

Faculty of Nursing Students' Attitudes toward Sustainable Development Goals

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Abstract:

Introduction: students' attitudes toward sustainable development goals are key factor in any future efforts to sustain and reservation the current resources for future generations. **Aim:** Assess Faculty of Nursing students' attitudes toward sustainable development goals. **Study design:** A Correlational descriptive research design was used. **Setting:** This study was conducted at Faculty of nursing –Assiut University. **Subject and Method:** Stratified random sample from Faculty of Nursing students with total number (343) students. The data collected through self – administered questionnaire which includes personal characteristics data, Attitudes toward sustainable development scale. **Results:** The highest mean scores (**13.05±1.8 and 13.05±1.8**) of student's attitudes toward sustainable development goals are regarding to society and education goals. There are highly statistically significant differences between academic year and sustainable development goals. **Conclusion:** Faculty of nursing students have positive attitudes toward sustainable development goals. **Recommendation:** The curriculum of all faculties should include sustainable development goals.

Keywords: Faculty of Nursing, Students' attitudes & Sustainable development goals.

Introduction:

The concept of sustainable development (SD) was initially introduced in 1987 in the Brundtland Commission report titled "Our Public Future." The definition of sustainable development is "development that satisfies the requirements of the present without compromising the capacity of the future generations to satisfy their needs." There is rising evidence that many countries are not pursuing development strategies that are sustainable into the future despite this emphasis and acknowledgement of the necessity of sustainable development (Kelley, & Nahser, 2019).

For local, regional, and international organizations and nations, the idea of sustainable development has taken top importance, with an emphasis on preserving the present for the benefit of coming generations. Everyone in the globe, from families to government institutions to commercial groups, should regularly perform sustainable development goals (Abu-Alruz, & Hailat, 2020).

Sustainable development is meeting the requirements of the current population without jeopardizing the ability of the following generation to do the same. It's about enhancing everyone's wellbeing, no matter where they are, and reaching this milestone jointly (Rosa, et al., 2019).

A human development paradigm known as sustainable development (SD) strives to address human needs while protecting the environment so that

they can be satisfied not just now but also for future generations (Allen, et al., 2020).

A set of 17 interconnected global objectives known as the Sustainable Development Goals (SDGs) was created as a road map (plan) for achieving a better and more sustainable future for all people. The 17 Sustainable Development Goals are: no poverty, zero hunger, good health and wellbeing, quality education, gender equality, access to clean energy, decent work and economic growth, industry, innovation and infrastructure, reducing inequality, sustainable cities and communities, responsible consumption and production, climate action, life below the ocean, life on land, peace, justice, and strong institutions, as well as partnerships for the goals (Cutter, 2020).

According to Thomas, (2020) one of the primary duties of the university system is to turn out graduates who have a high level of sustainable development. Based on that rationale, colleges have started offering education for sustainable development to assist students in acting as local and global citizens with regard to social, economic, and environmental challenges. In order to achieve a sustainable future, many of the problems that humans confront may be solved with the help of the university system.

Significance of the study:

Education is seen as an instrument of empowerment that may assist individuals in achieving sustainable development and in making critical decisions in favor of social justice, environmental preservation, and

economic viability for both the present and the future (Barth, et al., 2020). Because Faculty of Nursing, Assiut University seeks to achieve the international accreditation on nursing program, it including sustainable development in nursing curriculum, so, they intended to study faculty of nursing students' attitudes toward sustainable development goals after including in nursing curriculum.

Aim of the study:

Assess faculty of nursing students' attitudes toward sustainable development goals.

Research questions: The research questions that guide this study are:

- What is faculty of nursing students' attitudes toward sustainable development goals?
- What are the associations between personal characteristics and students' attitudes toward sustainable development goals?

Subject and Method:

Design: A Correlational descriptive research design was used.

Setting: This study was conducted in Faculty of Nursing at Assiut University.

