Relation between Nursing Academic Staff Resilience and Sustainable Education

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Abstract:

Background: With the increasing global focus on sustainability and its impact on health and the environment, resilience is a vigorous process necessary for nursing academic staff to overcome the challenges involved in sustainable education. **Aim of the study:** To explore the relation between nursing academic staff resilience and sustainable education. **Subjects and Method**: Using a descriptive correlational research design, all available (194) nursing academic staff members at the Faculty of Nursing, Tanta University, were involved in the study. **Tool:** Two tools were utilized: Nursing Academic Staff Resilience questionnaire and the Unit-Based Sustainability Assessment Tool. **Results:** Nearly two-thirds (69.6%) of the nursing academic staff members had a high level of resilience, while nearly one-fifth (21.1%) had a moderate level. In terms of sustainable education, more than forty percent (41.2%) of the nursing academic staff had low perception levels for overall sustainable education, while more than one-third (35.1%) had a high level. **Conclusion:** A statistically significant positive correlation was observed between the overall resilience and overall sustainability of nursing academic staff. **Recommendation:** Universities support the integration of sustainability courses into the curriculum, provide additional training for academic nursing staff about sustainability, and encourage them to conduct research on sustainability, accompanied by ample incentives to motivate their engagement.

Key words: Nursing Academic Staff, Resilience, Sustainable Education

Introduction

Higher education institutions have an essential role in fostering attitudes towards sustainable development by incorporating educational processes, operations, and research in relationships with the external community (**Zaleniene & Pereira, 2021).** Resilience is one of the concepts of education sustainability development that adds an innovative perspective to its achievement (**OECD, 2021**). Academic staff in faculties, as the "pillars of societies", are critical to knowing "what to teach" and "how to teach and "how to manage educational challenges and adversities" in the era of sustainable development. They have a pivotal role in the societal transformation process and lead towards a sustainable future (**Pishghadam et al., 2021).** The resilience approach underlines the ability of talent to adapt to changes, learning skills, creativity, future orientation, and occasions rather than vulnerabilities and weaknesses (**Brewer et al., 2021**).

The resilience of nursing academic staff is a vigorous process composed of personal capabilities, contextual means, approaches, and outcomes that enthusiastically have to work interactively and cooperatively to adjust to difficulties that contest the education system (**Rivera et al., 2022).** Consequently, it has been identified as an essential characteristic necessary for academic staff to overcome the challenges involved in nursing sustainability education (**OECD, 2021).**

As pinpointed by **Beltman, (2021**), four conceptualizations exist for the conception of resilience. The first is person-focused, which reflects resilience as an individual trait established in stressful situations. The second conceptualization is process-focus**,** which studies resilience as the outcome of person-context interaction in which people actively practice and use suitable tactics to sustain their commitment and safety in the face of challenges. The third is context-focused of resilience disputes, resilience as the ability to adapt to a stressed situation and maintain one's ability in a challenging sociocultural context. Fourth is system-focused**,** define resilience as the process in which many systems, both internal and external to the person, dynamically interact with one another. Resilience characteristics that are required to respond to sustainability education requirements are represented by academic staff to display a sense of security and self-confidence. These characteristics are as follows; positive; depend on how staff maintains a positive outlook despite challenges. Focused, having a clear vision and know what they want to attain flexible, having a special agility in facing uncertainty. Organized, change structured approaches to managing ambiguity. Proactive, engage in change and manoeuvres to gain an advantage and solve problems rather than defend

against it **(Al-Omari,2017)**. Together, these characteristics help nursing academic staff navigate through complexity and uncertainty when reaching sustainability education. Resilience creates various optimistic outcomes in education at the macro level and for academic staff and students at the micro level **(Wang, 2021).**

Resilience reduces academic staff tension, especially in the "vulnerability period", when workload is high, limited support, increasing anxiety due to challenges and uncertainty regarding how to manage student behaviour during activities that address sustainability concerns. Moreover, it improves staff dedication, job satisfaction, well-being, teaching effectiveness, motivation, professional identity, retention, and self-confidence **(Derakhshan et al., 2020)**. Similarly, educators' resilience affects nursing students' engagement, motivation, and academic achievement. At the macro level, positive indicators are considered for successful sustainability education and attaining Egypt's vision for 2030 **(Li et al., 2019**).

