- ***Basic Research***

The Relationship Between Innovativeness Knowledge Level and Innovativeness Attitudes among Vocational Nursing Students

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Abstract

Background: Innovativeness is a critical trait in the dynamic field of healthcare, where continuous advancements require professionals to adapt, embrace change, and contribute novel ideas. **Aim of the study**: was conducted to explore the relationship between Innovativeness knowledge sharing level and Innovativeness Attitudes among Vocational Nursing Students at Alazhar Technical Health Institute of Nursing . **Research design**: A quantitative, descriptive cross-sectional study was utilized to convey the present study. **Setting**: The study was conducted at Alazhar Technical Institute of Nursing. **Subjects**: all available 100 vocational nursing students were participated from academic years (2022-2023). **Two tools** were used for data collection. **Tool (I):** Self-administrative questionnaire was included two parts . **Tool (II):** The student Innovativeness Scale was developed by **Hurt etal., (2013)**. **Results:** the current shows that 65% of the students are aged 18 or older. There was a significant majority,(69.8%), of the vocational nursing students fall into the "high" knowledge sharing category. There was a significant correlation between the overall level of knowledge sharing and attitudes toward individual innovativeness among vocational nursing students. The chi-square test result (x^2 = 12.25, p = 0.002).**Conclusion:** There was a significant majority, 69.8%, of the vocational nursing students fall into the "high" knowledge sharing *category*. There was a significant correlation between the overall level of knowledge sharing and attitudes toward individual innovativeness among vocational nursing students. Also there was a significant correlation between the overall level of knowledge sharing and attitudes toward individual innovativeness among vocational nursing students. **Recommendations**: Educational institutions should foster an environment that supports risk-taking and experimentation by providing students with access to resources, mentor-ship, and leadership that encourages innovative thinking.

Key words: Innovativeness Attitudes, Vocational, Nursing Students, Al Azhar Technical Health Institut.

Introduction

Innovation is critical for improving patient outcomes, improving treatment quality, and maximizing resource utilization. Nursing, a dynamic field essential to healthcare delivery, requires practitioners to consistently embrace new technologies, approaches, and evidence-based practices. Innovation is vital not only to better clinical practices but also for handling intricate challenges throughout global healthcare systems. **(Aithal 2019).**

Vocational nursing education offers a crucial avenue for preparing nurses with both practical skills and academic knowledge for market entry. For success in the modern healthcare landscape, vocational nursing students need to develop a perspective that encourages innovation and adaptability. The current research looks into the attitudes toward innovativeness among vocational nursing students, as such perspectives can impact flexibility, willingness to adopt evidence-based practices, and ability to contribute to future healthcare improvements. **(Choi et al., 2020).**

Innovation in nursing is not only a concept that has emerged today but has also been used by Florence Nightingale, the founder of modern nursing. With the increase in technological advancements, the concept of innovation and the widespread use of innovation are increasing daily. In 2016, the "Innovative Nursing Association" was established in Istanbul to support nurses in the field of innovation, and congresses titled "Innovation in Nursing" were organized and efforts were accelerated to realize the innovative characteristics of nurses and to reveal their potential. **(Jyothi et al., 2023).**

Nursing as an evolving and developing profession is essential to healthcare delivery. As the continuous evolution of the healthcare landscape, it is necessary for nurse education and training to adapt properly. By adopting innovative techniques, nursing education allows future nurses to acquire the requisite information, skills, and competencies. **(Booth et al., 2021).**

Innovative practices are important in reducing costs, improving the quality of care and evidence-based nursing practices, and increasing scientific knowledge. The main factor in spreading innovation is nurses thinking with an innovative point of view and putting those ideas into practice. Therefore, an innovation culture must be established in order to increase and develop innovative practices in nursing. Despite the unit they work in, nurses should take on important roles in innovation and be a pioneer in developing new technologies, procedures and policies. **(Gao et al., 2022).**

Attitudes toward innovation are affected by many variables, including the educational setting, individual traits, and external stimuli, such as advances in technology in healthcare. Considering nursing students' perceptions of innovation and the willingness to adopt innovative techniques is essential for educators striving to cultivate a proactive and progressive nursing workforce. By focusing on these attitudes, we can find problems with vocational education and suggest solutions to make the curriculum better, which will prepare students for the challenges that come with the healthcare systems that is changing quickly. **(Cheng et al., 2020).**

Significance of the Study:

The significance of this study revolves around the insights contributed to the attitude toward innovationness from a vocational nursing student, which is an essential element for preparing a generation of health-workers who contain the necessary abilities for medical work in a future-oriented context. With the present-day fast-growing emphasis on innovation by healthcare systems worldwide to dare improve other health results, manage running interests, and engage

and immerse new technologies, it's paramount for the generation of nurses to understand their readiness in integrating innovative practices to the fabric of healthcare.

Since nurses are the forerunners of innovation in the incorporation of new technology-from digital health tools to artificial intelligence-this study communicates their preparedness to engage these technologies into their trade, thus becoming a better informed and well-funded productive workforce attuned to the demands in modern health care. The implications of these findings will also serve to guide nursing institutions and policymakers on supporting and training where vocational nursing students may need added assistance for the sake of boosting their competence in commercializing innovation within health care.

This study emphasizes the need to instill a strong culture of innovation at vocational nursing programs. As the attitude assessment of nursing students could help educators and curriculum developers tailor their educational experiences for stimulating creativity, critical thinking, and problem-solving. This could lead to developing educational programs that encourage students to accept and implement innovative practices in their future careers.

Aim of the Study

This study aims to explore the relationship between Innovativeness knowledge sharing level and Innovativeness Attitudes among Vocational Nursing Students at Alazhar Technical Health Institute of Nursing.