Subject: Students of Faculty of Nursing.

Sample: Stratified random sample from Faculty of Nursing students (343) was selected by using margin of error (5%), confidence level (95%), response distribution(50%).

$$E. = \text{Sqrt}[\frac{(N - n) \times n}{n(N-1)}]$$

(<http://www.raosoft.com/samplesize.html>)

Academic year	Total	Sample selected
First year	722	83
Second year	1217	138
Third year	660	75
Fourth year	411	47
Total	3010	343

Data collection tools:

Study tool (I): Personal characteristics data: it includes age, gender, place of residence, marital status, and academic year.

Study tool (II): Attitudes toward sustainable development scale was developed by Biasutti, & Frate, (2017). It consists of 20 items divided into 4 goals as follows: environment (5 items), economy (5 items), society (5 items), and education (5 items).

Scoring system: The participants were asked to indicate their agreement or disagreement with the questionnaire statements by using a 3 point Likert scale in which response for each item ranging from agree = (3), neutral= (2), disagree = (1). Means and standard deviations were computed for items of the four sustainable development goals. To determine attitudes of students' responses, the following classification was followed: above 9 (positive attitudes) and below 9 (negative attitudes).

Administrative design: An official permission was obtained from dean of faculty of nursing and vice dean for education and students affairs and explaining to students the purpose of the study, and asking them for their consent to participate.

Operational design:

1) Preparatory phase: After reviewing the available literature concerning the topic of the research, which took about one month from the beginning to the end of January 2022 to end the proposal of the research. Arabic translation of the research tool was done.

2) Ethical considerations: Research proposal was approved from Ethical Committee at the Faculty of Nursing, Assiut University, there is no risk for study participants during application of the research, the study was followed common ethical principles in clinical research, oral agreement was obtained from the participants in the present study, study participants have the right to refuse or to participate and/or withdraw from the study without any rational at any time, confidentiality and anonymity was assured during collection of data.

3) Validity: Face validity was done to assure accurate comprehension of the study tool, which was done through a jury (expert opinions) composed of 2 professors and 3 assistant professors from the Nursing Administration and Community Health Nursing Departments, Faculty of Nursing, Assiut University. Also, **content validity** was checked and analyzed using confirmatory factor analysis test to assure (importance, clearness, and accountability of each items of the study tool) and its result was ≥ 1.2 for all items of the study tool (attitudes toward sustainable development scale), so all items in the study tool were confirmed.

4) Pilot study: A pilot study was carried out to assess tool clarity and applicability. Moreover, to identify problems that could encounter during the actual data collection. Pilot study was conducted on 78 students that represented 10% of the total sample. No changes were done after the pilot study, so the students included in the pilot study was included in the total study sample.

5) Data collection: The study tool was given to the participated students to be filled through self-administered questionnaire. The study tool took about ten minutes for each participant to fill the questionnaire. The whole duration for data collection took about two months from March to April 2022.

Statistical design:

Data entry and statistically analysis was done using SPSS 20.0 Statistical Software Package. Data were presented using descriptive statistics in the form of frequencies, percentages, mean, standard deviation, range, paired t- test, and a nova test. Statistical significance was considered at P-value ≤ 0.05 .

Results:**Table (1): Distribution of Personal characteristics data of studied nursing students (n=343)**

Personal characteristics data	No	%
Academic year		
First year	83	24.2
Second year	138	40.2
Third year	75	21.9
Fourth year	47	13.7
Age		
Less than 20 year	166	48.4
From 20-22 year	162	47.2
More than 22 year	15	4.4
Mean ± SD (range)	20.58±1.11(18-24)	
Gender		
Male	189	55.1
Female	154	44.9
Marital status		
Married	6	1.7
Single	335	97.7
Widow	2	0.6

Table (2): Mean Scores of nursing students' attitudes toward sustainable development goals (n=343)