In 2015, the 2030 Agenda for Sustainable Development was approved, encompassing 17 Sustainable Development Goals aimed at addressing global challenges such as climate change, inequality, sustainable communities, and environmental conservation **(UNESCO, 2017).** The systemic and interrelated nature of these challenges needs action from all disciplines and professions. Higher education is increasingly recognized as a proxy for renovation to create the necessary changes to meet the 2030 agenda and deliver not only discipline-specific knowledge but also ways to practice and integrate sustainability goals in the education system **(Mouneer, 2021).**

Sustainability in education is emerging as a key, innovative concept that universities are increasingly embracing and promoting by incorporating sustainable development principles into their daily operations. **(Boarin et al., 2020)**. It is a unique educational perception that challenges conventional educational approaches and calls for new systems for integrative learning reaching particular courses, curricula, extension programs, research, and community-driven enterprises **(Zaleniene & Pereira, 2021).**

Sustainability in academic institutions represents a constructive shift toward environmental responsibility, emphasizing the need to integrate content, teaching methods, and outcomes that help students enhance their understanding of the environment, economy, and society. **(Holdsworth & Sandri, 2021)**. A well-planned and well-established platform is needed to increase awareness among students and empower their critical thinking and decision-making capabilities.

Sustainability education covers critical dimensions in higher education, including curriculum, research and scholarship activities, community engagement, examination/ assessment of sustainability topics, staff expertise and willingness to practice, and management practices related to sustainability **(Togo & Lotz-Sisitka, 2009)**.

Integrating sustainability in nursing curricula is crucial for strengthening the capacity for social learning and change by supporting students in acquiring and developing the main sustainability-related skills required for shifting toward more sustainable health systems **(Tun, 2019).** Research collaboration related to sustainability can complement the nursing curriculum by preparing students to solve real difficulties in clinical practice, thus making a positive influence to common well-being. **(Huss et al., 2021).**

Community engagement offers academic staff and nursing students the chance to gain experience in tackling the sustainability challenges faced by society, as well as in applied research and the development of problem-solving talent. Sustainability topics/activities examination and assessment are important for encouraging students to reflect on these issues within the faculty's institutional practices, helping them recognize that sustainability is a key priority **(Teherani et al., 2021)**.

Expertise in sustainability is critical for enhancing the incorporation of sustainability issues into an academic department's activities when carrying out research and teaching sustainability topics that develop academic staff skills and abilities **(Holdsworth & Sandri, 2021).** Sustainability management practices are organized approaches for incorporating environmental, social, and financial factors into decision-making and operations to achieve long-term viability and ethical responsibility. These practices include staff recruitment, professional development, research funding allocation, and academic planning **(Pedro et al., 2023).**

Significance of the study

The growing body of knowledge has been settled towards higher education to implement sustainability and pushes universities and faculties to make changes to achieve their goals and incorporate innovative concepts for the dissemination of sustainable awareness among academic staff, students, and the whole academic community **(Hermann & Bossle, 2020)**. The sustainable development goal of quality education, which obviously recommends that "by 2030 ensure all learners acquire knowledge and skills needed to promote sustainability education development".

The vision of the Faculty of Nursing at Tanta University is to "investing knowledge in nursing and achieving sustainable development". The creation of a generation of sustainable nurses requires fostering sustainable

education by integrating and practicing sustainability as a cross-cutting new approach in teaching, research, operations, community, and knowledge transfer via academic staff. Accordingly, resilience has been recognized as a key characteristic that is considered a prerequisite for attaining sustainability education and coping with its challenges. Although the number of studies about resilience in nursing is growing, research on resilience in sustainability education achievement remains limited. Therefore, the purpose of this research was to explore the relation between nursing academic staff resilience and sustainability education.

Aim of study:

To explore the relation between nursing academic staff resilience and sustainable education.

Research Questions:

- What are the levels of nursing academic staff resilience?
- What are the levels of sustainable education as perceived by nursing academic staff?
- What is the relation between nursing academic staff resilience and sustainable education?

Subjects and Method

Research design: A descriptive correlational research design was utilized.

Study setting:

The study was conducted at the Faculty of Nursing, Tanta University that is affiliated to the Ministry of Higher Education and Scientific Research. The faculty comprises seven departments: Nursing Administration, Community Health & Geriatric Nursing, Maternal & Child Health, Critical Care & Emergency Nursing, Medical-Surgical Nursing, and Psychiatric & Mental Health Nursing. The faculty is one of the leading universities in Egypt that has a national reputation for its quality and integral impact in offering undergraduate and postgraduate nursing programs. The faculty accredited forms the National Authority for Educational Quality and Accreditation since 2019. As well, awarded ISO certification of 9001:2015 & 21001:2018 since 2023.

Subjects:

The sample of this study included all (194) available nursing academic staff at the previously declared setting. It divided as following; Professors (n=21), assistant professors (n=21), lecturers (n=49), assistant lecturers (n=31), and demonstrators (n=72).

Inclusion criteria: the study included staff who were actively part of the workforce and not on leave. It encompassed all categories of academic nursing staff.