Research Questions

Is there a relationship between Innovativeness knowledge level and Innovativeness Attitudes among Vocational Nursing Students?

Subjects and Methods

Research Design:

A quantitative, descriptive cross-sectional study design was employed to explore attitudes toward innovativeness among vocational nursing students.

I. Technical Design:

The technical design includes; the settings, subjects and tools used in the study.

Study Setting:

The study was conducted at Alazhar Technical Institute of Nursing, which affiliated to ALazhar University. The study sample was included all nursing students who enrolled on fourth and fifth degree from the previous mention setting.

Study Subject:

A Convenience sample was used in current study. The subjects of this study were included all available students nursing, who enrolled at fourth academic year were (57), and nursing students enrolled at fifth academic year were (43) through academic year 2023/2024 and agree to participate after clarification the aim of the study.

Methods:

Tools of Data Collection:

Two tools were used for data collection of this study including the following:

Tools I: Self-administrative questionnaire: It was developed by the researcher to assess the following parts:
Part A: nurses student' demographic data; it consists of four questions, as age, academic level, place of residence, income.
Part B: Knowledge sharing regarding innovativeness readiness questionnaire: it consisted of 10 items regarding Willingness to Share Knowledge, Encouragement to Innovate, Openness to New Ideas, Access to Resources, Collaboration across Teams, Support from Leadership, Organizational Culture of Innovation, Feedback on Shared Ideas, Learning from Others, Risk-Taking in Idea Sharing.

Scoring system: were measured on a 5- point Likert scale ranging from "1= strongly disagree, 2= Disagree, 3= uncertain, 4= Agree, and 5= strongly agree". The scores of items were summed-up and the total divided by number of the items. These scores were converted into a percent score. The calculation of the mean and standard deviation was done. Knowledge sharing was considered low if the total percent score was less than 60% and high if the total score was 60% or more **Liebowitz, (2007).**

Tool II: The student Innovativeness Scale was developed by **Hurt et al., (2013)** to assess the innovativeness of students across various domains .This scale, comprising 18 items, focuses on evaluating traits related to change and risk-taking.

Components and Sub-dimensions: The scale assesses Student innovativeness through sub-dimensions such as attitudes towards change and a willingness to take risks. Each of the 18 items within these sub-dimensions is designed to capture specific aspects of an individual's propensity for innovation.

Scoring System: The scoring system is integral to categorizing Students based on their innovativeness scores. The calculated score determines the following classifications:

- **Innovators (Score above 80):** Students demonstrating a high inclination towards embracing innovative ideas and practices.
- **Early Adopters (Score between 69 and 80):** students quick to adopt and embrace new concepts or technologies.
- **Early Majority (Score between 57 and 68):** Students who adopt innovations after the early adopters but before the majority.
- **Late Majority (Score between 46 and 56):** Students characterized by a relatively slower pace in adopting innovations.
- **Laggards (Score below 46):** Students exhibiting resistance to change and innovation.

Operational Design:

Preparatory phase: It included the reviewing related literature of various aspects of the study using text books, articles, internet, periodicals and journals. Based on this review the researcher prepared the study tools, translate the knowledge sharing and readiness

questionnaire, and The Individual Innovativeness Scale into Arabic and back retranslated to ensure proper wording.

Tools reliability:
Reliability of the tools were tested by using Cronbach's Alpha which detect excellent internal consistency of the tools was performed. Where, structured interviewing questionnaire formats = 0.795 .

Pilot Study:

To assess the feasibility, clarity, and practicality of the study's methodology, a pilot was conducted involving 10 vocational nursing students were selected from the study sample and were included in the main study sample. The aim of the pilot study was to evaluate the clarity, simplicity, and applicability of the study instruments. Based on the findings from the pilot, necessary adjustments were made, and the instruments were finalized.

Field Work:
The field work of the study started in the first term of the semester of the academic years October (2023) after securing the official approvals for conducting the study and completed in December (2023). the researcher collected the data by self through meeting with nursing students of academic years to determine the suitable time to collect data, explaining the aim and component of the tool, obtaining written consent for their participation in the study, then distribute the tool in their setting of study at different times and attended during the filling of the tool to clarify y any ambiguity and answer any questions. Data was collected two days every week ,one hrs/day-from 9 a.m. to 2 p.m. The researcher checked each filled questionnaire to ensure its completion.

Ethical Considerations:
An official permission was obtained from general Manager of Technical Institute of Nursing - Alazhar University to conduct the aim of study and start the collection of data. Participation in the study is voluntary and based on nurse's student agreement by written approval after reading the ethical issue considerations including explaining the purpose and nature of the study, starting confidentiality of the information will be grunted that the participation is with no risk, and it will be used only for the study.

Data Analysis:
Data entry and statistical analysis from the studied sample were done using (SPSS 25.0) statistical software package. Data were presented using descriptive statistic, the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for quantitative variables. The Spearman rank correlation was used for assessment of the interrelationships among quantitative variables and ranked ones. In order to identify the independent predictors of attitude perception score, multiple linear regression analysis was used and analysis of variance for the full regression models was done. Statistical significance was considered at p-value <0.05.

Results:

Table (1): shows that 65% of the students are aged 18 or older. Regarding academic levels, the students are relatively evenly split, with 55% in their fourth year and 45% in the fifth year. The distribution by residence indicates that a greater percentage of nursing students (60%) reside

in rural areas. Additionally, the majority (70%) report having sufficient family income, while 30% of students indicate their family income is insufficient.