Sustainable development goals	Mean ± SD
Environment goal	11.88±1.97
Economic goal	12.04±1.84
Society goal	13.05±1.8
Education goal	13.05±1.8
Total	50.01±5.39

Table (3): Correlation between attitudes toward sustainable development goals as perceived by nursing students (n=343)

Sustainable development goals	R	P. value	Environment goal	Economic goal	Society goal	Education goal
Environment goal	R					
	P					
Economic goal	R		0.326			
	P		0.000**			
Society goal	R		0.198	0.452		
	P		0.000**	0.000**		
Education goal	R		0.251	0.479	0.417	
	P		0.000**	0.000**	0.000**	

** Statistically Significant correlation at P. value <0.01

Table (4): Relationship between academic years of nursing students and their attitudes toward sustainable development goals (n=343):

Sustainable development goals	Academic year				P. value
	Mean ± SD				
	First year	Second year	Third year	Fourth year	
Environment goal	11.65±1.78	12.47±1.96	10.89±1.77	12.15±1.96	<0.001**
Economic goal	11.95±1.53	12.88±1.67	10.49±1.49	12.19±1.7	<0.001**
Society goal	12.69±1.6	14.12±1.23	11.15±1.94	13.51±1.61	<0.001**
Education goal	13.18±1.53	13.49±1.64	12.24±2.04	12.79±1.85	<0.001**

** Statistically Significant differences at P. value <0.01

Table (5): Relationship between nursing students' age and their attitudes toward sustainable development goals (n=343):

Variables	Age			F value	P. value
	Mean + SD				
	<20	20 – 22	>22		
Environment goal	12.14±1.83	11.44±2	13.8±1.47	13.652	< 0.001 **
Economic goal	12.08±1.76	11.91±1.93	13±1.36	2.543	0.080
Society goal	13.12±1.83	12.84±2.04	14.27±0.8	4.153	0.017 *
Education goal	13.07±1.77	13.04±1.84	12.87±1.77	0.085	0.919

** Statistically Significant differences at P. value <0.01

A nova test was used

Table (6): Relationship between marital status of nursing students and their attitudes toward sustainable development goals (n=343):

	Marital status			F value	P. value
	Mean + SD				
	Married	Single	Widow		
Environment goal	9.67±0.82	11.93±1.96	10±0	4.943	0.008 **
Economic goal	11.83±1.33	12.04±1.85	13±0	0.310	0.734
Society goal	12.17±3.19	13.07±1.9	11±0	1.782	0.170
Education goal	12.17±1.72	13.06±1.8	14±0	1.005	0.367

** Statistically Significant differences at P. value <0.01

A nova test was used

Table (7): Relationship between gender of nursing students and their attitudes toward sustainable development goals (n=343):

Sustainable development goals	Gender		t value	P. value
	Mean + SD			
	Male	Female		
Environment goal	11.78±1.98	12.01±1.95	1.093	0.296
Economic goal	12.23±1.76	11.81±1.9	4.650	0.032 *
Society goal	12.97±1.93	13.12±1.92	0.471	0.493
Education goal	13.07±1.78	13.01±1.83	0.098	0.755

** Statistically Significant differences at P. value <0.01

paired t test was used

Table (8): Relationship between place of residence of nursing students and their attitudes toward sustainable development goals (n=343):

Sustainable development goals	Place of residence		t value	P. value
	Mean + SD			
	Rural	Urban		
Environment goals	12.16±2.01	11.65±1.91	5.739	0.017 *
Economic goals	11.95±2.11	12.12±1.58	0.719	0.397
Society goals	12.9±2.02	13.16±1.83	1.529	0.217
Education goals	13.04±1.87	13.05±1.74	0.000	0.987

** Statistically Significant differences at P. value <0.01

paired t test was used

Table (1): Shows that more than one third (40.2%) of the studied students in the second year, nearly half (48.4%) of them their age is less than 20 years old, males are constituted in more than half of them (55.1%) and the majority (97.7%) of them are single. **Table (2):** Illustrates that the highest mean scores of student's attitudes toward sustainable development goals are regarding to society and education goals

(13.05±1.8 & 13.05±1.8) respectively followed by economic goal (12.04± 1.8).