Tools:

To achieve the aim of the current study two tools were used:

Tool I: Nursing Academic Staff Resilience Questionnaire

Based on **Al-Omari, (2017), Morris,(2002) and Conner, (1992)** this tool was developed by the researcher to assess levels of nursing

academic staff resilience . It consisted of 14 items allotted into five dimensions; positive (4 items), focused (1item), flexible (4items), organized (2 items), and proactive (3 items). Furthermore, seven items related to personal characteristics of the nursing academic staff were used.

Scoring system

Nursing academic staff responses were considered against 3-point Liert scales ranging between 1 and 3; where 3 = always, 2= sometimes and 1= never. The level of resiliency of the nursing academic staff were scored statistically on the basis on the following cut-off values: >75% high level of resiliency; 75%-60%, moderate level; and <60% low resiliency.

Tool II: Unit-Based Sustainability Assessment Tool (USAT)

The tool was constructed by **Togo & Lotz-Sisitka, (2009)** and adapted by the researchers. It was utilized to determine to what level faculty of nursing have integrated sustainability concerns in education as perceived by the nursing academic staff. The tool included six indicators (dimensions) of sustainability, including curriculum (8 items), research/ and scholarship activities (3 items), community engagement (3 items), examination/assessment of sustainability topics (3 items), staff expertise and willingness to participate in sustainability teaching/research (3 items) and management practices of sustainability (9 items).

Scoring system

The rating scale for this tool ranged from 1 to 5, where 5= great deal, 4= sustainable, 3=adequate, 2= little and 1= none. The possible scores range from 29 to 145, and higher number of scores represent higher level of sustainable education. The explanation and translation of the scales into levels were scored statistically based on the cut-off value, as >75% indicates a high level of sustainable education performance, 75%-60% indicates a moderate level, and <60% indicates low performance.

Validity and reliability:

The Validity and reliability of the study instruments were established by going through a rigorous process of face and content validity coupled with inter and intra -rater reliability by pilot testing. To maintain content validity, the data collection tools were reviewed and judged by five experts in different specialties of nursing such as administration, community and psychiatric nursing. They were asked to assess the significance and relevance of each item on a 4-point rating scale ranging from 4= strongly relevant to 1= not relevant. According to the experts' feedback, some minor changes were made to the tools to enhance the clarity and the pertinence. This process ensured that the instruments effectively measured the constructs of resilience and sustainability education among nursing academic staff.

The reliability of the tools was assessed using Cronbach's alpha

coefficient test, which yielded values of 0.801 and 0.783 for the resilience and sustainable education respectively, demonstrating good internal consistency. Additionally, a pilot study was conducted on 10% of the target population (n=22), who were excluded from the final study sample, to further test the tools' effectiveness in capturing the intended data. The pilot study would ensure that any difficulties in the study tools are detected and corrected before the main study could take place.

Procedure:

Prior to data collection, permission to conduct the study was first obtained from the relevant authorities at the Faculty of Nursing, Tanta University. The study employed an online survey on Google Forms, making it easy for all the eligible nursing academic staff members to participate in the study. The participants were reached through their WhatsApp numbers, and the questionnaires were provided in both Arabic & English in an effort to accommodate the different language abilities of the staff; this helped to ensure that all participants understood each question and their responses accordingly.

The estimated time to complete the questionnaire was approximately 10 to 15 minutes for each participant. The data was collected over a time span of 4 weeks starting from January to February 2023. At this stage, the researchers kept track of any responses in order to invite the eligible number of nursing academic staff, and all the information gathered was documented and properly archived for future analysis.

Ethical considerations:

Before the data collection procedure, approval was obtained to conduct the study from the Scientific Research Ethical Committee at the Faculty of Nursing, Tanta University code no (182-12- 2022). The study was conducted with high levels of Ethical consideration including informing participants about the purpose of the study, their voluntary contribution, and their right to withdraw from the study at any time. Oral consent was obtained, ensuring that participants understood their rights and the research objectives. Confidentiality and anonymity were rigorously maintained.

Statistical analysis of data

The data were entered into a computer and analysed using IBM SPSS software version 20.0. Qualitative data are presented as frequencies and percentages. Quantitative data are described using the range (minimum and maximum), mean, standard deviation, and median. Statistical significance was determined at the 5% level. The chi-square test was used to compare categorical variables across different categories, while the Pearson correlation coefficient was employed to examine the relationships between two normally distributed quantitative variables.

