Basic Research Green Intellectual Capital: It's Relation to Organizational Reputation and Entrepreneurial Orientation among Head nurses

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ABSTRACT

Background: Green intellectual capital (GIC) is one of the important mechanisms that help organization achieves excellence; improve the level of performance and its reputation and has effect on entrepreneurial orientation of organization. This study aimed to investigate green intellectual capital and it's relation to organizational reputation and entrepreneurial orientation among head nurses. **Design:** A descriptive correlational design was used. **Setting:** the study was conducted at the in Benha University Hospital, Qalyubia Governorate, Egypt at Medical, Critical care, and surgical units. **Sample:** All head nurses and their assistants who are available at the time of data collection and there number was 72. Data collection tools: Three tools were used for data collection; green intellectual capital questionnaire, organizational reputation questionnaire and entrepreneurial orientation questionnaire. **Results:** More than half of head nurses and nearly half of them (58.3% & 48.6%) had a moderate perception level of green intellectual capital and entrepreneurial orientation respectively. Also, more than two-thirds (67.5%) of head nurses had a positive perception level regarding organizational reputation. Conclusion: There was a highly statistically significant positive correlation between head nurses' perception of green intellectual capital with organizational reputation and entrepreneurial orientation. The study recommended: Periodic awareness sessions & workshops should be conducted to increase the green intellectual capital that helps in adopting different ways of decision-making and promote sustainability of healthcare organizations.

Key words: Entrepreneurial Orientation, Green Intellectual Capital, Organizational Reputation, Head nurses.

Introduction

Organizations must excel and be innovative in their ideas and services in a technique that differentiates them from other competitors. Many organizations' ability and desire to adapt to these changes are essential to their continuity and survival. Green intellectual capital enables organizations to quickly adjust to changes and maintain market dominance. The most essential factor in fostering organizational effectiveness is green intellectual capital and frequently serves as a valuable resource and a significant driver of professional achievement and value creation. A future-oriented intangible value driver in an organization is green intellectual capital (Zerr & Aaqoulah, 2021).

Green intellectual capital (GIC), which is the development of intellectual capital, is a crucial part of the business strategy that emphasizes knowledge and human resources. GIC is the sum of all intangible assets that an organization, person, or other entity owns, including knowledge, capability, relationships, and green innovation (**Susandya** *et al.*, **2019**).

Additionally, green relational capital refers to the entire stock of knowledge, abilities, experience, professional skills, core organizational techniques, customer relationships, and other intangible assets that can create organizational value and give organizations a competitive edge in the market. This capital is divided into three categories: Human, structural, and green relational capital. Together, these three types of capital show the organization in motion as it converts its knowledge, expertise and abilities into competitiveness and riches (Liao *et al.*, 2021).

The first dimension of GIC is *green human capital*, which serves as one of the main catalysts for organizational innovation and describes how employees' knowledge, skills, experience, creativity, commitments, and leadership abilities are finally presented. Additionally, it comprises the employees' abilities, ingenuity, and knowledge, which are developed through investments in training programs. Employees can thus gain from the information exchange by sharing specialized knowledge, expertise, and specific practices with one another for more effective work performance (**Papa et al., 2020**).

The second dimension is *green structural capital*, which is concerned with the stocks of organizational capabilities, reward systems, information technology systems, databases, managerial mechanisms, operation processes, philosophical frameworks, organizational cultures, procedures, rules, and policies that support decision-making (Alfatis & Nassani, 2023). The final dimension is *green relational capital* which refers to ability of the organization to build green relations based on the trust with variety of stakeholders, including customers, suppliers, network participants and partners (Asiaei *et al.*, 2022).

As the intellectual asset is invisible and does not appear in the financial records, GIC is the hidden value that benefits the firm. Also, GIC can be used as an assessment tool to develop sustainable staff that can fulfill the organization's future needs. Moreover, it has a substantial impact on employee and organizational performance. Unfortunately, some organizations disregard the value of human resources because they are unaware that human resources are a component of intellectual capital, despite the fact that intellectual capital improves the quality of services and increases an organization's competitivenesss (Li et al., 2019).

Besides, green intellectual capital is the most important factor in fostering organizational success, which promotes organizational effectiveness, helps to boost productivity, enhances organization image as well as enables organizations to satisfy customer demands, create value for the organization, meets environmental regulations and promotes business sustainability (**Yusoff** *et al.*, **2019**). Furthermore, GIC increases employees' organizational commitment and reducing employees' turnover intention (**Liao** *et al.*, **2021**).

Measuring green intellectual capital is beneficial for the following reasons: it helps organizations adjust their strategies, facilitates decision-making regarding diversification and expansion, aids in evaluating the implementation of strategies, allows stakeholders to identify norms related to intellectual capital, and, finally, the outcomes of intellectual capital measurement can serve as a foundation for service compensation (Abu Zerr, 2020). Besides, GIC is necessary for an organization to operate well and generate long-term profitability; in other words, intellectual capital is critical to achieving innovation and enhancing organizational reputation (Januškaite & Užien, 2018).

