 2020**). Furthermore, **Moganadas et al. (2020)** found significant differences in the knowledge that university instructors had about the social, environmental, and economic aspects of sustainable development. Particularly in nursing, there exist gaps and uneven practices in areas where these global concerns are ignored. Health has been shown to be aligned with each of the seventeen Sustainable Development Goals, making nursing a crucial profession for advancing action toward its attainment (**WHO, 2021**).

Nursing professionals, including students, need to understand the links that exist locally and globally, as well as the health inequalities and global concerns that exist (**Gürgeç Simsek & Erkin, 2022**). Universities are increasingly seen as agents of change, helping to bring about the necessary changes to accomplish the 2030 goal and offering more than just specialized knowledge—they also help prepare students for global citizenship. Particularly in the nursing area, the Sustainable Development Goals are not well-known or utilized in higher education (**Fields et al., 2022**).

Significance of the study:

Nursing education can support students in becoming both direct and indirect change agents for a healthier community (**Lopez-Medina et al.,**

2019). A moral answer to the demand for global citizenship is the sustainable development goals incorporated into nursing education (Yoder et al., 2022). Through the concept of "global," the sustainable development goals provide a framework for nurse educators globally to develop the principles of global nursing practice and respond to demands for well-being and fairness. Students now comprehend the relationship between local and global health because nurse educators have included sustainable development goals in the educational materials. Increasing social pressure on higher education institutions (HEIs) to participate in sustainable development-related activities has made HEIs social change agents (Thornton and Persaud, 2018).

Sustainable development may proceed more quickly as a result of HEIs' widespread appeal and growing recognition of their role in creating and executing a sustainable model. Higher education institutions (HEIs) are becoming increasingly crucial for the development of academic and professional skills because they generate the human resources required to facilitate the shift from local community to global sustainable development. Education for sustainable development (ESD) hence promotes experiences and alters attitudes in addition to producing and sharing information. Students gain expanded environmental knowledge and critical thinking skills, which motivates them to create sustainable communities (Saleh & Elsabahy, 2022).

Aim of the study

This study aimed to determine the effect of educational guidelines on medical-surgical nursing Students' knowledge and practices regarding sustainable development goals.

Research hypothesis:

H1: Post-educational guidelines implementation, medical surgical nursing Students' knowledge mean score regarding sustainable development goals is expected to be higher post-implementation than pre-implementation.

H2: Post-educational guidelines implementation, medical surgical nursing students' practices mean score regarding sustainable development

goals is expected to be higher post-implementation than pre-implementation.

Subjects and Method:

Research design:

A quasi-experimental research design was used to achieve the aim of this study.

Settings:

The study was carried out by the faculty of nursing at Sohag University, Egypt.

Sample:

A convenient sample technique included a total of all medical-surgical nursing students from the 1st academic year during the "1st semester" of the education year (total number 700) in the previously mentioned setting recruited in the study.

Tools of the study:

Tool (I): Sustainable Development Goals questionnaire: The questionnaire was designed by the researchers based on the previous research of Omisore et al. (2017); Ahmad & Arifin (2018); as well as Borges (2019). It was classified into four parts. Part 1 was about the demographic data of the respondents. Parts 2, and 3 involved K and P towards the Sustainable Developments Goals.

Part 1: Demographic data: This included data such as (code, age, gender, and residence).

Part 2: Knowledge of Sustainable Development Goals: It included (10 items) and (6 questions multiple-choice questions). It is composed of 16 questions regard to the term **Sustainable development goals**, the number of **Sustainable development goals**, How many Targets in **Sustainable development goals**...etc. The questions scored as correct answers taken one degree as well as zero for the incorrect answer.

The Scoring system: of this part was classified as:

- | | |
|-----|--|
| (a) | < 60%: considered
poor knowledge 9.5 |
| (b) | 60% to 80%:
considered fair knowledge 9.6 |

– 12.7

(c) > 80% to 100%:
considered good knowledge 12.8 - 16

Part 3: Practice levels on Sustainable Development Goals: It included (14 items) ranging from always 4, sometimes 3, seldom 2, and never 1.