Results

Table (1): Distribution of nursing academic staff according to personal characteristics. The highest percentage (42.8%) of nursing academic staff were aged 30-<40 years, with a mean age of 35.13 ± 9.66 years. The majority (98.5%, 86.6%) were female and married. Nearly half (49%) had a doctoral degree, and 31.4% had a baccalaureate degree. Regarding academic positions, the highest percentage (37.1%, 25.3%) were demonstrators and lecturers, while the lowest percentage (10.8%) were assistant professors and professors. More than half (50.5%) had <10 years of experience, with a mean of 11.46 ± 9.86 years. A total of 18%, 16.5%, and 16% of the participants were from medical-surgical, administration, and maternal & child health departments, respectively.

Figure (1): Levels of overall resilience for nursing academic staff. Nearly two-thirds of the nursing academic staff members had a high level of resilience, while nearly one-fifth of them had a moderate level.

Table (2): Levels of nursing academic staff across resilience dimensions. As shown in the table, majority (83%) of the nursing academic staff had a high level of resilience in the organized dimension. More than sixty (64.4%, 60.8%) of them had a high level of proactive and flexible dimensions, while more than half (54.1%, 53.6%) had a high level of positive and focused dimensions.

Figure (2): Distribution of nursing academic staff according to overall perception levels of sustainable education. More than forty percent (41.2%) of the nursing academic staff had low perception levels of overall sustainable education. More than one-third had a high perception level, and fewer than one-quarter had a moderate level.

Table (3): Perception levels of nursing academic staff across sustainable education indicators. More than fifty percent (51%) of the nursing academic staff had low perception levels of sustainability management practices in education as well as in research and scholarship activities. 50% of them had low perception levels of sustainability examination. More than forty percent (40.7%) of them had a high perception level of sustainability integration in community engagement as well as in the curriculum. 41.8% of the nursing academic staff had moderate perception level of expertise and willingness to join in sustainability education.

Figure (3): shows the correlation between nursing academic staff overall resilience and overall sustainability. There was a statistically significant positive correlation between the overall resilience of nursing academic staff and overall sustainability ($p < 0.001$).

Table (4): illustrates the relation between the level of overall sustainability and the level of overall resilience and the demographic data.

As shown in the table, there was a significant relationship between overall sustainability and department. Additionally, there was a significant relationship between overall resilience and age and department.

Table (1): Distribution of nursing academic staff according to personal Characteristics (n = 194)

| Personal Characteristics	No.	%
Age		
<30	68	35.1
30-<40	83	42.8
40-<50	16	8.2
≥50	27	13.9
Min. – Max.	24.0 – 70.0	
Mean ± SD.	**35.13 ± 9.66**	
Median	32.0	
Gender		
Male	3	1.5
Female	191	98.5
Qualification		
Baccalaureate Degree	61	31.4
Master	38	19.6
Doctoral	95	49.0
Academic position		
Demonstrator	72	37.1
Assistant lecturer	31	16.0
Lecturer	49	25.3
Assistant professor	21	10.8
Professor	21	10.8
Years of experience		
<10	98	50.5
10-<20	57	29.4
20-<30	24	12.4
≥30	15	7.7
Min. – Max.	1.0 – 42.0	
Mean ± SD.	11.46 ± 9.86	
Median	9.0	
Department		
Nursing administration	32	16.5
Community health	29	14.9
Maternal and child heath	31	16.0
Critical care and emergency	21	10.8
Medical- surgical nursing	35	18.0
Paediatric nursing	22	11.3
Psychiatric-mental health	24	12.4
Marital status		
Married	168	86.6
Single	20	10.3
Others	6	3.1
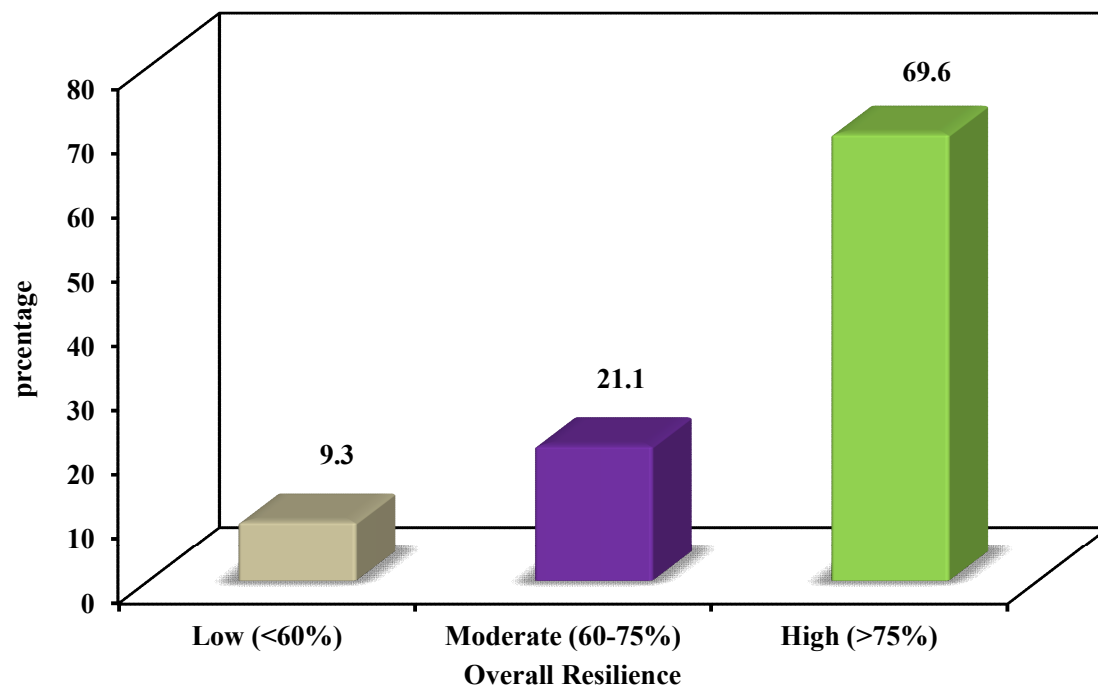
Figure (1): Levels of overall resilience for nursing academic staff (n = 194)