Reputation is a perceptual representation of an organization's past actions and prospects that describe the organization's overall appeal to all of its key constituents when compared to other leading rivals (**Chaudhri** *et al.*, **2021**). Organizational reputation is a valuable intangible asset for every business which reflects the organization's relative position internally with talent in the organization and externally with other stakeholders (**Soeling** *et al.*, **2022**).

According to **Del-Castillo-Feito** *et al.*, (2020) organizational reputation dimensions include; organizational performance, innovation, citizenship, services, governance, and workplace climate. Good reputation in healthcare organizations provides benefits such as attracting and retaining a qualified workforce, increasing the loyalty of the nurses, increasing the market value, providing financial gain, and attracting the enterprisers (Ugwunwanyi *et al.*, 2021).

Besides, organizational reputation can lead to some favorable benefits such as profitability, lowering costs, customer retention, economic growth, service and product quality, enhanced performance, higher income and employee loyalty, organizational commitment, organizational identification, and organizational trust (**Erkul** *et al.*, **2018**).

Also, an organization with a good reputation is considered to have higher levels of satisfaction among key stakeholders, such as; investors, nurses, and clients, financial stability, attracting clients, and creating client loyalty (**Irfan** *et al.*, **2020**). Likewise, perceived organizational reputation helps organizations to achieve their strategic goals of creating value, achieving sustainable competitive advantage that contributes to their survival and overall growth, and giving the organization confidence and support in times of crisis (**keshta** *et al.*, **2020**).

Likewise, in order to survive and advance, organizations must be committed to engage in entrepreneurial activities in the face of today's rapid global change and dynamic competitive situations. An entrepreneurial organization is willing to adapt to changes in the external environment and makes its programs consistent with these changes (**Akgün** *et al.*, **2019**). Entrepreneurial orientation (EO) is defined as the ability of an organization to reenergize, innovate, and take prudent risks. Additionally, entrepreneurship seeks to develop valuable, creative innovations (**Genc** *et al.*, **2019**).

Also, Entrepreneurial orientation can also be expressed as the opportunity to explore orientations that are a part of finding a market and developing an organization's future benefits, which can also be connected to innovation, suggesting that organization's capacity for innovation also rises by entering new markets (Abbas *et al.*, 2022). EO is denotes to the entrepreneurial behaviors of an organization as reflected in organizational activities, strategies, and processes. EO level contains five dimensions namely; innovativeness, autonomy, risk-taking, competitive aggressiveness and proactiveness (Ha, *et al.*, 2021).

Innovativeness is defined as the process of turning an idea into a tangible product or service that adds value for the consumer. It also refers to an organization's capacity to support innovative activities while fostering new ideas during the provision of new services. *Autonomy* refers to the independence, freedom, and authority granted to nurses so they can experiment with new concepts and take part in decision-making (**Buli, 2017**).

Risk-taking is defined as engaging in nebulous acts and taking calculated risks in the face of uncertainty. It also refers to the desire to invest significant resources in projects that may fail and take place in uncharted territory. *Competitive aggressiveness* describes the level of competitiveness and the ability to surpass rivals in order to gain an advantage. Such aggression develops into a code of conduct that is completely endorsed by all

managerial levels, institutionalizing itself in the organization's structure and culture (Monteiro et al., 2017).

Last but not least, *proactiveness* describes an organization's approach to anticipating and meeting future demands and wants in the market, creating a first-mover advantage. Having a vision for the future and allocating possibilities for new services is the greatest way to illustrate it. As a result, proactive organizations are renowned for being innovators who seize new chances (**Sok** *et al.*, **2017**).

Entrepreneurial orientations put more of an emphasis on creating an organizational culture that fosters cooperative relationships with consumers and suppliers and has favorable marketing, technological, and financial capabilities, which has a higher impact on proactiveness, autonomy, and innovation. Organizations that promote EO as a cultural attribute of their organization are better able to seize chances because EO helps them overcome inertia and avoid becoming rigid in a rapidly changing environment (Al-Jinini *et al.*, 2019).

Furthermore, entrepreneurial orientation is regarded as one of the most significant markers of social knowledge and rationalization in terms of society's development strategies, goals, and programs. Additionally, nursing entrepreneurship offers nurses the chance to work for themselves, enabling them to pursue their individual goals and passions to enhance health outcomes utilizing cutting-edge methods (Ali *et al.*, 2020).

Significance of the study

Achieving sustainable development depends heavily on the components of green intellectual capital, which are widely considered the cornerstone of future rapid economic growth and wealth accumulation. Stressing the value of GIC can help an organization's reputation while also enhancing its competitive edge and contributing to economic growth and sustainability. Intellectual capital is more widely recognized as a crucial component of boosting an organization's non-financial and creative performance in the age of globalization (Li *et al.*, 2019).

Also, as mentioned before, to cope with changes, maintain continuity and competitive advantages of organization, achieve organizational goals, build positive reputation about organization and meet customer needs and expectations, the organization has to adopt the entrepreneurial orientation as it has important role in increasing recognition of the value of services delivered. As well, for achieving ideal entrepreneurial orientation, the organization depends on a set of components, the most important of which is green intellectual capital. So, this study aimed to investigate green intellectual capital and it's relation to organizational reputation and entrepreneurial orientation among head nurses.

