
The Association between Lean-Agile Leadership, Nurses Connectivity and Sustainable Development Practices

Rasha Mohamed Nagib Ali ¹ and Abeer Abdallah Ali²

¹ Assistant Professor of Nursing Administration, Nursing Faculty, Minia University, Egypt.

² Lecturer of Nursing Administration, Nursing Faculty, Minia University, Egypt.

Email: abeerali@mu.edu.eg

Abstract

The continuously changing healthcare landscape expands the responsibility of nurses beyond providing basic treatment to include sustainable development practices and transformative leadership. **Aim:** the current study aimed at studying the association between lean -agile leadership, nurses' connectivity, and sustainable development practices. **Research Design:** A descriptive research design was employed in the study. **Setting:** Two Minia University Hospitals were included in the study (Emergency Hospital; Kidney and Urology Hospital). **Sample:** A convenient sample of all 427 nurses working in the two hospitals under study at the time of data collection. **Study tools:** Three tools called Lean-agile leadership practice scale, nurse connectivity questionnaire, and sustainable development practices scale. **Results:** Most of the studied nurses at the two hospitals exhibited "High" responses toward lean-agile leadership practice and nurses' connectivity as well as sustainable development practices. **Conclusion:** A positive correlation existed between lean-agile leadership practice and both nurses' connectivity and sustainable development practices additional to positive association between nurses' connectivity and sustainable development practices. **Recommendations:** Offer leadership development courses with an emphasis on lean-agile concepts that are especially suited for healthcare environments.

Keywords: Lean-agile Leadership - Nurses' Connectivity - Sustainable Development Practices

Introduction

The dynamic nature of contemporary healthcare causes a paradigm shift in leadership toward approaches that encourage flexibility, teamwork, and ongoing development. Lean-agile leadership, a revolutionary leadership philosophy based on lean and agile concepts, is one such strategy that is becoming more and more popular (Solga, 2021). In addition to being essential to patient care, nurses are the front-line healthcare providers that make healthcare delivery systems function as a whole. In addition to streamlining operational procedures, applying lean-agile leadership concepts to nursing practices tries to build a work environment that promotes professional connectedness among healthcare providers and supports resilient and sustainable healthcare practices (Hayward, 2021).

Agile leadership places a high value on adaptability, candid communication, and the capacity to act swiftly in the face of changing conditions. Its foundation is in agile approaches, which were first used in software development but have subsequently spread to other sectors of the economy. In order to accomplish organizational goals in rapidly changing and uncertain situations, agile leaders cultivate a culture of continual enhancement, customer-centricity, and cooperation (Udokporo, 2017). In the lineage of efficiency-driven, outcome-focused health management methods, lean management represents the most recent administrative innovation (Jin Hong Kim, 2022).

Moreover, a framework known as lean-agile leadership oversees correctly integrating lean and agile principles in a large organization. It is a leadership concept created for today's fast-paced, globally networked, and dynamic business situations. It is mainly designed for organizations with complex difficulties and often changing

contexts and perspectives. Lean-agile leadership combines the ideas of agile approaches, which are frequently used in software development, with lean thinking, which was initially drawn from industrial methods. Lean-agile leadership prioritizes customer-centric value delivery, fosters collaboration, and aims to eliminate waste for increasing the organizational efficiency. by placing a strong emphasis on teamwork, ongoing improvement, and the capacity to act fast in the face of change (Godsey et al., 2020)

Furthermore, effective nursing leadership emphasizes the critical role that leaders play in fostering the teamwork and connectivity of nurses in the workplace. Beyond the conventional boundaries of in-person contacts, this connectedness includes collaborative decision-making, digital communication platforms, and a mutually supportive and knowledge-sharing culture. Connectivity among nurses is essential for the health of nursing staff as well as for the quality of patient care. A robust and successful healthcare system benefits from a linked nursing workforce, which guarantees patient-centered, safe, and efficient care delivery (Bogosian, 2018).

The term "nurse connectivity" describes how connected and cooperative nurses are in healthcare environments. It includes all the teamwork, communication, and information-sharing that go into creating a unified and effective nursing environment. Within the framework of contemporary healthcare delivery, nurses' connectedness is acknowledged as a critical component impacting staff satisfaction, patient care results, and overall organizational effectiveness. Moreover, sustainability refers to other categories of activities meant to protect the environment, like the more efficient use and conversion of natural resources (Lee, 2020).