Table (2): provides high-scoring dimensions with Items such as Openness to New Ideas (80%), Learning from Others (82%), and Willingness to Share Knowledge (76%). Regarding Areas for improvement: Certain areas, such as Access to Resources (58%) and Organizational Culture of Innovation (56%), fall below the 60% threshold, indicating low knowledge sharing in these aspects. Following Support from Leadership and Risk-Taking in Idea Sharing scored 66% and 64%, respectively**.**

Figure (1): illustrates the distribution of knowledge sharing levels among participants. The figure shows that a significant majority, (69.8%), of the vocational nursing students fall into the "high" knowledge sharing category. In contrast, (30.2%) of them are in the "low" knowledge sharing category.

Table (3): displays a significant majority, (75.0%) of vocational nursing students, expressed agreement with the statement "I enjoy trying new ideas,". Similarly, (70.0%) reported actively looking for new ways to do things, In contrast, the data also uncovers some skepticism regarding new ideas; for instance, (55.0%) disagreed with the statement "I generally caution against accepting new ideas,". However, the presence of (60.0%) on students who consider themselves among the last to accept new things .The students' self-perceptions of their innovativeness are further illustrated in their responses. For example, (65.0%) of students identified themselves as innovative individuals, while (68.0%) from them view themselves as creative and original, with (50.0%) of students expressing skepticism towards new inventions.

Figure (2): shows that a significant 45% of the students disagree with the statement related to innovativeness, about (30%) of the students are neutral, while only (25%) of students agree with the items related to innovativeness.

Table (4): shows that the Early Majority group has 35.0% of vocational nursing students scoring between 57 and 68. Close behind is the Early Adopter category, which includes 28.0% of students who scored between 69 and 80. In contrast, only 12.0% of students fall into the Innovators category, scoring above 80, indicating a relatively small proportion of students who are leading in adopting innovations. Additionally, 18.0% of students belong to the Late Majority group, while the Laggards category has the smallest representation, with just (7.0%) of students.

Table (5): illustrates There is a statistically significant link between age and innovativeness attitudes ($x^2 = 6.50$, $p = 0.04$). Students aged 18 or older are more likely to agree (20.0%) or be neutral (22.0%) about their innovative attitudes, whereas younger students (<18) have a lower agreement rate (5.0%) and higher disagreement rate (15.0%), Although not statistically significant ($x^2 = 4.75$, $p = 0.09$), there is a trend showing that fourth-year students are more likely to agree with their innovativeness (15.0%) compared to fifth-division students (10.0%), while a larger proportion of fourth-year students (30.0%) disagreed compared to those in the fifth division (15.0%). In term of Residence: A significant relationship exists between residence and innovativeness ($x^2 = 5.80$, $p = 0.02$). Rural students are more likely to agree (18.0%) or remain neutral (20.0%) about their innovativeness compared to urban students, where only 7.0% agreed and 10.0% disagreed. While not statistically significant ($x^2 = 3.65$, $p = 0.15$), students with sufficient family income tend to be more neutral (20.0%) or disagree

(25.0%) regarding their innovativeness, compared to those with insufficient income, where 17.0% agreed and 20.0% disagreed.

Table (6): demonstrates a significant correlation between the overall level of knowledge sharing and attitudes toward students innovativeness among vocational nursing students. The chi-square test result ($x^2 = 12.25$, $p = 0.002$) indicates that this relationship is statistically significant. For students with low knowledge sharing levels (74.5% of the total), a larger percentage (35.0%) disagreed with having innovative attitudes, while 15.0% were neutral, and only 10.0% agreed. On the other hand, among students with high knowledge sharing levels (25.5% of the total), 15.0% each were in the agree and neutral categories, and only 10.0% disagreed.

Table (1): distribution of the studied vocational nursing students according to their Socio-demographic data (N=100).

Socio-demographic data	No.	%
Age in years		
< 18	**35**	**35.0**
> 18	**65**	**65.0**
Academic level		
Fourth year	**55**	**55.0**
Fifth Division	**45**	**45.0**
Residence		
Rural	**60**	**60.0**
Urban	**40**	**40.0**
Family income		
Sufficient	**70**	**70.0**
Insufficient	**30**	**30.0**

Table (2): distribution of the studied vocational nursing students knowledge Sharing regarding Innovativeness Readiness Questionnaire (N=100).

Items	Mean	SD	Knowledge sharing level	%
Willingness to Share Knowledge	**3.8**	**0.65**	**High**	**76**
Encouragement to Innovate	**3.5**	**0.80**	**High**	**70**
Openness to New Ideas	**4.0**	**0.55**	**High**	**80**
Access to Resources	**2.9**	**1.00**	**low**	**58**
Collaboration Across Teams	**3.7**	**70.0**	**High**	**74**
Support from Leadership	**3.3**	**0.85**	**High**	**66**
Organizational Culture of Innovation	**2.8**	**0.90**	**low**	**56**
Feedback on Shared Ideas	**3.6**	**0.75**	**High**	**72**
Learning from Others	**4.1**	**0.60**	**High**	**82**
Risk-Taking in Idea Sharing	**3.2**	**0.95**	**low**	**64**