Aim of the study

In this study, we investigate green intellectual capital and it's relation to organizational reputation and entrepreneurial orientation among head nurses.

Research questions:

The following research questions were considered to accomplish the aim of the study:

- 1. What is the level of perception among head nurses of green intellectual capital?
- 2. What is the level of head nurses' perception of organizational reputation?
- 3. What is the level of perception among head nurses of entrepreneurial orientation?

4. Is there a relation between the head nurses' perception of green intellectual capital and organizational reputation and entrepreneurial orientation?

Subjects and method

Research design:

For the purpose of the current research, a descriptive correlational design was used.

Research setting:

The current study was conducted in Benha University Hospital, Qalyubia Governorate, Egypt at Medical, Critical care, and surgical units. There are 880 beds available in the hospital and it is made up of three distinct buildings; the medical building has 34 units with a total of 478 beds, including 11 critical care units. The ophthalmology building with a bed capacity of 18 beds, whereas the surgical building has 21 units and a bed capacity of 384.

Subjects:

All head nurses and their assistants who are available at the time of data collection and working in the previously mentioned setting were participated. There number was 72.

Data gathering instruments:

The three tools were used to collect the data:

Tool I: Green Intellectual Capital Questionnaire: It included two parts:

Part I: Personal characteristics of the head nurses including; age, sex, marital status, educational level and years of experience.

Part II: A questionnaire was adopted from **Bombiak**, (2021) and modified by the researchers to indicate the perception level of head nurses of green intellectual capital. It consisted of 30 items grouped under three dimensions which are: Green Human Capital "12 items", Green Structural Capital "10 items" and Green Relational Capital "8 items". All items were rated on a 3-point Likert Scale as following: Agree (3), Neutral (2), and Disagree (1). The scores ranged from 30 to 90, and the cutoff point was made at 60% = 54 points. Accordingly, the head nurses' perception level of green intellectual capital was categorized as follows; "High level" if the percent $\geq 75\%$ equals 68 to 90 points, "Moderate level" if the percent from 60- < 75% equals 54 to 67 points and "Low level" if the percent < 60% equals 30 to 53 points.

Tool II: Organizational Reputation Questionnaire:

A structured questionnaire was designed by the researchers based on (Vidaver-Cohen, 2007; Ver či c *et al.*, 2016; Del-Castillo-Feito *et al.*, 2020) to assess organizational reputation level as perceived by head nurses, and it contained 17 items under 6 dimensions namely: Performance "3" items, innovation "2" items, citizenship "3" items, services "3" items, governance "3" items, and workplace climate "3" items. The responses of head nurses were measured on a three-point Likert scale as follows; Agree (3), Neutral which means cannot respond or determined (2), and Disagree (1). Scores were determined by summing and averaging the items in each dimension and ranged from 17 to 51, and a cutoff point was made at 75% = 38 points. Accordingly, scores that reflect the level of organizational reputation were categorized as the following: "Positive level" if the percent $\geq 75\%$ equals ≥ 38 points, and "negative level" < 75 % which equals < 38 points.

Tool III: Entrepreneurial Orientation Questionnaire:

It was created by **Al-Jinini et al.**, (2019) and modified by the researchers to assess the perception level of entrepreneurial orientation among head nurses. It included 18 items grouped into five dimensions: innovativeness (5 items), proactiveness (3 items), autonomy (4 items), risk taking (3 items), and competitive aggressiveness (3 items). Responses were valued by using a 3-point Likert scale as follows; "agree" (3), "neutral " (2), and "disagree" (1). The total score for each dimension, which ranged from 18 to 54 percent, was calculated. The threshold was set at 60% = 33. Accordingly, the level of perceived entrepreneurial orientation of head nurses was classified as "High level" if the percent $\geq 75\%$, which equals 41:54 points, "Moderate level" if it < 60%, which equals 18:32 points.

Instrument validity

Five nursing administration specialists from nursing faculties, including two professors from Menoufia University, one professor from Ain Shams University, and two assistant professors from Benha University, established the research instruments' content validity. For topic coverage, phrasing, clarity, length, structure, and overall appearance, each expert was requested to review the data gathering tools. The required adjustments were made in accordance with their suggestions. To guarantee the accuracy of the translation, a double translation into Arabic and English was performed. It was done on December, 2022.

The ethical issues

The present investigation gained ethical permission after being given the go-ahead by the research committee of the Faculty of Nursing, as well as the study settings for data collection, with proper respect for the rules of research ethics and the participants' rights. There was a confidentiality agreement for each participant, and their information was exclusively used for study. The right to leave is reserved for every participant. Before beginning, the head nurses received a thorough explanation of the study's objectives and the questionnaire's completion process. It was done on January, 2023

Pilot Study

Prior to beginning the actual data collection, a pilot study was undertaken on a sample of (10%) eight head nurses to see if the tools were understandable and practical, and to gauge the time required to complete the questionnaires. Twenty to twenty-five minutes were needed to finish each questionnaire. Head nurses were included in the main study subjects, with no adjustments made. It was done on February, 2023.