The Scoring system: of this part was classified as:

- (a) < 60%: considered poor practice 33.5
- (b) 60% to 80%: considered fair practice 33.6-44.7
- (c) > 80% to 100%: considered good practice 44.8-56

A pilot study

A pilot study was done on 10% of the sample once the tool was developed (**70 medical-surgical nursing Students**). It was done to detect any ambiguity in the tools, verify item transparency, and establish the time required for data gathering. The results of the pilot study were used to develop the final form of the tools, which included the clarification and testing of the practicality of the research process. Medical surgical nursing Students included in the pilot study were included in the study.

Administrative and ethical considerations:

Approval was obtained from the ethical committee of the faculty of nursing, at Sohag University to conduct this study. Before beginning the questionnaire, the researcher told the Medical-surgical nursing Students that the study was optional, that they might refuse to participate at any time, and that they could withdraw from the study at any time without giving a reason. Oral consent was obtained from the medical-surgical nursing Students. They were also told that their information would be kept private and solely utilized for research purposes.

Fieldwork:

Approval was obtained from the director of **Sohag** University. The study was conducted within the period from the beginning of September 2023 to the end of February 2024. At the beginning of the interview, the researchers greeted each

Medical-surgical nursing Student, introduced themselves, and explained the aim and nature of the study.

Phases of the study: The study was conducted through the following four phases:

I-Assessment Phase

- Every Medical surgical nursing Student was interviewed pre conducting the guidelines to collect the Medical surgical nursing Student's characteristics utilizing tool (I) part (1).
- Medical surgical nursing Students' knowledge and practice regarding sustainable development goals were assessed by utilizing tool (I) parts (2 and 3).

II. Planning phase:

The objectives, priorities, and predictable outcomes were articulated depending on the findings of the previous phase, to meet the medical-surgical nursing Students' practical needs and knowledge deficits related to sustainable development goals. Five sessions (3 theoretical and two practical) were planned by the researchers for the studied nurses

The educational guidelines

Educational guidelines were designed and revised. It included theoretical and practical sessions regarding sustainable development goals.

The general objective of simulation-based education sessions:

At the end of the sessions, the nurses were expected to acquire knowledge and practices regarding sustainable development goals.

This study aimed to evaluate the effect of educational guidelines on medical-surgical nursing Students' knowledge and practices regarding sustainable development goals.

Specific objectives of the program:

- Define the concept of sustainable development goals.
- Identify the origin of sustainable development goals.
- List the main objective of sustainable development goals
- Enumerate the influential factors to achieving the sustainable development goals.

- Discuss the role of Universities in sustainable development goals sensitization.
- Know the Importance of sustainable development goals.
- Identify the Strategies students suggested could be adopted to increase knowledge and practice about sustainable development goals.

III. Implementation phase:

- The implementation of educational guidelines on medical surgical nursing Students' knowledge and practices regarding sustainable development goals through four sessions; three theoretical and one practical session (around 30-45 minutes for each).
- At the beginning of each session, the researchers started by taking feedback about the previous session, and at the end of each session the researchers, gave a summary.
- The simplified booklet was used as supportive material and given to nurses in the Arabic language to cover all items regarding the knowledge and practice of sustainable development goals after reviewing the associated literature based on the assessment of the actual needs of the studied medical surgical nursing Students.
- Different teaching methods such as lectures, small group discussions, pictures, brainstorming, and case studies. Several teaching media were used, such as handouts, PowerPoint presentations, figures, flipcharts, and illustrated videos were used about sustainable development goals.
- The learning objectives are stated at the start of each session.
- Sessions were held in the nursing faculty's classrooms and were scheduled in accordance with the participants' study schedules.
- The researchers went over the schedule and content of the educational program's goals with the nursing students.
- Participants received information and feedback regarding the previous session prior to each session, and the current session was reviewed after each session.

The theoretical and practical sessions were carried out as the following.

The first session (Theoretical): At the beginning of this session, the researchers introduced themselves, welcomed the medical-surgical nursing students, showed gratitude for their sharing in the study, and explained the objectives of these educational sessions. The 1st session covered the following items; concept, origin, and the main objective of sustainable development goals.

Second session (Theoretical): these sessions covered the items related to the role of the role of Universities in sustainable development goals sensitization.

Third session (Theoretical): this session covered the influential factors to achieving the sustainable development goals and the Importance of sustainable development goals.

Fourth session (Practical): this session covered the strategies nursing students suggested could be adopted to increase knowledge and practice about sustainable development goals.

Fifth session (Practical): Started by taking feedback about the previous sessions, and answering any questions related to **sustainable development goals**, the researcher distributed the post-test, and then thanked all the participant nursing students for their sharing in the study.