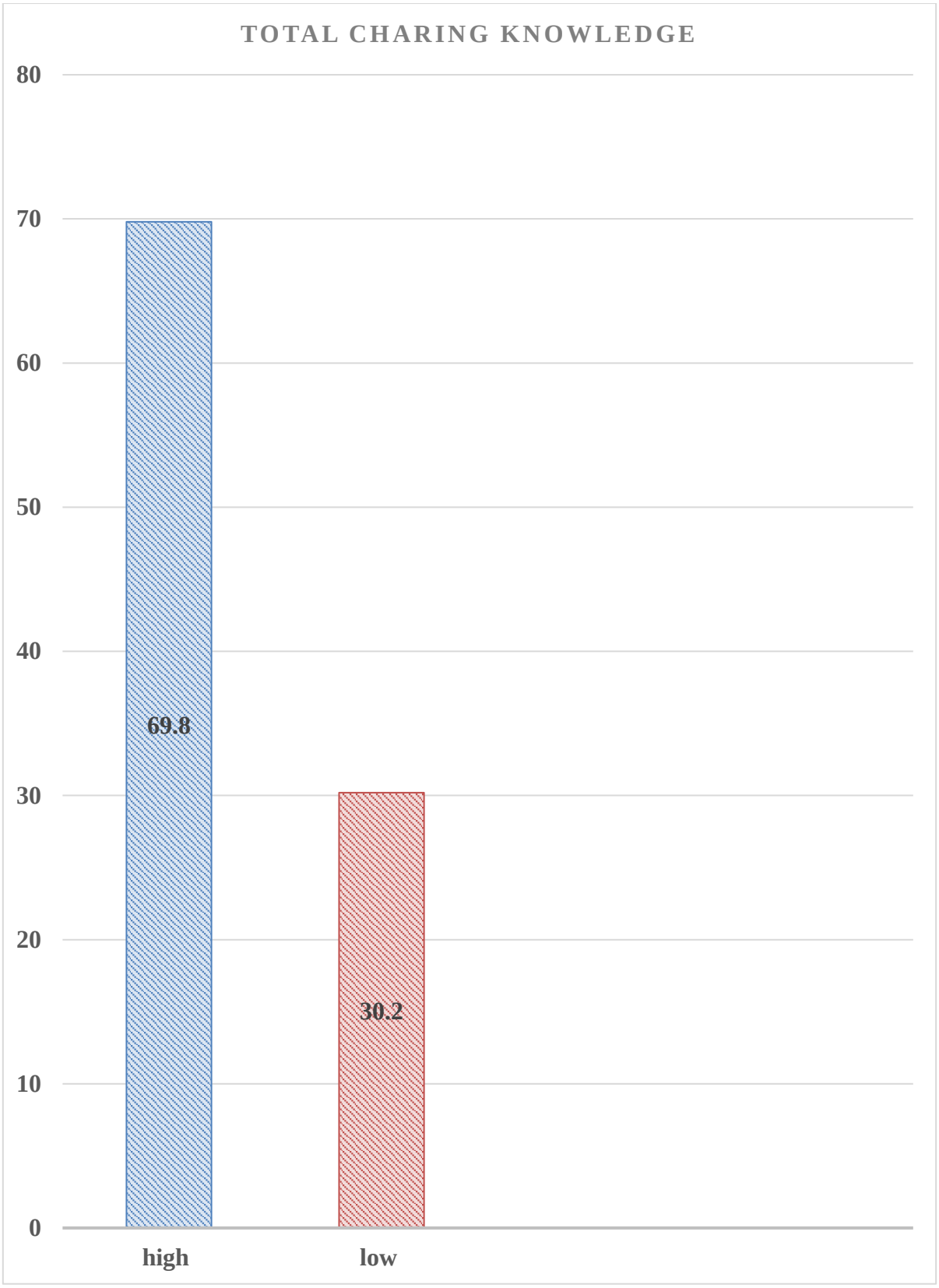

Figure (1): distribution of the studied vocational nursing students according to total knowledge Sharing regarding Innovativeness Readiness Questionnaire (N=100).

Table 3: distribution of the studied vocational nursing students toward the Individual Innovativeness Scale (N=100)

The Individual Innovativeness Scale	Agree		Neutral		Disagree	
	NO	%	NO	%	NO	%
My colleagues often ask me for advice or information.	60	60.0	25	25.0	15	15.0
I enjoy trying new ideas.	75	75.0	15	15.0	10	10.0
I look for new ways to do things.	70	70.0	20	20.0	10	10.0
I generally caution against accepting new ideas.	15	15.0	30	30.0	55	55.0
I feel skeptical about new inventions and new ways of thinking.	20	20.0	25	25.0	55	55.0
I rarely trust new ideas until I see whether the vast majority of people around me accept them or not	25	25.0	35	35.0	40	40.0
I feel like an influential member of my peer group.	50	50.0	30	30.0	20	20.0
I consider myself creative and original in my thinking and behavior.	68	68.0	22	22.0	10	10.0
I know that I am usually one of the last people in my group to accept something new.	12	12.0	28	28.0	60	60.0
I am an innovative person.	65	65.0	20	20.0	15	15.0
I enjoy participating in the leadership responsibilities of the group to which I belong.	55	55.0	30	30.0	15	15.0
I am reluctant to adopt new ways of doing things until I see them working for the people around me.	20	20.0	35	35.0	45	45.0
Innovation motivates me to be original in my thinking and behavior.	70	70.0	20	20.0	10	10.0
I tend to feel that the old way of living and doing things is the best way.	15	15.0	35	35.0	50	50.0
I am faced with ambiguity and an unresolved problem.	48	48.0	30	30.0	22	22.0
I accept new ideas.	72	72.0	18	18.0	10	10.0
Challenge unanswered questions.	68	68.0	25	25.0	7	7.0
I often find myself skeptical of new ideas.	20	20.	30	30.0	50	50.0