Instrument Reliability

By computing a Cronbach's Alpha Coefficient for each tool, the internal consistency and homogeneity of the tools were assessed, and the value of green intellectual capital questionnaire, organizational reputation questionnaire and entrepreneurial orientation questionnaire were (0.93, 0.92 and 0.90) respectively. This proved the great reliability of questionnaires.

Procedure:

Once authorization to move forward with the planned research was obtained by the hospital's nursing administrator, the actual fieldwork was conducted in 2023 from the

beginning of mid-February to the end of March. Head nurses who accepted to participate in the study were informed of the study's purpose and absolute secrecy was promised to them. Also, before distributing the questionnaires to the study sample at their workplaces an explanation of it was completed.

According to the head nurses' availability, the researchers collected data from them before to and after work hours. The researchers were present when the data was gathered during the morning shifts from 9.00 AM to 2.00 PM on Sunday and Wednesday of each week. There were typically between 5 and 6 sheets filled. As soon as the forms were finished, they were collected and thoroughly reviewed to make sure no information was left off. The researchers concluded by expressing their gratitude to the volunteers for their participation.

Statistical analysis:

The Statistical Package for Social Sciences (SPSS) version 20.0 was used for data entry, followed by data analysis and tabulation. Number, frequency, Mean, and standard deviation values were reported to estimate the head nurses' levels of perception of variables. An Independent t-test was used to test the difference between the means of continuous variables. ANOVA-test (F- test) was used to test the difference between more than two means of continuous variables. The correlation between two continuous variables was examined using the Pearson correlation coefficient test. A significant level value was considered $p \le 0.05$, and a highly significant level value was considered $p \le 0.05$ indicates non-significant results.

Results

Table (1): Shows that, more than half (55.6%) of the studied head nurses were in the age group ranging from 30 to 40 years with a mean age of 35.68 ± 6.23 years. In terms of sex and marital status, most (86.1% & 87.5%) of them were female and married, respectively. As regards their educational level, slightly more than one-third (37.5%) of them had a bachelor degree in nursing science. Also, slightly less than half (47.2%) of head nurses' years of experience ranged from 10 to 20 years, with a mean experience of 14.84 ± 6.94 years.

Figure (1): Shows that, more than half of head nurses (58.3%) had a moderate perception level of green intellectual capital, while more than one-third (37.5%) of them had a high perception level and minority 4.2% of them had a low level of green intellectual capital perception.

Table (2): Indicates that the total mean score for all dimensions of head nurses' perception regarding green intellectual capital was 65.08 ± 6.78 . The first ranking with the highest mean score 27.75 ± 4.26 was related to green human capital dimension followed by green structural capital and finally green relational capital with a mean score (20.82 ± 2.89) & 20.82 ± 2.89) respectively.

Figure (2): Shows that more than two-thirds (67.5%) of head nurses had a positive perception level while less than one-third (32.5%) of them had a negative perception level regarding organizational reputation.

Table (3): Indicates that the total mean score for all dimensions of head nurses' perception regarding organizational reputation was 39.57 ± 2.40 . The first ranking with the highest mean score 7.93 ± 0.94 with a mean percent of 88.1 % was related to the performance dimension. While the last ranking with the lowest mean score of 3.61 ± 0.97 with a mean percent of 60.2 % was related to the innovation dimension.

Figure (3): Clarifies that nearly half (48.6%) of head nurses had a moderate perception level of entrepreneurial orientation, while, less than one-third (31.9%) of them had high perception level and nearly one-fifth (19.5%) had a low perception level regarding entrepreneurial orientation.

Table (4): Displays that, total mean scores of entrepreneurial orientation dimensions was 37.35 ± 5.65 . The first ranking with the highest mean score of 9.58 ± 1.51 with a mean percent of 79.8 % was related to autonomy dimension, while, the last ranking with lowest mean score of 4.68 ± 1.26 was related to competitive aggressiveness dimension.

Table (5): Reveals that, statistical significant relations were found between head nurses' age and years of experience with their perception of green intellectual capital and organizational reputation. However, no statistically significant relations were found between head nurses' personal characteristics and entrepreneurial orientation perception. Also, no statistically significant relations were found between head nurses' sex, marital status and educational levels with green intellectual capital and organizational reputation.

Table (6): Reveals that there was a highly statistically significant positive correlation between head nurses' perception of green intellectual capital with organizational reputation and entrepreneurial orientation. Also, there was a highly statistically significant positive correlation between organizational reputation and entrepreneurial orientation (p<0.001).