Table (2): Levels of nursing academic staff across resilience dimensions (n = 194)

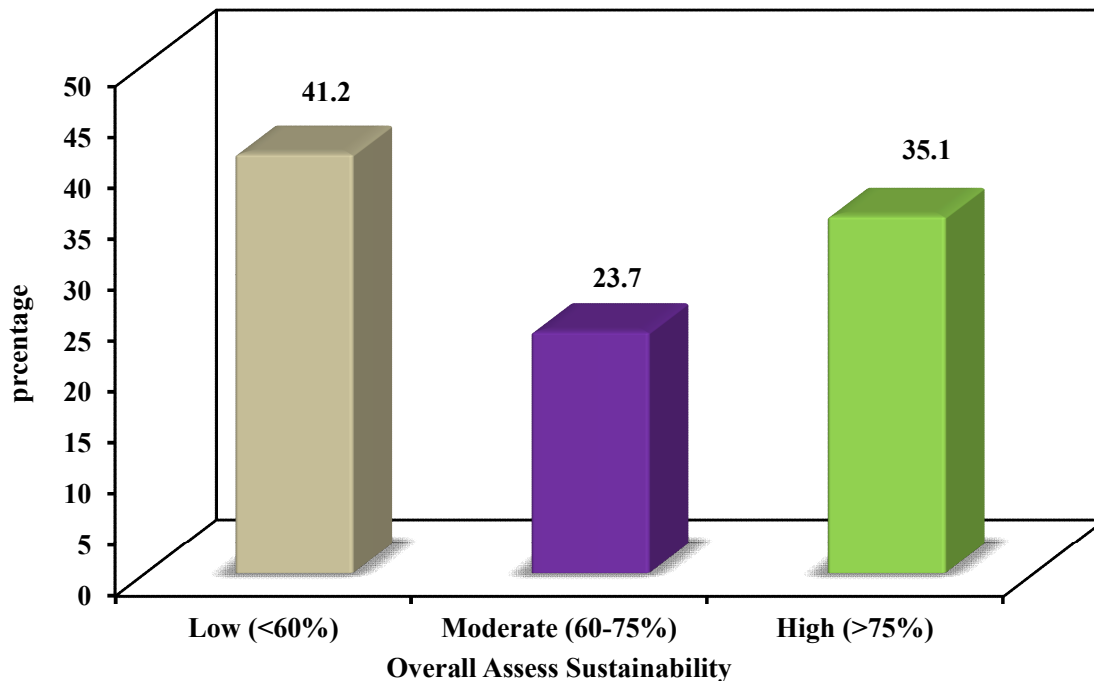| Level of resilience dimensions	Low (<60%)		Moderate (60-75%)		High (>75%)	
	No.	%	No.	%	No.	%
Positive	31	16.0	58	29.9	105	54.1
Focused	90	46.4	0	0.0	104	53.6
Flexible	24	12.4	52	26.8	118	60.8
Organized	13	6.7	20	10.3	161	83.0
Proactive	31	16.0	38	19.6	125	64.4

Figure (2): Distribution of nursing academic staff according to overall perception levels of sustainable education