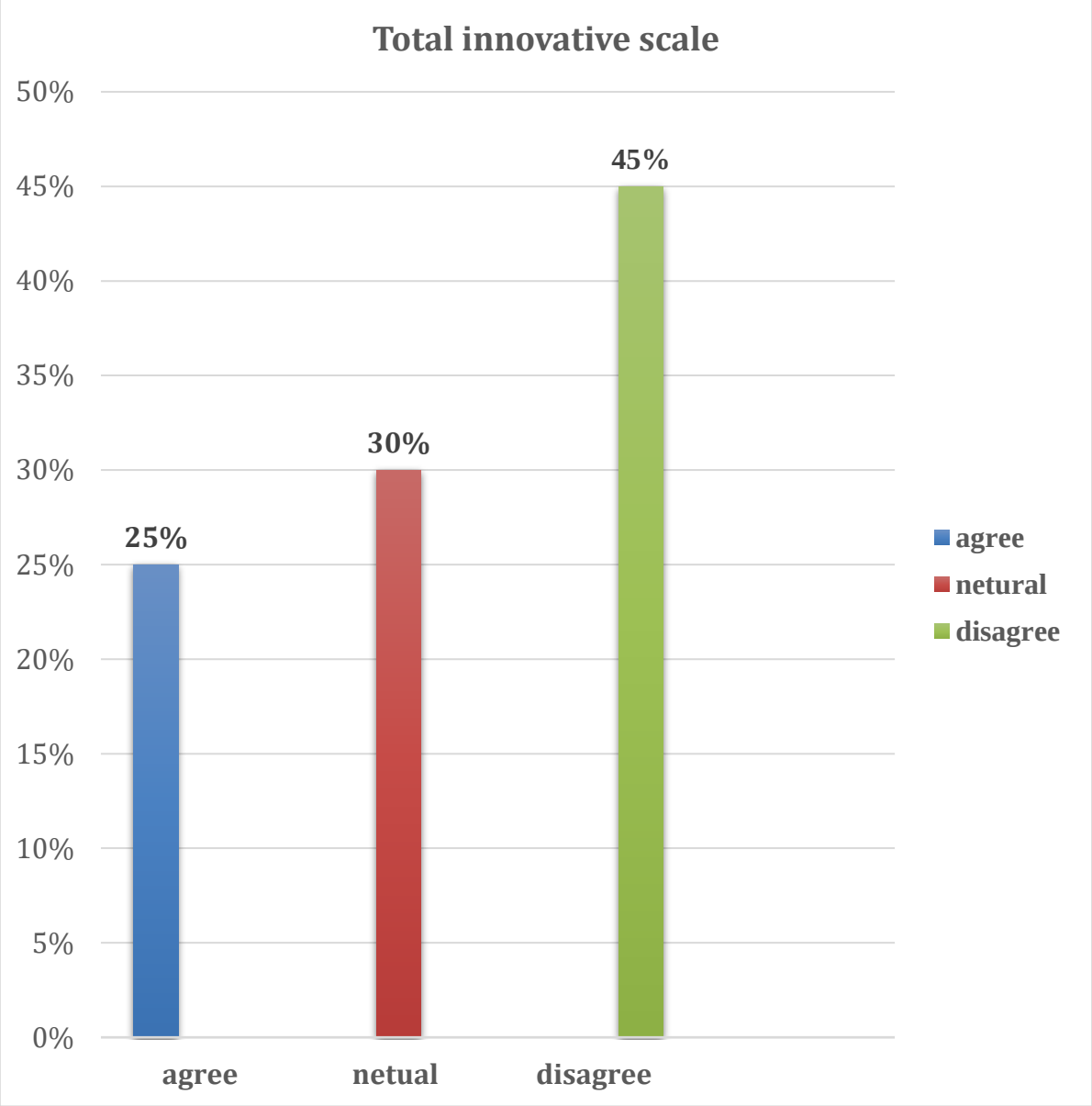

Figure (2): distribution of the studied vocational nursing students toward total innovative scale (N=100)

Table (4): distribution of the studied vocational nursing students across the five categories of innovativeness (N=100)

category	Score range	NO	%
innovators	Above 80	12	12.0
Early adaptor	69-80	28	28.0
Early majority	57-68	35	35.0
Late majority	46-56	18	18.0
laggards	Below 46	7	7.0

Table (5): relation total the Students Innovativeness Scale of vocational nursing students and their socio demographic data (N=100)

Vocational nursing students 'characteristics	Total the Individual Innovativeness Scale						Chi-square test	
	Agree N=25		Neutral N= 30		Disagree N=45			
	No.	%	No.	%	No.	%	x2	p-value
Age in years:-								
< 18	5	5.0	8	8.0	15	15.0	6.50	0.04
> 18	20	20.0	22	22.0	30	30.0		
Academic level								
Fourth year	15	15.0	18	18.0	30	30.0	4.75	0.09
Fifth Division	10	10.0	12	12.0	15	15.0		
Residence:							5.80	0.02
Rural	18	18.0	20	20.0	35	35.0		
Urban	7	7.0	10	10.0	10	10.0		
Family income							3.65	0.15
Sufficient	8	8.0	20	20.0	25	25.0		
Insufficient	17	17.0	10	10.0	20	20.0		

Table (6): relationship between total knowledge sharing level and total Innovativeness Attitudes among Vocational Nursing Students (N=100)

Total Sharing knowledge	Total the Individual Innovativeness Scale n=100						Chi-square test	
	Agree N=25		Neutral N= 30		Disagree N=45			
	No.	%	No.	%	No.	%	x2	p-value
Low(74.5)	10	10.0	15	15.0	35	35.0	12.25	0.002
High(25.5)	15	15.0	15	15.0	10	10.0		

Discussion:

The exploration of innovativeness attitudes among vocational nursing students is essential for shaping future healthcare environments. As the medical technologies developed rapidly, rank order students-nursing-Pink by graduate enlisted early nurses studied device innovation for the profession development. The study therefore explores innovativeness attitudes among vocational nursing students so as to try and build knowledge on their readiness to engage with new practices and technologies. With respect to their attitudes toward individual innovativeness and the correlation between knowledge sharing and innovative behavior .