Table (1): Frequency distribution of the studied head nurses regarding theirpersonal characteristics (n=72)

Personal characteristics	No.	%			
Age in years					
< 30	12	16.6			
30-40	40	<mark>55.6</mark>			
> 40	20	27.8			
Mean ± SD	35.68±6.23				
Sex					
Female	62	<mark>86.1</mark>			
Male	10	13.9			
Marital status					
Married	63	<mark>87.5</mark>			
Unmarried	9	12.5			
Educational levels					
Diploma of nursing	10	13.9			
Technical nursing institute	23	31.9			
Bachelor degree in nursing science	27	<mark>37.5</mark>			
post graduate study	12	16.7			
Years of experience					
< 10 years	16	22.2			
10-20 years	34	<mark>47.2</mark>			
> 20 years	22	30.6			
Mean ± SD 14.84±6.94					

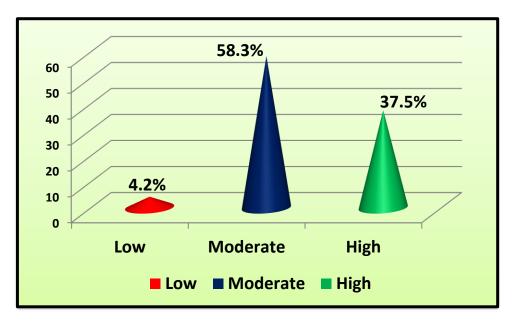


Figure (1): Perception levels of green intellectual capital among head nurses

 Table (2): Ranking with total mean and mean percentage of head nurses' perception of green intellectual capital (n= 72)

Green intellectual capital dimensions	Maximum Score	M±SD	Mean%	Ranking
Green Human Capital	36	27.75±4.26	77.1	1
Green Structural Capital	30	20.82±2.89	69.4	2
Green Relational Capital	24	16.51±4.04	68.8	3
Total	90	65.08±6.78		

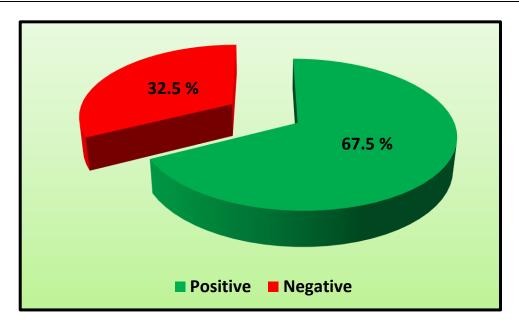




Table (3): Ranking with total mean and mean percentage of head nurses' perceptionof organizational reputation (n=72)

Organizational reputation dimensions	Maximum Score	M±SD	Mean%	Ranking
Performance	9	7.93±0.94	88.1	1
Innovation	6	3.61±0.97	60.2	6
Citizenship	9	7.76±1.29	86.2	2
Services	9	6.95±4.01	77.2	4
Governance	9	5.76±1.31	64.0	5
Workplace climate	9	7.56±0.70	84.0	3
Total organizational reputation	51	39.57±2.40		

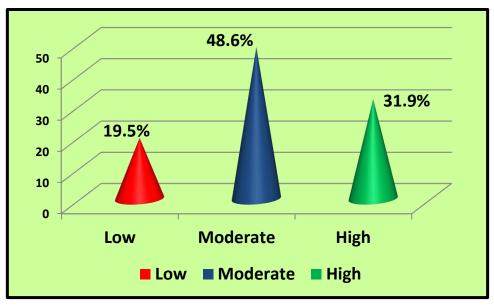


Figure (3): Head nurses' perception levels regarding entrepreneurial orientation

Table (4): Ranking with total mean and mean percentage of head nurses' perception
of entrepreneurial orientation (n= 72)

Entrepreneurial orientation dimensions	Maximum Score	M±SD	Mean%	Ranking
Innovativeness	15	9.74±2.43	64.9	4
Proactiveness	9	6.82±1.31	75.8	2
Autonomy	12	9.58±1.51	79.8	1
Risk Taking	9	6.53±1.53	72.6	3
Competitive Aggressiveness	9	4.68±1.26	52	5
Total	54	37.35±5.65		

Table (5): Relation between green intellectual capital, organizational reputation and entrepreneurial orientation with personal characteristics of head nurses (n=72)

Personal Characteristics	Green intellectual capital	Organizational reputation	Entrepreneurial orientation		
	Mean±SD	Mean±SD	Mean±SD		
Age (years)					
<30	61.58±7.67	35.85±1.13	35.67±5.93		
30: 40	64.30±6.31	39.66±2.11	38.15±5.62		
> 40	68.75±5.75	36.00±2.00	36.75±5.53		
F value/p-value	5.375/0.007*	5.271 / 0.013*	1.047/0.357		
Sex					
Female	64.50±6.88	38.76±5.22	40.10±7.62		
Male	68.70±5.01	38.50±4.93	36.90±5.21		
t value/p-value	1.234/0.270	0.039 / 0.844	1.592/0.211		
Marital Status					
Married	64.94±7.09	38.46 ± 5.34	37.08±5.62		
Unmarried	66.11±4.11	40.56 ± 3.21	39.22±5.85		
t value/p-value	2.470/0.121	1.468/ 0.230	0.034/0.855		
Educational levels					
Diploma of nursing	54.40 ± 4.95	36.80±6.41	35.00±5.46		
Technical nursing institute	62.78±4.31	37.39±4.95	35.22±6.15		
Bachelor degree in nursing	67.04±2.89	39.93±5.05	39.15±4.61		
science					
post graduate study	74.08 ± 2.87	40.17±3.92	39.33±5.42		
t value/p-value	0.485/0.490	0.424/0.519	1.176/0.287		
Years of experience					
<10	68.81±3.76	34.00 ± 6.46	36.88±4.59		
10-20	63.68±6.54	39.12 ± 3.26	38.35±5.93		
> 20	64.59±8.03	41.54 ± 4.19	36.14±5.86		
F value/p-value	3.418/0.038*	13. 766 / 0.000**	1.102/0.338		