IV-Evaluation phase:

In this phase, the researchers evaluate the effect of educational guidelines on medical-surgical nursing Students' knowledge and practices regarding sustainable development goals by using the posttest sheet after implementation using the same pretest questionnaire sheet.

Statistical analysis:

Using the SPSS version (25), the acquired data were tabulated, computerized, examined, and summarized to test the study questions. Frequency and percentage were used to express qualitative data. Less than 0.05 was regarded as significant, and probability (P-value) is the measure of significance. For the study of numerical data, the chi-square test, Fisher exact, and correlation analysis were utilized as statistical tests.

Results:

Table (1): shows that 76% of the studied medical surgical nursing students aged ≤ 19 years with mean \pm SD 19.1 ± 1.1 , 51% were

female students, and 80% lived in rural areas. Also, no one (0%) of them did not attend previous training programs regarding sustainable development goals.

Table (2) illustrates that there was a highly statistically significant difference between medical surgical nursing students' total knowledge mean scores regarding sustainable development goals pre and post-educational guidelines implementation at ($P < 0.001$).

Figure (1): illustrates that 94% of the studied medical surgical nursing students had poor knowledge about sustainable development goals pre-educational guidelines implementation decreased to 0.0% post-educational guidelines implementation and 95% of them had good knowledge level post-guidelines implementation with statistically significant differences $P < 0.0001$.

Table (3) illustrates that there was a highly statistically significant difference and improvement between medical surgical nursing students' total practices mean scores regarding sustainable development goals pre and post-educational guidelines implementation at ($P < 0.001$).

Figure (2): illustrates that 97% of the studied medical surgical nursing students had poor practices about sustainable development goals pre-educational

guidelines implementation decreased to 0.0% post-educational guidelines implementation and 98% of them had good practices level post guidelines implementation with statistically significant differences $P < 0.0001$.

Table (4) demonstrates that there is a substantial association ($p = 0.001, 0.03, 0.02$) between the knowledge, gender, and residence of medical-surgical nursing students.

Table 5 illustrates that As for gender, there is a substantial correlation ($p > 0.05$) in the pre-guidelines implementation, and a somewhat significant correlation ($p > 0.05$) exists in the post-educational guidelines implementation.

The total score of nurses' knowledge and practices before and after the educational guidelines implementation is correlated in **Table (6)**; with statistically significant differences ($p < 0.05$) between the knowledge and practice scores.

Table (7): evidence that fair association ($r = 0.247, P - \text{value} < 0.0001$) between knowledge of the studied sample and practice regarding SDGs pre-educational program. Also, there association between knowledge of the studied sample with practice regarding SDGs post-educational program ($r = 0.129, P - \text{value} < 0.018$).

Table (1): Medical surgical nursing students distribution regarding their demographic data (n = 700)

Items	No.	%
Age		
≤19	532	76.0
≥19	168	24.0
Mean ± SD	19.1 ± 1.1	
Gender		
Male	343	49.0
Female	357	51.0
Residence		
Rural	560	80.0
Urban	140	20.0
Previous attendance program regarding sustainable development goals		
Yes	0	0.0
No	700	100.0

Table (2): Differences in total knowledge mean scores regarding sustainable development goals among the studied medical surgical nursing Students' pre and post-educational guidelines implementation (N = 700)

Medical surgical nursing Students' knowledge of sustainable development goals	Study Group (n= 700)				X2	P-value
	Pre- educational guidelines		Post-educational guidelines			
	No	%	No	%		
Mean Knowledge total score	8.78±2.3		14.2±1.5		F=78.7 P=0.001HS	