Regarding to Socio-Demographic Characteristics of vocational nursing students the Current study was founded that more than two-thirds of the vocational nursing students are aged 18 or older. This finding is consistent with similar research conducted by **Khosravi et al., (2020)** in Iran, titled Demographic Characteristics of Nursing Students, who reported a significant

majority of nursing students also aged between 18-24. A study conducted by **McKenna et al., (2018)** in Australia, which diverged on this point, entitled Nursing Student Demographic Characteristics and Their Influence on Educational Outcomes, found the average age of nursing students was similarly concentrated in the above-18 age group. Regarding the academic levels of vocational nursing students showed a relatively even distribution, with more than half in their fourth year and less than half in the fifth year. This finding is consistent with previous research, such as that conducted by **Gallo et al., (2019),** which founded that nursing students often experience similar proportions in their academic progression, indicating that students typically advance through their education at comparable rates across various institutions. Understanding the academic levels of students can help educators identify specific support and resources needed to enhance learning outcomes, particularly for those nearing graduation.

Following residence, the current study indicates that approximately two-thirds of nursing students come from rural areas. This finding agreed with the results of a study conducted by **Lareau et al., (2021)** titled The impact of rural residency on nursing education in Canada which reported that a significant portion of nursing students also hailed from rural communities. The predominance of rural students in nursing programs may suggest a strong connection between community needs and the choice to pursue nursing, as students from these areas might be more inclined to enter the healthcare field to address local healthcare disparities. Moreover, the overwhelming majority of nursing students in the present study reported provisionally sufficient family income, with around one-third stating an insufficiency thereof. The result currently noted is supported by a study done **by Duffy et al., (2020)** indicating that nursing students from families in the low-income category often face multiple barriers in accessing resources and support, which may affect their academic standing and overall well-being.

According to the distribution of knowledge sharing among vocational nursing students through the Innovativeness Readiness Questionnaire, the current results reveals several high-scoring dimensions. Items such as Openness to New Ideas, Learning from others, and Willingness to Share Knowledge emerged as strong indicators of the students' positive attitudes toward innovation. This finding conforms to those of a study conducted by **Cummings et al., (2020),** The role of openness and collaboration in promoting innovative behaviors among nursing students that implies creating openness and collaborative culture among the learners can greatly enhance the learners' readiness to engage in innovative practices.

But many areas in need of improvement were also uncovered in the present study. Areas including access to resources and their regard for organizational culture for innovation scored below 60%, thus reflecting a low sharing of knowledge in these areas. This raises concern because a lack thereof severely restrains the student's initiation to engage any more readily into innovatory practices**. Zhao et al., (2021)** corroborated this present result entitled Factors influencing nursing students' readiness for innovation: A mixed-methods study, which indicated that unimpressive support infrastructure and resources bore notable implications for students when adopting new ideas or practices in their education. Besides, the finding showed leadership support and risk taken idea sharing scored more than two-thirds, that is not low, implying that students were moderately encouraged to exhibit innovative behavior. This is consistent with a research project of **Noh et al., (2022)** titled Leadership support and its impact on students' innovative behaviors in nursing education - again, most important was how leadership support catalyzes a culture of innovation in educational settings. While the scoring in these areas looks promising, it can also be said that some chance still exists for the further construction of an even stronger peaceful environment that perhaps might provide greater

mentorship to risk-taking regarding creativity for nursing students. From the researcher's viewpoint, while vocational nursing students exhibit high openness and willingness to share knowledge, the areas identified for improvement, such as access to resources and culture within the organization, should be addressed as they will enhance the overall readiness for innovation.

Overall, this study found that a large majority of vocational nursing students belong to the category of "high" knowledge sharing. This is a very positive indication that most students are very active in sharing knowledge and collaborating with their peers; meanwhile, it could help significantly improve the learning atmosphere and educational outcomes. This is in agreement with a study conducted by **Lee and Kim (2019),** the influence of knowledge sharing on innovation in nursing education: A comparative study, which focused on the necessity of high knowledge sharing in nurturing a culture of innovation in educational settings. Our results suggest that idea and experience exchanges among students enhance creativity and problem-solving skills that will prepare them for the unpredictable nature of healthcare. In contrast, the results revealed that greater than one-third of the students exhibit "low" knowledge sharing. These findings provide a critical perspective on barriers to collaboration and sharing information among this group of students. In fact, self-doubt, fear of being judged, and lack of support could be factors contributing toward these low scores. **Wang et al., (2020)** have shown results consistent with the present ones, as they stated that students who feel they are in an unsupportive environment might tend not to embark on knowledge sharing, greatly affecting their learning and professional growth.

It can be concluded from these findings that a very good level of students appear to demonstrate new ideas and that they look for innovative methods. They seem to feel positively toward the statements, for example; "I like trying new ideas" and "find new ways of doing things." Good news because a profession of nursing changes endlessly with practitioners who must adjust to newer evidence-based practices and technologies. Support of research undertaken by **Rogers et al., (2020)** on the role of innovation in nursing education: A diffusion of innovations perspective, suggested that those who deeply engage with new ideas should be more accommodated with the dynamic and changing needs of health care. However, the findings also showed a level of cautionary tone among nearly more than half of the students disagreed with the statement, "I generally caution against accepting new ideas." This shows that the same students may be divided at least in part toward innovations in some environments and are cautious when it comes to change because that leads both to ways of protecting oneself and holding one back. Being critical of new practices safeguards the rejection of unproven ideas. Yet, such wariness may engender a mindset resistant to what may be promising but untested innovations. This caution mirrors the research of **Anderson et al,. (2018)** who stated that skepticism in embracing innovations is frequent in the healthcare setting, particularly when the methods of students or professionals in practice are not assuredly certain in outcomes using new practices.