F: One way ANOVA t= Independent t-test * statistically significant difference P ≤ 0.05 ** A highly statistically significant difference P ≤ 0.001)

Table (6): Correlation between head nurses' perception of green intellectual capital,
with organizational reputation and entrepreneurial orientation (n=72)

Variables		Total green intellectual capital	Total organizational reputation	Total entrepreneurial orientation
Total green intellectual capital	r		0.786	0.396
-	P		0.000**	0.001**
Total	r	0.786		0.399
organizational reputation	Р	0.000**		0.001**
Total	r	0.396	0.399	
entrepreneurial orientation	Р	0.001**	0.001**	

** A highly statistically significant difference $P \le 0.001$)

Discussion

Today, the green intellectual capital has become more crucial to the organization than ever before due to the issue of employee turnover owing to layoffs, resignations, and retirement. The organization and what functions best for their company are well known to employees. Because of this, organization must respect their staff members highly if they want to maintain their loyalty through the current economic downturn. If workers feel undervalued, they will seek out positions with higher advancement prospects (**Rizvi & Garg, 2022**).

Regarding personal characteristics of the studied head nurses, study sample shows that, more than half of the studied head nurses were in the age group ranging from 30 to 40 years with a mean age of 35.68 ± 6.23 years. In terms of sex and marital status, most of them were female and married. As regards their educational level, slightly more than one-third of them had a bachelor degree in nursing science. Also, slightly less than half of head nurses' years of experience ranged from 10 to 20 years, with a mean experience of 14.84 ± 6.94 years.

About perception level of green intellectual capital, the study results showed that, more than half of head nurses had a moderate perception level of green intellectual capital, while more than one-third of them had a high perception level and minority of them had a low level of green intellectual capital perception. It might be due the conviction of head

nurses to the total value of all organization's intangible assets. In addition to the type of the organization's operational regulatory environment which have an effect on the total performance of multidisciplinary team. Also, continuous meetings in the hospital in which the new direction of the concept of green thought was presented and the agreement on the method of thinking and performance, which become the general trait among the members of the health team.

This result was in contrast with Yusliza *et al.*, (2020) & Swanson, (2022) who reported that the employee had low perceptions level of green intellectual capital.

Concerning dimensions of green intellectual capital, the findings revealed that the total mean score for all dimensions of head nurses' perception regarding green intellectual capital was 65.08 ± 6.78 . The first ranking with the highest mean score was related to green human capital dimension followed by green structural capital and finally green relational capital. From the researchers' point of view, this could be because the effectiveness of any hospital depends mostly on its leaders and staff members, as well as the breadth of their knowledge, skill, and attitude, which the service recipient evaluates on the accomplishments and distinction of this facility. The workforce is committed to promoting environmentally friendly workplaces and upholding ideals in their personal lives as well as at work. Similarity to environmental philosophy, knowledge, management systems, environmental protection and support procedures, strategies, and structures can force the organization's activity, which is a reflection of how the organization uses its human and organizational resources in order to achieve its goals.

This study finding is in accordance with a study conducted by **Ullah** *et al.*, (2020) who found that employees are supposed to acquire advantages from human capital through getting new knowledge, skills, and experience. On the other hand, Young et *al.*, (2019) found that the lowest rate was reported concerning green structural capital

Regarding organizational reputation, the results of the present study showed that more than two-thirds of head nurses had a positive perception level while, less than one-third of them had a negative perception level regarding organizational reputation. This might be due to that Benha university hospital's leaders reflect positive image to staff nurses about its contributions to provide quality of health care, confidence in the competence of professionals, belief that the treatments applied at the hospital had the desired results, demonstrates the organizations' ability to fulfill the interest and objectives of stakeholders which composed of employees, suppliers, clients and government. Also, new areas had been expanded in the hospital as emergency department and new operating rooms had been opened and worked with new advanced equipment to provide services for meeting clients' demands. The findings of the present study were in the same line with **Mira** *et al.*, (2013) who found positive perception of patients and relatives regarding hospital reputation. Besides, **Ahmed**, (2017) reported that the level of organizational reputation in Jordanian pharmaceutical companies was high. Also, **keshta** *et al.*, (2020) found that the perceived organizational reputation is available at a high level in Islamic banks in Palestine at a rate of (79.931%). On the other hand, **Ramgoolam**, (2016) found that the participants expressed a very negative perceived organizational reputation,

About dimensions of organizational reputation, the results of the present study revealed that the total mean score for all dimensions of staff nurses' perception regarding organizational reputation was 39.57 ± 2.40 . The first ranking with the highest mean score was related to the performance dimension. While the last ranking with the lowest mean score was related to the innovation dimension. This could be due to that nurses have the competency to provide high quality of care to patients as they have the experience and high performance.