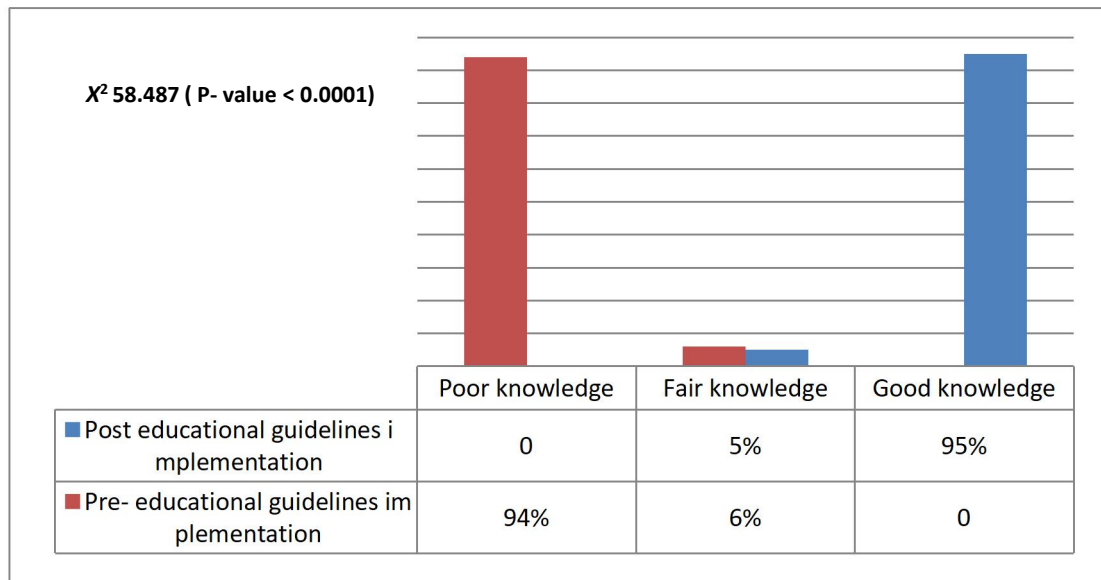


Figure (1): Total knowledge levels of the studied sample about sustainable development goals pre and post-educational guidelines implementation (n=700).

Table (3): Differences in total practices mean scores regarding sustainable development goals among the studied medical surgical nursing Students' pre and post-educational guidelines implementation (N = 700)

Medical surgical nursing Students' practices about sustainable development goals	Study Group (n= 700)				X2	P-value
	Pre- educational guidelines		Post-educational guidelines			
	No	%	No	%		
Mean practices total score	28.99±2.6		54.2±1.77		F=58.9 P=0.001HS	

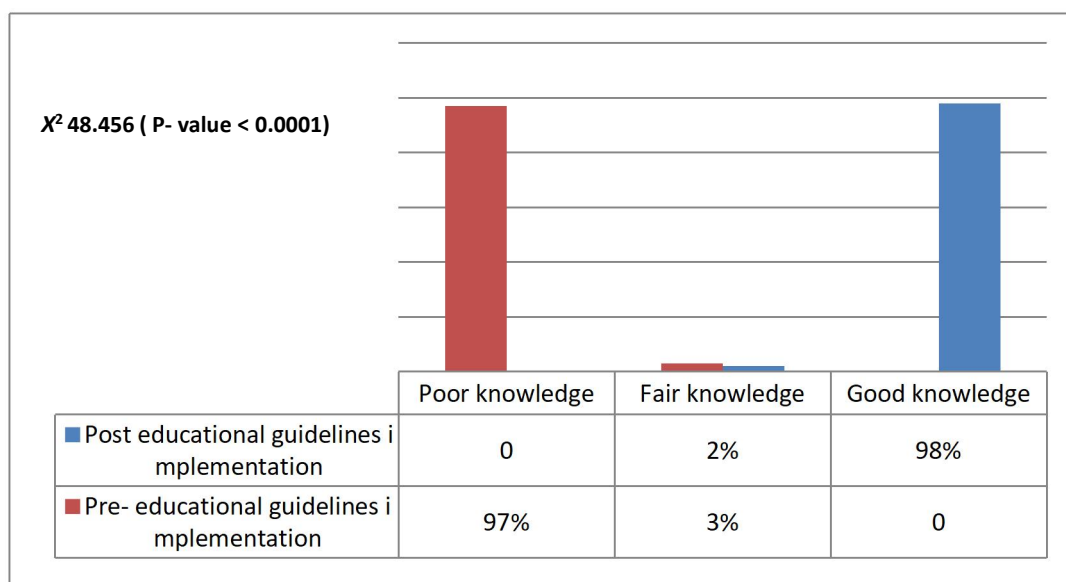


Figure (2): Total practice levels of the studied sample about sustainable development goals pre and post-educational guidelines implementation (n=700).