Table (3): Perception levels of nursing academic staff across sustainable education indicators (n = 194)

| Level of Assess Sustainability	Low (<60%)		Moderate (60-75%)		High (>75%)	
	No.	%	No.	%	No.	%
Curriculum	60	30.9	55	28.4	79	40.7
Research and scholarship activities	99	51.0	39	20.1	56	28.9
Community Engagement	79	39.7	38	19.6	77	40.7
Examination (assessment) of sustainability topics	97	50.0	37	19.1	60	30.9
Staff expertise and willingness to participate	63	32.4	81	41.8	50	25.8
Management practices of sustainability	99	51.0	49	25.3	46	23.7
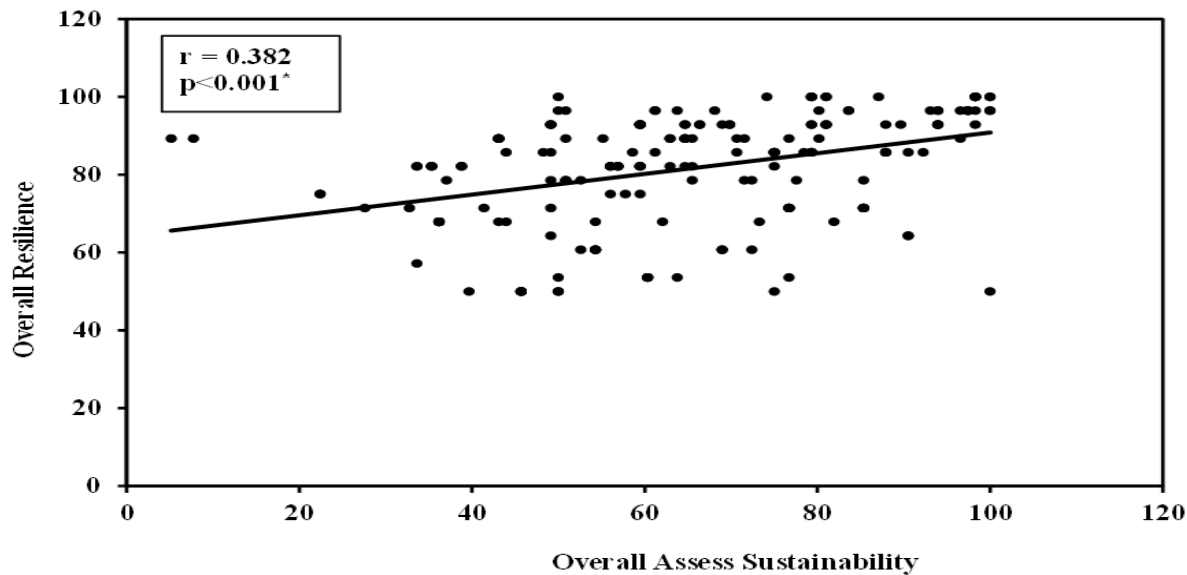
Figure (3): Correlation between overall resilience of nursing academic staff and overall sustainability (n = 194)

Table (4): Relation between level of overall sustainability and level of overall resilience with demographic data (n = 194)

	Level of overall Sustainability						Level of Overall Resilience					
	Low (n = 80)		Moderate (n = 46)		High (n = 68)		Low (n = 18)		Moderate (n = 41)		High (n = 135)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Age												
<30	28	35.0	20	43.5	20	29.4	6	33.3	21	51.2	41	30.4
30-<40	32	40.0	15	32.6	36	52.9	5	27.8	14	34.1	64	47.4
40-<50	8	10.0	3	6.5	5	7.4	0	.0	3	7.3	13	9.6
≥50	12	15.0	8	17.4	7	10.3	7	38.9	3	7.3	17	12.6
χ^2 (P)	6.085 (0.414)						14.441* (^{MC}p=0.017*)					
Gender												
Male	1	1.3	1	2.2	1	1.5	1	5.6	1	2.4	1	0.7
Female	79	98.8	45	97.8	67	98.5	17	94.4	40	97.6	134	99.3
χ^2 (^{MC}P)	0.664 (1.000)						3.427 (0.129)					
Qualification												
Baccalaureate Degree	26	32.5	15	32.6	20	29.4	5	27.8	18	43.9	38	28.1
Master	11	13.8	13	28.3	14	20.6	2	11.1	10	24.4	26	19.3
Doctoral	43	53.8	18	39.1	34	50.0	11	61.1	13	31.7	71	52.6
χ^2 (P)	4.628 (0.328)						7.116 (0.130)					
Academic posit												
Demonstrator	31	38.8	20	43.5	21	30.9	7	38.9	21	51.2	44	32.6
Assistant lecturer	9	11.3	8	17.4	14	20.6	2	11.1	7	17.1	22	16.3
Lecturer	21	26.3	8	17.4	20	29.4	2	11.1	8	19.5	39	28.9
Assistant professor	8	10.0	4	8.7	9	13.2	1	5.6	3	7.3	17	12.6
Professor	11	13.8	6	13.0	4	5.9	6	33.3	2	4.9	13	9.6
χ^2 (P)	7.959 (0.437)						13.767 (^{MC}p0.066)					
Years of experience												
<10	39	48.8	28	60.9	31	45.6	9	50.0	26	63.4	63	46.7
10-<20	22	27.5	8	17.4	27	39.7	2	11.1	9	22.0	46	34.1
20-<30	14	17.5	6	13.0	4	5.9	3	16.7	5	12.2	16	11.9
≥30	5	6.3	4	8.7	6	8.8	4	22.2	1	2.4	10	7.4
χ^2 (P)	10.586 (0.102)						11.241 (^{MC}p=0.061)					
Department												
Administration	14	17.5	8	17.4	10	14.7	1	5.6	8	19.5	23	17.0
Community	16	20.0	5	10.9	8	11.8	8	44.4	1	2.4	20	14.8
Maternal and child heath	13	16.3	7	15.2	11	16.2	1	5.6	3	7.3	27	20.0
Critical care and emergency	0	0.0	6	13.0	15	22.1	0	0.0	1	2.4	20	14.8
Medical surgical	19	23.8	8	17.4	8	11.8	7	38.9	12	29.3	16	11.9
Pediatric nursing	14	17.5	3	6.5	5	7.4	1	5.6	10	24.4	11	8.1
Psychiatric-mental health	4	5.0	9	19.6	11	16.2	0	0.0	6	14.6	18	13.3
χ^2 (P)	33.108* (0.001*)						42.828* (^{MC}p<0.001*)					
Marital status												
Married	71	88.8	40	87.0	57	83.8	16	88.9	33	80.5	119	88.1
Single	7	8.8	5	10.9	8	11.8	2	11.1	7	17.1	11	8.1
Others	2	2.5	1	2.2	3	4.4	0	0.0	1	2.4	5	3.7
χ^2 (^{MC}P)	1.176 (0.919)						3.032 (0.495)					