Table (3): Demonstrates that, there are highly positive correlation with statistically significant differences among all sustainable development goals (P. value <0.01).

Table (4): Reveals that the highest mean scores of attitudes toward sustainable development goals

among second year nursing students are regarding to society, education, economic, and environment goals (14.12 ± 1.23 , 13.49 ± 1.64 , 12.88 ± 1.67 & 12.47 ± 1.96) respectively. There are highly statistically significant differences between students attitudes toward sustainable development goals and their academic years (**P. value <0.01**).

Table (5): Shows that the highest mean scores of attitudes toward sustainable development goals among students who their age more than 22 years as regard to society, environment, and economic goals (14.27 ± 0.8 , 13.8 ± 1.47 & 13 ± 1.36) respectively. There are statistically significant differences between age of students and their attitudes toward the environment and the society goals **P. value (<0.001 & 0.017)** respectively.

Table (6): Illustrates that the highest mean scores of attitudes toward sustainable development goals among students who are single as regard to society & environment goals (13.07 ± 1.9 & 11.93 ± 1.96) respectively. There are statistically significant differences between marital status of students and their attitudes toward the environment goal **P. value (0.008)**.

Table (7): Reveals that the highest mean scores of attitudes toward sustainable development goals among students who are female as regard to society & education goals (13.12 ± 1.92 & 13.01 ± 1.83) respectively. There are statistically significant differences between gender of students and their attitudes toward the economic goal **P. value (0.032)**.

Table (8): Shows that the highest mean scores of attitudes toward sustainable development goals among students who live in urban as regard to society & education goals (13.16 ± 1.83 & 13.05 ± 1.74) respectively. There are statistically significant differences between place of residence for the students and their attitudes toward the environment goal **P. value (0.017)**.

Discussion

Human progress is largely influenced by education, which can keep a world secure and productive by addressing challenges relating to sustainability (Somayyeh-Ghorbani, et al., 2018). The educational system has a duty to address the difficulties brought about by the sustainability issue (Carbach & Fischer, 2017). Therefore, the primary aim of this study is to assess faculty of nursing students' attitudes toward sustainable development goals. The pillars of sustainable development investigated in this study have been grouped into four dimensions, including the environment, economy, society, and education.

As revealed from the current study, faculty of nursing students have positive attitude toward

sustainable development goals. This might be attributed to students received most of their information about the sustainable development goals from formal education and will have final test exam.

This finding was consistent with Al-Naqbi & Alshannag, (2018) who mentioned that education of Sustainable Development (ESD) is a platform for combining the necessary information, skills, and values to infuse the essential concepts of SD among students, and it is one means of disseminating the concepts and principles of SD to many people through education.

Also was consistent with Balamuralithara et al., (2020) who mentioned that the students in Malaysia have favorable opinions and attitudes about sustainable development, particularly when it comes to environmental concerns.

This finding was inconsistent with Maragakis, & Van den, (2016) who stated that students lacked understanding and awareness of the environmental aspect of sustainability and how it can influence the quality of life of current and future generations. Students weren't introduced to the importance of the environment as a sustainable development practice in the curriculum, despite the fact that they should be aware that any damage to the environment is a threat to the nation's development efforts.

Also this finding inconsistent with Zainordin et al., (2017) who found that due to a lack of exposure and an emphasis on SD, Malaysian students' understanding of SD was not encouraging.

From the findings of the current study, there was a positive correlation with highly statistically significant differences among all sustainable development goals. This might be attributed to faculty play an important role in building a knowledgeable society and thereby help in building a sustainable and secure future for the society, these will improve health, decrease poverty, achieve environment protection and improve education and its spread.