This result was contrasted with **Del-Castillo-Feito** *et al.*, (2020) who found the importance of each dimension in the perception of reputation according to the students' and professors' perceptions and evaluations, that students show that innovation is not a significant dimension with respect to the reputation construct, and in the case of the professors, innovation, performance, and services dimensions appear as not significant. In relation to reputation, the governance dimension appears as the lowest factor for both stakeholders.

Concerning entrepreneurial orientation perception level among head nurses, the findings found that nearly half of head nurses had a moderate perception level of entrepreneurial orientation, while, less than one-third of them had high perception level and nearly one-fifth had a low perception level. From the researchers' point of view, this could be due to the presence of entrepreneurs club and technology innovation commercialization office (TICO) at Benha university which held continuously workshops and camps on entrepreneurships, ideation, digital innovation and many different workshops to different stakeholders including students, postgraduates, academic staff and anyone who interested in this field. Also, head nurses believe that creating new plans and strategies with different approach can take advantage of chances that other organizations cannot take it, which in turn contribute to improve organizational performance, reputation and its competitive advantages, and head nurses' effectiveness in making proper decisions. Besides, head nurses believed in the abilities of entrepreneurial leaders to spot on the probability to raise the performance of nurses by appealing to higher patient requirements and care.

In this context, **Shah & Ahmad**, (2019) confirmed that entrepreneurial orientation helps organizations to develop better solution through differentiation for enhancing adoption to

the environmental complexities. Also, Hossain & Al Asheq, (2019) found that the important role of entrepreneurial orientation either strategies used or leadership style all influence organization performance. Likewise, Dehghanzadeh *et al.*, (2016) found in their study that the majority of the nurses have moderate entrepreneurship.

Concerning dimensions of entrepreneurial orientation, the results displayed that, total mean scores of entrepreneurial orientation dimensions was 37.35 ± 5.65 . The first ranking with the highest mean score of 9.58 ± 1.51 with a mean percent of 79.8 % was related to autonomy dimension, while, the last ranking with lowest mean score of 4.68 ± 1.26 was related to competitive aggressiveness dimension. It might be due to autonomy subscale is being an essential component of entrepreneurial leadership, which fostering an environment that is supportive for healthcare provider, nurses who are granted more autonomy are happier in their work the reason that make her take quick decisions according to her job description which have a beneficial impact on the standard of patient care.

This finding is in congruence with **Kül & Sönmez**, (2021) who identified that head nurses when use such techniques and service-oriented, these can empower nurses to develop innovative behavior, which can reflect autonomy in nurses' attitudes, where they autonomously take decisions in developing new ideas and new ways of delivering care, thereby improving the performance. Also, a study conducted by **Al-Mamary** *et al.*, (2020) on university students who reported that full autonomy with high degree of freedom in their work practices has a positive influence on entrepreneurship goal.

On the other hand, this result disagreed with **Mohamed** *et al.*, (2021) who found that nurses had low perception level of professional nursing autonomy. Also, **Molin** *et al.*, (2019) showed that nurses in management positions had greater proactivity scores than other nurses.

Concerning relation between studied variables with personal characteristics of head nurses, the study findings revealed that, statistical significant relations were found between head nurses' age and years of experience with their perception of green intellectual capital and organizational reputation. However, no statistically significant relations were found between head nurses' personal characteristics and entrepreneurial orientation perception. Also, no statistically significant relations were found between head nurses' sex, marital status and educational levels with green intellectual capital and organizational reputation. This can be explained by the greater the age of the person in his workplace, the greater his sense of responsibility towards the reputation of the place, in addition to the leadership and managerial skills, which consider key employees and their knowledge, professional abilities, work ethics, and work culture those are the antecedents of green intellectual capital which are the result of age and the years of experience which lead to competency when doing any task.

On the same line, **Galindo-Martín** *et al.*, (2020) who pinpoint in his study on the importance of experience in which learning capability of managerial personal can affect the performance of their subordinates and thus has a positive impact on their knowledge acquisition and performance. Also, **Del-Castillo-Feito** *et al.*, (2020) who found differences between the evaluations and perception made by students and professors regarding the value of reputation could be mainly related to their diverse characteristics in terms of age, knowledge, or degree of commitment with the institution. As well, **keshta** *et al.*, (2020) who revealed that there are no differences between the averages estimates of organizational reputation in Islamic banks due to gender, educational qualification and job title.

On the other hand, these results contrasted with **Agyabeng-Mensah & Tang**, (2021) who clarifies that organization are encouraged to invest in the training and education to develop green intellectual capital to advance green competitiveness, performance, and autonomy among healthcare providers. As well, **keshta** *et al.*, (2020) who revealed that there are no differences between the averages estimates of organizational reputation in Islamic banks due to age group and number of years of service.