χ^2: **Chi-square test** MC: **Monte Carlo**

p: p value for the relation between the level of overall assessed sustainability and the level of overall resilience with demographic data

*: Statistically significant at p ≤ 0.05

Discussion

Resilience in teaching refers to a teacher's ability to maintain their effectiveness and well-being despite the various challenges and pressures of the profession (**Zhang & Luo, 2023**). Nursing academic staff serves as change agents in nursing education for sustainable development, utilizing their diverse knowledge and skills to transform the educational environment in ways that better align with sustainable development goals. (**Dhaka, 2024**). So, the aim of the study was to explore the relation between nursing academic staff resilience and sustainable education.

Concerning the level of resilience, nearly seventy percent of the nursing academic staff members had a high level of resilience, while nearly one-fifth had a moderate level. This may be due to the challenges that academic nursing staff in the educational system face from operational disruptions, and job demands, which cause them to struggle to become more organized, proactive, and flexible to meet educational process expectations. They seek to implement new approaches and manoeuvres to gain an advantage and invest energy in problem-solving and teamwork. They always see life full of new opportunities for continuous education, believe that there are lessons to be learned from challenges, and expect the future to be filled with constantly shifting variables in the educational process.

Glass (2007) mentioned that as nursing academic staff develops greater hope and optimism, they enhance their resilience in dealing with workplace challenges by openly expressing their concerns and vulnerabilities**. However, **Reyes et al, (2015)** proposed that academic staff need to consistently cultivate and strengthen their resilience in order to effectively adapt to the challenges of the work environment. **Borazon and Chuang (2023)** emphasized the significance of the environment, personal experiences, and educational programs in fostering the resilience of academic staff.

Regarding levels of sustainable education, more than forty percent of the nursing academic staff had a low perception level of total sustainable education, more than one-third had a high level, and less than one-fifth had a moderate perception level. This is may be due to sustainability being a relatively recent concept that has been introduced into the vision of the university, and nursing academic staff not having enough knowledge or training about it.

This finding is reinforced by **Morales et al, (2024),** who reported that academic staff had little knowledge about sustainability, and **Molina et al., (2023)** found that participants had an unclear understanding of sustainability and emphasized the importance of promoting the attitudes and values essential for sustainable development. Also, **Aleixo et al, (2018)** found a large proportion of

academic staff did not receive training on sustainability. But **Bryant & Rundall (2019)** argued that sustainability is not a new concept and that nursing education should address sustainability for a long time.

Regarding level of sustainability dimensions; the study revealed that above forty percent of the academic staff had a high perception level for the curriculum indicator of sustainable education. This may be due to some departments of faculty enrolled in some courses that address sustainability concerns such as nursing leadership, nursing research, evidence-based practice and entrepreneurship courses. It is crucial for nursing students to be educated on sustainability and to understand the responsibility each individual holds in promoting actions that support sustainable professional practice.