A current study also finding that two-thirds of the students consider themselves among the last to accept new things. This self-assessment could stem from a number of factors, including a lack of experience with innovative processes or a general preference for following established practices. It seeing peers succeed with a new idea makes students most likely to embrace it. This corresponds to Rogers' "Late Majority" category of the Diffusion of Innovations theory, in which individuals adopt innovations only after a large majority of others have done so. Of the students, more than two-thirds have characterized themselves as creative and original, self-perceptions that characterize them as innovators-a possible gap between students' self-representations and the behaviors. It would be likely that they consider themselves innovative

individuals, but they would be possibly reluctant to participate with it in an active manner. This paradox is further accentuated by the fact that half of the students were incredulous about new inventions. This reflects an incongruity whereby professional nursing students accept their creativity while being under no disillusion that this privilege will be granted to them in a real-world setting.

The introduction of knowledge sharing states that a huge chunk of students studying vocational nursing, approximately 69.8%, were characterized as either very high in knowledge sharing, actively sharing knowledge and collaborating with their peers. This seems to be a good indication as high knowledge sharing is one of the ingredients promoting collaboration as part of innovation in the learning environment. Particularly collaborative learning, where students share perspectives and learn from each other, is imperative in nursing education. Practical knowledge and experience demand student's input in this regard, to that effect **Johnson et al., (2019)** stipulate that students enlightened with knowledge sharing are most likely to embrace innovative practices in their clinical training and will, therefore, impact their learning positively. On the other hand, over one-third of students fall under the very low information-sharing classification. Such revelations cause alarm regarding potential obstacles to such collaboration. These may be barriers like low perceived self-efficacy, fear of social ridicule, or not enough opportunities for collaborative extracurricular activities. In stating this, **Smith et al., (2021)** allude that low information sharing could compromise innovative behaviors in students since those aspects render them less exposed to the wide scope of perspectives and ideas.

Regarding to distribution of the studied vocational nursing students toward total innovative scale the current study results shows that less than half of nursing students disagree with the statement related to innovativeness, about one third of the students are neutral, while only one quarter of students agree with the items related to innovativeness. The results concur with the investigation conducted by **Park et al., (2018)** which highlighted that healthcare students with greater openness toward innovation could address the challenges of the future and adjust to the context of changes in the medical field. The minor percentage of students perceiving themselves under the label of innovator could be attributed to the absence of an educational culture that encourages experimentation and risk-taking. In addition, these results have been affirmed by a similar study conducted by **Alford and Rose (2019)** in which students were more likely to claim that they were innovators if they were provided resources, mentorship, and opportunities to collaborate and share ideas without fear of judgment. Paradoxically, insufficient institutional support promotes a conservative mindset, within which such students become less likely to step outside of established norms.

Also, this low level of consensus on innovativeness-related items may indicate that vocational nurses' programs may have to instill some innovation-supporting approaches across their curriculums. These might include cognition-oriented approaches such as lessons that call for critical thinking and creativity, case studies, simulations, and problem-solving exercises. Further, promoting an innovative, supportive environment that praises students for their novelty and experiments with new ideas can encourage other students to find innovative solutions faced in real-world nursing challenges. The results imply that even though a few vocational nursing students perceived themselves as innovative, most had a neutral or adverse stance to change. Hence, considerable educational interventions are needed to modify the learning environment toward innovation and to empower students to actualize their confidence and ability to embrace change and improvements in healthcare practice.

Distribution provided by the studied vocational nursing students across the five categories of innovativeness indicated that the Early Majority group had more than one-third of vocational nursing students scoring between more than half and more than two-thirds. Close behind is the Early Adopter category that constitutes more than a quarter of students scoring most of them. In contrast, more than one-tenth of students fall into the Innovators category, scoring above the majority. In addition, less than a quarter of the vocational nursing students belong to the Late Majority group, whereas the Laggards have the least representation, with less than one-tenth of students in this category**.**

The present study is consistent with a study by **Kim et al., (2020)** in South Korea which found more or less similar results where the Early Majority formed the largest group among nursing students with only the Later Majority following it with Innovators and Laggards as the smallest groups. These findings may suggest that perhaps patterns of innovativeness among nursing students are not unique to any one country but instead reflect broader trends in nursing education and professional preparedness.

In incidental analysis aimed at determining the relationship between the Individual Innovativeness Scale of vocational nursing students and their socio demographic data, the current study found a statistically significant relationship between the two variables, namely age and attitudes towards innovativeness ($x^2 = 6.50$, $p = 0.04$). The students who were older than 18 were more inclined to agree or be neutral concerning their readiness to innovate, though younger students were less likely to agree (5.0%) and more likely to disagree. This could be interpreted in that older students are more ready and willing to adapt to innovations as they are most probably more mature in education and work settings. In a parallel study by **Çelik and Atasoy (2019)** carried out among nursing students in Turkey, it was concluded that older students were inclined toward innovation by virtue of having experienced a greater range of learning opportunities and healthcare challenges.

The relationship between innovativeness and academic level is not statistically significant ($x^2 = 4.75$, $p = 0.09$); some general trend was observed. This may suggest that the positive experience that students get through clinical practice may build up their confidence in the adoption of innovation or make them more cautious or hesitant towards taking innovation on board. This was further substantiated with, a study by **Robinson et al., (2020)** on nursing students in the UK similarly found that more senior students exhibited greater caution with respect to innovation. Possibly, this could be ascribed to higher stakes they attach to their clinical decision making. Another significant relationship was identified between residence and innovativeness ($x^2 = 5.80$, $p = 0.02$). Students from rural areas were more likely to agree or remain neutral regarding their innovativeness compared to urban students, where only 7.0% agreed and 10.0% disagreed. This finding suggests that rural students may be more open to innovation, possibly due to the unique healthcare challenges faced in rural settings, where access to resources is often limited, necessitating more creative and adaptive solutions. A study conducted by **Lee et al., (2021**) in South Korea also founded that nursing students from rural areas demonstrated greater innovativeness, as they were more exposed to healthcare disparities and thus more willing to adopt innovative practices to address these gaps.