Table (4): Correlation between demographic data and total knowledge among the studied medical-surgical nursing students (n=700)

Demographic data	Total knowledge			
	Pre		Post	
	R	P	R	P
Age (years)	-0.005	0.7	-0.01	0.8
Gender	-0.46	0.001*	-0.25	0.03*
Residence	0.37	0.03*	0.36	0.02*

Table (5): Correlation between demographic data and total practice among the studied nurses (n=700)

Demographic characteristics	Total infection control practice			
	Pre		Post	
	R	P	R	P
Age (years)	0.35	0.05	-0.28	0.1
Gender	-0.46	0.001*	-0.24	0.2
Residence	0.34	0.04	0.04	0.6

Table (6): Correlation Co-efficient between the knowledge scores and practice scores pre and post-educational guidelines implementation

Correlation	Practice scores	
	R	P
Knowledge score		
Pre- Pre-educational guidelines implementation	0.189	0.368
Post-educational guidelines implementation	0.378	0.049*

Correlation is significant at the 0.05 level **

Table (7): Correlation matrix between knowledge and practices of the studied medical surgical nursing students regarding sustainable development goals pre and post-educational guidelines implementation

Items		Knowledg escores (pre)	Total Knowledge Scores (Post)
Total Knowledg escores (pre)	R		
	P - value		
Total practic escores (pre)	R	0.247	
	P - value	0.0001* *	
Total Knowledg eScores (Post)	R		
	P - value		
Total practic escores (Post)	R		0.129
	P - value		0.018*

*Correlation is significant at the 0.05 level **Correlation is significant at the 0.01 level

Discussion

To mitigate the effects of climate change on the healthcare sector, nurses are essential. Assessing students' views on sustainability and climate change is essential because nursing students should be open to a novel professional role in sustainability development (Anâker et al., 2021). Due to the significant effects of climate change and sustainability on the environment, society, and economy, higher education is in great demand worldwide (Shaw et al., 2021). To ascertain the impact of educational guidelines on medical-surgical nursing, a study was conducted. Understanding and application of sustainable development goals by students.

According to the current study's findings, the majority of the medical-surgical nursing students under study are from rural areas, and almost three-quarters of them are female. Their mean age was 19.1 ± 1.1 years. These findings might be the consequence of more students recently enrolling in nursing programs due to the advantages of working in the human services field, including job responsibilities, high compensation, and helping others.

According to the current study's findings, women made up over half of medical-surgical nursing students. The fact that women still make up the majority of nurses and that male enrollment at our faculties is still relatively low may be used to address it. The majority of their nursing students were female, according to Ebrahim et al. (2022), which is in line with this finding.

Most of the students studying medical surgery nursing were from rural areas. Rural residents are trying to raise their income because, according to research, their socioeconomic status is poor and their income is decreasing. According to Almaty (2016), rising unemployment, falling wages, and rising living expenses were the main causes of the increase in poverty and overall decline in rural living circumstances, especially for rural women. To improve socioeconomic standing, these improvements have resulted in rising wages and job searching for government jobs.

The current study's findings demonstrated that none of them had participated in a prior training session on sustainable development goals. The researchers believed that this demonstrated the

urgent need to implement the existing knowledge on sustainable development goals.

The current study's findings demonstrated that the mean scores of medical-surgical nursing students' overall knowledge of sustainable development goals before and after the application of educational guidelines differed in a highly statistically significant way. From the researchers' perspective, it demonstrated how important it is to implement educational guidelines in order to improve the knowledge of medical-surgical nursing students.

The current study's findings showed that the majority of medical-surgical nursing students had poor levels of knowledge about the Sustainable Development Goals prior to the implementation of educational guidelines. This knowledge level dropped to zero after the guidelines were implemented, and once the guidelines were implemented, the majority of the students had good levels of knowledge, which was statistically significant. Although the notion of sustainability development is widely recognized, nursing students may still be unfamiliar with it, which could explain this conclusion. Their nursing education also did not address this knowledge. Most of them also said that they had no idea what the Sustainable Development Goals were. Another explanation for this could be that nursing education is more difficult and intimidating for students, leaving them with little free time to attend workshops or training sessions.

According to **Anåker et al. (2021)**, nursing students found it challenging to implement sustainability and came to the conclusion that further education was necessary. The study also noted that the inability to connect or balance the many viewpoints on sustainability and climate change was another factor contributing to the conflict between these opposing viewpoints. More attention should be paid to global issues in nursing education, with a particular emphasis on the detrimental effects of climate change on human health (**Tiitta et al., 2021**).

According to **Shaw et al. (2021)** and **Aronsson et al. (2020)**, education plays a significant role in achieving sustainable development goals. Therefore, teaching aspiring nurses how to

provide sustainable healthcare must be a primary focus of nursing education.