Concerning the correlation between head nurses' perception of green intellectual capital, with organizational reputation and entrepreneurial orientation, the study revealed that there was a highly statistically significant positive correlation between head nurses' perception of green intellectual capital with organizational reputation and entrepreneurial orientation. Also, there was a highly statistically significant positive correlation between organizational reputation and entrepreneurial orientation (p<0.001). This might be due to that active investment in a healthcare organization's intellectual capital entails careful recruitment and selection, improving nurses' knowledge, skills and competencies through ongoing training and development and supporting an environment that is supportive of ongoing learning, creativity and innovation. Additionally, maintaining organizational culture and policies as well as establishing good relationships with stakeholders. All of this, in turn, encourages entrepreneurial orientation behaviors and practice and help healthcare organization becomes pioneers ahead of their rivals and improves its reputation.

This result is supported by Al-Jinini *et al.*, (2019), Braise *et al.*, (2019) who found that intellectual capital dimensions had a strong and positive effect on entrepreneurial orientation. Also, Ozkan *et al.*, (2017) who supposed that intellectual capital made a

significant contribution to value creation and raising the organization's performance and reputation.

Conclusion

In the light of the results of the current study, it can be concluded that more than half of head nurses and nearly half of them had a moderate perception level of green intellectual capital and entrepreneurial orientation respectively. Besides, more than two-thirds of head nurses had a positive perception level regarding organizational reputation. Likewise, there was a highly statistically significant positive correlation between head nurses' perception of green intellectual capital with organizational reputation and entrepreneurial orientation.

Recommendations

Based on the current study results the following recommendations should be followed:

- 1. Periodic awareness sessions & workshops should be conducted to increase the green intellectual capital that helps in adopting different ways of decision-making and promote sustainability of healthcare organization.
- 2. Better nurses with green thinking should be hired so that they can keep up with modern thinking, performance and competition in the labor market.
- 3. Health care institutions should adding entrepreneurial orientation strategy in their strategic planning in order to stay competitive in today's healthcare market.
- 4. Healthcare organizations should continue to be entrepreneurially minded and persistent in their efforts to stay current and keep up with the rapid change.
- 5. Managers should support head nurses in their ongoing personal development by providing them with opportunities to pick up new skills and stay informed.

Future researches are suggested:

- 1. Reapplying the study to a broad range of nursing staff at various levels in order to get more generalized results.
- 2. Evaluating the effect of green intellectual capital on nurses' innovation.
- 3. Explore the effect of entrepreneurial orientation on nurses' performance.
- 4. Assess the relation between entrepreneurial orientation and sustainable entrepreneurship.

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الملخص العربي

رأس المال الفكرى الأخضر: علاقته بالسمعة المؤسسية والتوجه الريادى بين رؤساء التمريض المقدمه: يعد رأس المال الفكرى الأخضر أحد الآليات المهمة التي تساعد المنظمة على تحقيق التميز؛ وتحسين مستوى الأداء وسمعتها وله تأثير على التوجه الريادي للمنظمة. الهدف من الدراسه: هدفت الدراسة إلى دراسة رأس المال الفكري الأخضر وعلاقته بالسمعة المؤسسية والتوجه الريادي بين رؤساء التمريض. تصميم البحث: تم استخدام التصميم الوصفى الارتباطي. مكان الدراسة: أجريت الدراسة في مستشفى بنها الجامعي بمحافظه القليوبيه، مصر، في وحدات الرعاية الحرجة و أقسام الباطنه و الجر احه. **عينة الدراسة:** إشتملت هذه الدراسة على جميع رؤساء التمريض ومساعديهم المتواجدون في المكان المذكور أعلاه وقت تجميع البيانات والبالغ عددهم إثنان وسبعون. أدوات جمع البيانات: تم تجميع بيانات الدراسة بإستخدام ثلاثة أدوات وهي: أولا: استبيان رأس المال الفكري الأخضر، ثانيا: استبيان السمعه المؤسسيه، ثالثا: استبيان التوجه الريادي. النتائج: أوضحت النتائج أن أكثر من نصف رؤساء التمريض، وما يقرب من نصفهم (58.3%، 48.6%) كان لديهم مستوى إدراك متوسط لكلا من رأس المال الفكري الأخضر والتوجه الريادي على التوالي. كما أن أكثر من ثلثى رؤساء التمريض (67.5%) كان لديهم مستوى تصور إيجابي فيما يتعلق بالسمعة المؤسسية. الاستنتاج: كان هناك علاقة إيجابية ذات دلالة إحصائية عالية بين تصور رؤساء التمريض لرأس المال الفكري الأخضر والسمعة المؤسسية والتوجه الريادي. التوصيات: أوصت الدراسة بضرورة عقد جلسات توعوية وورش عمل دورية لزيادة رأس المال الفكري الأخضر الذي يساعد في تبنى طرق مختلفة لصنع القرار وتعزيز الاستدامة لمؤسسات الرعاية الصحية. الكلمات المفتاحية: التوجه الريادي، رأس المال الفكري الأخضر، السمعة المؤسسية، رؤساء التمريض.