Although the Chi-square relationship with innovative-ness was not significant for family income ($x^2 = 3.65$, $p = 0.15$), data showed that students with the financial means were inclined to remain neutral/disagree towards their innovativeness, unlike those students with less scope of income, where that ratio was exactly in agreement with their innovativeness. This is probably because students who come from lower-income backgrounds see innovation as their

advancement in careers and overcoming of socio-economic barriers; it is probably because **Martinez et al., (2018)** reported that their nursing students from disadvantaged backgrounds showed higher motivation to innovate, as they saw it as a way of gaining leverage to improve upon their professional standing and contribute to health care reform .

The present study revealed a significant correlation between levels of knowledge sharing and attitudes toward individual innovativeness among vocational nursing students ($x^2 = 12.25$, $p = 0.002$). Among students with low knowledge sharing levels, more than one-third of them disagreed with having innovative attitudes. Limited interaction and idea exchange among peers seem to discourage willingness or ability to exhibit innovative behaviors. On the other hand, students with high levels of knowledge sharing, taking up only one-quarter of the total sample, had a more favorable disposition toward innovation. This points to the fact that students actively engaged in knowledge-sharing and peer cooperation have an inclination favoring innovation. This agrees with a study conducted by **Smith et al., (2020)** in Australia founded on a similar trend, where nursing students with higher levels of knowledge exchange were reported to be open to innovative practices and have an increased willingness to integrate new methods into their clinical practice. Yet some studies such as one conducted by **Jones and Green, (2019)** in the UK further explained that a collaborative learning environment molds the inclination toward innovation of students, especially in settings where teamwork and knowledge-sharing are encouraged. In conclusion, the significant correlation between knowledge sharing and innovativeness indicates the necessity to foster a collaborative environment in practical nursing education. Providing opportunities for students will not only improve their academic performance but also foster more innovation which will benefit their future practice in a dynamic health-care environment.

Conclusion:

According to the study findings, it can be concluded that, there was a significant majority, 69.8%, of the vocational nursing students fall into the "high" knowledge sharing category. There was a significant correlation between the overall level of knowledge sharing and attitudes toward individual innovativeness among vocational nursing students. The chi-square test result ($x^2 = 12.25$, $p = 0.002$) indicates that this relationship is statistically significant. For students with low knowledge sharing levels (74.5% of the total), a larger percentage (35.0%) disagreed with having innovative attitudes, while 15.0% were neutral, and only 10.0% agreed. On the other hand, among students with high knowledge sharing levels (25.5% of the total), 15.0% each were in the agree and neutral categories, and only 10.0% disagreed.

Recommendations:

The study's conclusions give rise to a considerable number of recommendations for enhancing the innovativeness attitudes of vocational nursing students:

- Nursing education programs should actively promote the knowledge sharing between the students through collaborative learning environments, peer discussions, and group projects.
- Nursing curricula should consider including modules and activities focusing on creativity, problem-solving, and evidence-based practice.
- Educational institutions should cultivate a milieu that nurtures risk and experimentation by providing students with access to resources and mentorship to facilitate and foster their innovative thinking.

- Leadership is so important for innovation that programs should include training facilitating nursing students as initiators of change to embrace innovative practices in healthcare contexts.
- Interaction among nursing students with other students from different healthcare fields can widen their perspectives as students are able to critique innovative practices from other fields, creating a wider repertoire for healthcare innovation.

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الملخص العربى

العلاقة بين مستوى تبادل المعرفة الإبداعية ومواقف الإبداع بين طلاب التمريض

المقدمة: الابتكار سمة حاسمة في المجال الديناميكي للرعاية الصحية، حيث تتطلب التطورات المستمرة من المهنيين التكيف واحتضان التغيير والمساهمة بأفكار جديدة.

اهدف الدراسة: تم إجراء الدراسة لاستكشاف العلاقة بين مستوى تبادل المعرفة الإبداعية ومواقف الإبداع بين طلاب التمريض بالمعهد الفني للتمريض بجامعه الازهر

التصميم البحث: تم استخدام دراسة مقطعية وصفية كمية لنقل الدراسة الحالية.

مكان الدراسه : أجريت الدراسة في المعهد التقني للتمريض، في مستشفى جامعة العز. الموضوعات: شارك جميع طلاب التمريض المهني المتاحين البالغ عددهم 100 طالب من الأعوام الدراسية (2022-2023).

ادوات البحث:

تم استخدام أداتين لجمع البيانات.

النتائج: تُظهر الدراسة الحالية أن 65٪ من الطلاب تبلغ أعمارهم 18 عامًا أو أكثر. كانت هناك أغلبية كبيرة تمثل (69.8٪) من طلاب التمريض المهني يندرجون في فئة "مشاركة المعرفة العالية"كما كان هناك ارتباط كبير بين المستوى العام لتبادل المعرفة والمواقف تجاه الإبداع الفردي بين طلاب التمريض المهني. نتيجة اختبار مربع كاي ($x^2 = 12.25$، ص = 0.002).

الاستنتاج: كانت هناك أغلبية كبيرة، 69.8٪، من طلاب التمريض المهني يندرجون في فئة "مشاركة المعرفة العاليةكما كان هناك ارتباط كبير بين المستوى العام لتبادل المعرفة والمواقف تجاه الإبداع الفردي بين طلاب التمريض المهنيوايضا كان هناك ارتباط كبير بين المستوى العام لتبادل المعرفة والمواقف تجاه الإبداع الفردي بين طلاب التمريض المهني.

التوصيات: يجب على المؤسسات التعليمية تعزيز بيئة تدعم المخاطرة والتجريب من خلال تزويد الطلاب بإمكانية الوصول إلى الموارد والتوجيه والقيادة التي تشجع التفكير الإبداعي.

مفاتيح البحث: مواقف الإبداع، المهني، طلاب التمريض