This finding was consistent with Biasutti, (2015) who stated that Education is thought to be essential for promoting sustainable development and improving peoples' capacity to deal with sustainable development concerns. Education is crucial for fostering environmental and ethical awareness among people, as well as values and attitudes that are consistent with sustainable development, and must be taken into account equally with the other elements of SD.

Additionally, this finding was consistent with Olsson et al., (2015) who stated that the development of awareness of the resources and the vulnerability of the physical environment is referred to as the environment. The economy is concerned with

understanding boundaries, the possibility for economic growth, and possible effects on the community and environment. Democracy is seen as the foundation of society, giving people the opportunity to actively engage in political affairs, voice their ideas, and choose their representatives. Society, the economy, and the environment are seen as interconnected.

Also, consistent with **Pakkan, (2022)** who discovered a significant correlation between several sustainable development objectives in research projects. This shows that a solid foundation is required for the sustainable development objectives agenda to be successfully implemented in universities' future research. The link between sustainable development objectives is encouraging for colleges to carry it out effectively.

As revealed from the current study the highest mean scores of attitudes toward sustainable development goals among second year nursing students are regarding to society, education, economic, and environment goals. There are highly statistically significant differences between students attitudes toward sustainable development goals and their academic years.

This finding was inconsistent with **Al-Naqbi, Alshannag, (2018)** who indicated that fourth-year students had the highest mean score, whereas the first-year students had the lowest mean score.

Also, this finding was inconsistent with **Tuncer, (2018)** who indicated that no significant differences among students on the basis of their academic levels and GPA scores and sustainable development goals. Additionally, was inconsistent with **Erdogan, (2019)** who indicated that first-year students have more positive attitudes toward environmental goal than older students.

Ongoing on the study findings, the highest mean scores of attitudes toward sustainable development goals among students who their age more than 22 years as regard to society, environment, and economic goals. There are statistically significant differences between age of students and their attitudes toward the environment and the society goals. This result might be attributed to that fourth year students is the most academic year participate with the faculty in health education campaigns in community and they learn basics about nursing that enable them to work in private hospitals (undergraduate).

This finding was consistent with **Levine & Strube, (2019)** who showed that older students with more college experience have more clear and positive environmental attitudes.

This finding was inconsistent with **Gelissen, (2017)** who stated that age and educational attainment were

utilized as individual-level control variables and found that younger groups exhibit higher levels of environmental support (than older birth groups), and educational attainment, in general, relates positively to environmental attitudes.

Moreover, the study findings demonstrated that the highest mean scores of attitudes toward sustainable development goals among students who are single as regard to society & environment goals. There are statistically significant differences between marital status of students and their attitudes toward the environment goal.

This finding was in consistent with **Qin, et al., (2018)** who confirmed that having children is a key factor for acting environmental concerns.

The study findings demonstrated that the highest mean scores of attitudes toward sustainable development goals among students who are female as regard to society & education goals. There are statistically significant differences between gender of students and their attitudes toward the economic goal. This might be attributed to regarding to Egypt vision 2030 that seek to increase women involvement from this point women become more initiative in community participation.

This finding was consistent with **Al-Naqbi & Alshannag, (2018)** who revealed that female students were more knowledgeable about SD/ESD compared to male students.

Also the study finding was consistent with **Vicente-Molina et al., (2020)** who concluded that gender affects environmental behavior and that females are more likely to carry out environment-friendly activities in both advanced and developing countries. This finding was inconsistent with **Das, et al., (2014)** who found that there was no significant difference in the awareness of sustainable development between boys and girls in senior high school.

In addition this finding was inconsistent with **Levine & Strube (2019)** who reported that females showed less knowledge about environmental issues. And the results of this study in terms of the gender variable, as there were no relationship with the knowledge on sustainable development goals among the students.