The researchers speculate that these results might be explained by nursing students' low sustainability understanding, which they found resulted in low sustainability practices. The students were unable to comprehend the principles of sustainable development since they were unclear about them. They were not sufficiently equipped to embrace sustainable practices by comprehending their roles and responsibilities in climate change management and putting sustainable development principles into effect.

These findings are in line with those of **Ebrahim et al. (2022)**, who found that most students at the pre-educational intervention had low mean scores for knowledge, attitude, and conduct related to sustainable development.

The present study's findings demonstrated a highly statistically significant improvement and difference between the mean scores of medical-surgical nursing students' overall practices with respect to sustainable development goals before and after the adoption of educational guidelines. It confirmed the efficacy of the application of the educational instructions, according to the researchers.

According to the current study's findings, nearly all medical-surgical nursing students had poor practices regarding the sustainable development goals before the implementation of educational guidelines, and nearly all of them had good practices following the implementation of guidelines, with statistically significant differences. It demonstrated the benefits of using instructional principles, according to the researchers. This is corroborated by **Saleh & Elsabahy (2022)**, who noted the low mean for challenge practice at the time of the pre-educational intervention. With a highly significant improvement for both research groups, the post-intervention program for SNI and ENI also showed the highest mean scores for challenge practice. (.0001).

This result is consistent with that of **Aronsson et al. (2020)**, who asserted that climate change

impacts medical professionals' capacity as well as people's health. On a practical and policy level, nurses will need to be ready to tackle new difficulties. Nursing undergraduate programs that include clinically relevant sustainability sessions can help nurses challenge unsustainable behaviors and make changes, according to one study. However, there were still issues that needed to be addressed in order to improve students' self-esteem and workforce comprehension in general.

The current study's findings showed that medical-surgical nursing students' expertise, gender, and place of residency are significantly correlated. This can be explained by the fact that first-year students reported knowing less than those in previous academic years. People with more education and experience should naturally be more knowledgeable and conscious. Similar results were found by **Sunthonkanokpong & Murphy (2019)**, who show a discernible variation in awareness throughout time. More alertness was indicated by second-year students than by those in the first, third, fourth, and fifth years. There are statistically significant differences between students' perspectives regarding sustainable development goals and their age, which is verified by the findings of **Abd Elhamed et al. (2022)**. Moreover, disagree with this finding of **He et al., (2020)** who came to the conclusion that residents of places with greater standards of living are more likely to pay for environmental preservation.

The findings of the present study showed a correlation between statistically significant differences in nurses' knowledge and practice scores and their overall scores before and after the application of educational guidelines. It validated the effectiveness of the application of the educational instructions, according to the researchers. Also, it was reflected that bettering medical surgical nursing students' practices is linked to bettering knowledge. This correlation clarifies why more information results in more practices. Furthermore, the study's medical-surgical nursing students were able to practice successfully after gaining sufficient knowledge.

Afroz & Ilham (April 2020) evaluated university students' knowledge, attitudes, and practices regarding sustainable development goals and discovered that there was a difference between

these results. Students are well-informed about the sustainability development goals, but they are not practicing them enough, as seen by the modest negative association between their knowledge and practice of the goals. Conversely, there was a statistically significant and highly positive correlation between students' practice level and sustainability development goals, indicating that students will be more motivated to practice at a high level if they have a positive understanding of these goals.

Conclusion:

From the findings of the present study, it can be concluded that the implementation of educational guidelines has a significant effect on improving medical-surgical nursing students' knowledge as well as practice regarding sustainability development goals. This improvement in knowledge and practices was a highly significant difference among the medical-surgical nursing students.

Recommendations:

Based on the current study findings, it can be recommended that:

- A sustainability development education program should be introduced, updated, and implemented on a regular basis. Its goals should also be regularly updated, and nursing students' curricula should incorporate the concepts of sustainability development.
- It is imperative that written standards pertaining to sustainability development goals be periodically reviewed and updated. Diagrams and clear instructions should be included in these resources.
- Using social media and the internet, nursing students are being educated about the concept and goals of sustainability development.
- Using a variety of teaching approaches, address sustainability development in the curriculum to prepare nursing students for their professional role in sustainability development.

- To generalize the findings, more research is needed, including a replication of the current study with a large sample of students in various situations.

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