Zhang & Bourassa (2021) mentioned that implementing a curriculum needs strong faculty involvement and interdisciplinary collaboration. The curriculum is designed to help students cultivate systems thinking and develop visionary leadership skills. **Aleixo et al, (2021)** reported that over twenty students stated that sustainability is not addressed in the course, while nearly thirty indicated that it is only covered occasionally. Additionally, **Correa et al, (2020)** found that the undergraduate design courses examined are still in the early stages of incorporating sustainability guidelines.

This study revealed that more than half of the academic staff had a low perception level for the research dimension. This finding suggests that there may be limited emphasis on generating new knowledge and evidence in the area of sustainability to inform sustainable practices within nursing. This result is supported by that of **Correa et al., (2020)** mentioned that there were few laboratories and research groups focused on sustainability issues.

The results revealed that more than forty percent of the nursing academic staff had high levels of perception for community engagement. This is due to nursing academic staff are involved in medical convoys monthly, which allows them to collaborate with local populations, identify health needs, and develop sustainable interventions to promote health and prevent illness. In addition, the students in the clinical areas related to the community health nursing department deal with the community and provide counselling to promote health and prevent diseases. **Teherani et al, (2021)** stated that it is important for students to become familiar with the real world and cooperate with community members to identify opportunities for engagement.

The results of the study revealed that more than thirty percent of academic nursing staff had high levels of sustainability topics examination, while half of them had low level. This result may be due to a lack of training opportunities for nursing academic

staff about how to engage this topic in the examination of curriculum. **Fields et al, (2023)** emphasize the importance of designing assessment tasks for empowering students on sustainability topics. **Elshall et al, (2022)** recommended the importance of professional development programs and training opportunities that can be offered to educators to improve their familiarity with sustainability principles and their ability to effectively assess students' knowledge in this area.

The results of the study discovered that above forty percent of the nursing academic staff had moderate levels of perception regarding staff expertise and willingness to participate, and more than half had low levels of expertise in the practice of sustainability domains. This may be due to the nursing academic staff's limited understanding of sustainability and its related topics. **Cebrián et al, (2015),** supported our result and suggested that to further enhance the expertise and engagement of nursing academic staff in sustainability, it is important to provide opportunities for professional development and capacity building.

Regarding the relationships between the study variables, the results showed a statistically significant positive correlation between the overall resilience of nursing academic staff and overall sustainability. This result means that when resilience increases, sustainability increases. **Borazon &**

Chuang (2023) emphasized the importance of considering resilience as a dynamic capability, enabling educational institutions to develop the capacity to maintain equitable and appropriate learning opportunities and outcomes. **Roostaie et al, (2019)** identified a strong connection between sustainability and resilience, emphasizing its significance in the context of the growing frequency of natural hazards. **Marchese et al, (2018)** mentioned that resilience is a necessary prerequisite for sustainability.

There was a significant relation between overall resilience and age. This result is congruent with **Silva et al, (2020)** who stated a significant correlation between age and resilience, as the greater the age was, the greater the resilience score. Additionally, the results revealed a relation between overall resilience and department type. This may be due to some departments may face high levels of stress, workload, or job demands, which can impact the resilience of their staff. **Aqtam et al, (2023)** found a moderate negative correlation between nurses' stress level and their resilience level.

The study results revealed a significant relationship between overall sustainability and department type. This significant relation suggests that different faculties of nursing departments may vary in their commitment and practices regarding sustainability. This result is supported by **Friman et al, (2018)** who found

that some departments may prioritize sustainability initiatives, while others might not because of different operational priorities or limited awareness.

Conclusion

Approximately seventy percent of the nursing academic staff members exhibited a high level of resilience, while one-fifth had a moderate level. In terms of total sustainable education, over forty percent of the nursing academic staff displayed a low level, while more than one-third demonstrated a high level. A Significant relation was observed between overall sustainability and department, as well as between overall resilience and both age and department. Furthermore, a statistically significant positive correlation was identified between the overall resilience and overall sustainability of nursing academic staff.

Recommendation

Educational authorities:

- Mandatory integration of sustainability courses into the curriculum.
- Provision of workshops, seminars, or specialized courses focused on sustainability in nursing education and resilience.
- Develop appropriate examination materials and assessments that incorporate sustainability concepts within the nursing curriculum.
- Encourage academic staff to conduct research on sustainability, accompanied by ample incentives to motivate their engagement.

For academic nursing staff

- Seek to attain workshops or training on sustainability, stress management, conflict resolution, and time management in order to be able to handle challenges effectively.
- Redesign curriculum to involve sustainability topics and methods of assessment.

For further research

- Conduct further research on challenges of sustainable education in universities and faculties
- The impact of sustainable education on students' behaviour.

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