The study findings demonstrated that the highest mean scores of attitudes toward sustainable development goals among students who live in urban as regard to society & education goals. There are statistically significant differences between place of residence for the students and their attitudes toward the environment goal. This might be attributed to urban place have greater social and political involvement in communities and people more likely to work together to achieve a desired outcome, such as protecting the environment and social and physical features, so students in urban place have better

quality of life, better physical and psychological health, more satisfying social relationships, and greater satisfaction with one's physical environment

This finding was consistent with **Anton & Lawrence, (2014)** who said that place identity are correlated with environmentally responsible behavior and advocacy for the environment.

Additionally, this finding was consistent with **He, et al., (2020)** who concluded that people in areas with higher standards of living are disposed to pay for environmental protection.

Conclusions:

- The highest mean scores of student's attitudes toward sustainable development goals are regarding to society and education goals.
- There are highly statistically significant differences between academic year and sustainable development goals (Environment, Economic, Society, and Education goals).
- Faculty of nursing students have positive attitude toward sustainable development goals (Environment, Economic, Society, and Education goals)

Recommendations:

- The government should put more an emphasis on higher education to advance sustainable development goals by promoting welfare and reducing social inequality.
- The curriculum for all faculties should include sustainable development goals.
- Hold seminars to raise students' awareness of sustainable development goals.
- Through research, universities encourage students to pursue interdisciplinary projects related to the SDGs and support new sustainable development solutions.

References

- **Abu-Alruz, J. & Hailat, S., (2020):** Attitudes toward Pillars of Sustainable Development: The Case for University Science Education Students in Jordan. *Journal of Teacher Education for Sustainability*, Vol. 20, No. 2, Pp. 64-73. DOI: 10.2478/jtes-2018-0015.
- **Allen, C., Metternicht, G., & Wiedmann, T., (2020):** National pathways to the Sustainable Development Goals (SDGs): a comparative review of scenario modeling tools. *Environ Sci Policy*, Vol.18, No. 66, Pp.199–207.
- **Al-Naqbi, A., & Alshannag, Q. (2018):** The status of education for sustainable development and sustainability knowledge, attitudes, and behaviors of UAE University students. *International Journal of Sustainability in Higher Education*, Vol.19,

No.3, Pp.566-588. <https://doi.org/10.1108/IJSHE-06-2017-0091>

- **Anton, C., & Lawrence, C., (2014):** Home is where the heart is: The effect of place of residence on place attachment and community participation, *Journal of Environmental Psychology* Vol.4, No. 40, Pp. 451- 461
- **Balamuralithara, B., Fumihiko, T., Hidekazu, B., & Kanemitsu, H., (2020):** Perceptions and Attitudes towards Sustainable Development among Malaysian Undergraduates, *International Journal of Higher Education* Vol. 9, No. 1, Pp. 44- 51. <http://ijhe.sciedupress.com>
- **Barth, M., Godemann, J., Rieckmann, M., & Stoltenberg, U. (2020):** Developing key competencies for sustainable development in higher education. *International Journal of Sustainability in Higher Education*, 8, 416n430.
- **Biasutti, M. (2015):** “An Intensive Programme on Education for Sustainable Development: The Participants’ Experience.” *Environmental Education Research*, Vol. 21, No. 5, Pp. 734–752.
- **Biasutti, M., & Frate, S. (2017):** A validity and reliability study of the attitudes toward sustainable development scale. *Environmental Education Research*, Vol.23, No.2, Pp. 214-230.
- **Carbach, E., & Fischer, D., (2017):** Sustainability reporting at schools: Challenges and benefits. *Journal of Teacher Education for Sustainability*, Vol.19, No.1, Pp.69-81.
- **Cutter, A., (2020):** Map the interactions between Sustainable Development Goals. *Environment, development and sustainability journal*, Vol. 16, No.2, Pp. 334-340.
- **Das, S, Halder, U., & Bairagya, S., (2014):** Awareness of School Students about Sustainable Development in Education. *PolySciTech*. Vol.1, No. 5, Pp.112–116.
- **Erdogan, N., (2019):**“Environmental worldviews in higher education: a case study of Turkish college students”, *Procedia – Social and Behavioral Science*, Vol. 106, Pp. 1086-1095.
- **Gelissen, J., (2017):** Explaining popular support for environmental protection: A multilevel analysis of 50 nations. *Environ. Behav.*, Vol. 39, No.22, Pp.392–415.
- **He, X., Hong, T., Liu, L. & Tiefenbacher, J. (2020):**“A comparative study of environmental knowledge, attitudes and behaviors among university students in China”, *International Research in Geographical and Environmental Education*, Vol. 20, No. 2, Pp. 91-104.
- <http://www.raosoft.com/samplesize.html>
- **Kelley, S., & Nahser, R. (2019):** Developing sustainable strategies: Foundations, method and

- pedagogy. *Journal of Business Ethics*, Vol.123, No.4, Pp.631- 644.
- **Levine, D. & Strube, M., (2019):** “Environmental attitudes, knowledge, intentions and behaviors among college students”, *Journal of Social Psychology*, Vol. 152, No. 3, Pp. 308-326.
 - **Maragakis, A., & Van den, A., (2016):** Is higher education economically unsustainable? An exploration of factors that undermine sustainability assessments of higher education. *Discourse and Communication for Sustainable Education*, Vol.7, No.2, Pp.5-16.
 - **Olsson, D., Gericke, E., Chang, S., & Rundgren, C. (2015):** “The Effect of Implementation of Education for Sustainable Development in Swedish Compulsory Schools – Assessing Pupils’ Sustainability Consciousness.” *Environmental Education Research*. doi:10.1080/
 - **Pakkan, Sh., (2022):** A correlation study of sustainable development goal (SDG) interactions. *Qual Quant*. <https://doi.org/10.1007/s11135-022-01443-4>
 - **Qin, C., Xu, J., Wong-Parodi, G., & Xue, L.,(2018):** Change in public concern and responsive behaviors toward air pollution under the Dome. *Risk Anal. Society for Risk Analysis*, Vol.40, No.10, Pp.1983-2001. **Doi:** 10.1111/risa.13177.
 - **Rosa, W.; Upvall, M.; Dossey, B. (2019):** "Nursing and Sustainable Development: Furthering the Global Agenda in Uncertain Times" *OJIN: The Online Journal of Issues in Nursing* Vol. 24, No. 2, Manuscript 1.
 - **Somayyeh - Ghorbani, S., Jafari, S., & Sharifian, F. (2018).** Learning to be: Teaching competences and practical solutions: A step towards sustainable development. *Journal of Teacher Education for Sustainability*, Vol.20, No.1, Pp.20 - 45.
 - **Thomas, T. (2020):** Are business students buying it? A theoretical framework for measuring attitudes toward the legitimacy of environmental sustainability. *Business Strategy and the Environment*, 14(3), 186-197.
 - **Tuncer, G. (2018):** “University students’ perception on sustainable development: a case study from Turkey”, *International Research in Geographical and Environmental Education*, Vol. 17 No. 3, Pp. 212-226.
 - **Vicente-Molina, M., Fernández-Sáinz, A., Al-Naqbi, A., & Izagirre-Olaizola, J. (2020):** “Environmental knowledge and other variables affecting pro-environmental behavior: comparison of university students from emerging and advanced countries”, *Journal of Cleaner Production*, Vol. 61, Pp. 130-138.
 - **Zainordin, N., Wahi, W., Petrus, M., & Koh, C., (2017):** Sustainable Development Attitude: A Study On Perception Among Private & Public Higher Learning Institutions Student In Malaysia. *MATTER: International Journal of Science and Technology*, Vol.3, No.2, Pp.514-524. <https://doi.org/10.20319/mijst.2017.32.514524>