The Global Goals, sometimes referred to as the Sustainable Development Goals (SDGs), are an international initiative to guarantee that everyone lives in peace and prosperity, end poverty, and safeguard the environment. This is the reason why the idea of sustainable development, which forms the cornerstone of an all-encompassing scientific paradigm of economic and material growth, appeals to a wide spectrum of experts and encourages their cooperation in researching the numerous facets of their global political, economic, and cultural insertion (**Burgess-Pinto et al., 2019**).

Embracing the collaborative ideas of nurses and fostering a culture of continuous self-improvement or organizational development, lean-agile leadership serves as a crucial model for instilling a commitment to sustainable practices among both leaders and fellow nurses. The adoption of sustainable development practices underscores nurses' commitment to purposefully mitigate the adverse effects of their activities on the natural work environment while striving for objectives through continuous talent enhancement. Practices such as ongoing education and training initiatives, the incorporation of cutting-edge technology, adherence to global safety standards, and the implementation of infection control protocols exemplify sustainable habits. Lean-agile leadership assumes a pivotal role in this transformation, shaping nurses' routine practices towards sustainability within their workplace. (**Williams, & Radnor, 2022**).

In order to be sustainable, health care must strike a balance between protecting the resources of future beneficiaries and using resources to satisfy current health needs. Scholars are increasingly in agreement with the idea that sustainability is a process rather than a conclusion in itself. More and more, sustainability is seen to be flexible and

tolerant of change in response to novel or shifting contextual impacts or multi-level elements including populations, data, leadership, and policies. Despite an increase in study, the topic of sustainable practices is still not well understood (**Shelton et al., 2018; Shelton & Lee, 2019**).

Because sustainability objectives have traditionally been defined numerically and dichotomously, it has been challenging to ascertain how different program components were maintained, expanded upon, or altered. Health care practitioners are beginning to recognize that sustainability practices in various contextual contexts are still inconsistent and subpar since current methods of monitoring sustainability results are still insufficient (**Nadalin Penno et al., 2019**).

Significance of the study

In a time of swift technological progress, shifting market conditions, and an unwavering desire for creativity, traditional leadership models are finding it difficult to adapt to the changing needs of the corporate world. Lean-agile leadership is a revolutionary paradigm that aims to rethink how businesses are led and managed in response to this need for flexibility and agility (**Solga, 2021**). Fostering a culture of cooperation, continuous improvement, adaptability, and a focus on delivering value to patients are some of the ways that lean-agile leadership can favorably influence nurses' connectedness and sustainable development practices (**Koning, 2020**).

Although understanding and fostering this relationship can lead to improved career outcomes for nurses and improved patient care, few studies have linked the interrelated variables that lean-agile principles help healthcare organizations create. This is because lean-agile principles support nurses in providing high-quality care while promoting sustainable practices. So, the

researchers introduced this study to identify lean-agile leadership practice and its association to connectivity and sustainable development practices among nurses as research and practical initiatives in this area which is multifaceted and plays a vital part in influencing nursing practice, leadership development, and patient care, all of which can support the profession's continued growth and the improvement of healthcare in general.

Aim of the study:

The current research aimed at studying the association between lean -agile leadership, nurses' connectivity, and sustainable development practices.

Research questions:

1. What are the levels of lean-agile leadership, connectivity, and sustainable development practices among the studied nurses?
2. Is there a relation exists between lean-agile leadership, nurses' connectivity, and sustainable development practices?

Subject and Methods:

Study's Setting:

The present study took place at two hospitals selected randomly from the Minia University Hospitals which are affiliated with the Ministry of Higher Education and Scientific Research named as coming:

- **The Emergency Hospital** which includes “Emergency Surgical Room, Emergency Medical Room, ICU, Intermediate Care Unit, Stroke, Surgical Dept.1, Surgical Dept.2, Surgical Dept.3, Poisoning, Operation, ENT, Medical Dept, Surgical Dept, Vascular Dept, Neuro Dept, Plastic Dept, Orthopedic Dept. Plastic Operation, ENT Operation, and MCU”.
- **Kidney and Urology Hospital** containing “Internal Nephrology Department, Dialysis Unit, Intensive Care Unit, Operations Department, Internal Urology Departments,

Outpatient Clinics, and Outpatient &Emergency Department”.

Study's Design

This study was carried out using descriptive correlational research design.

Study's Sample

The current study included convenience sample of nurses (n = 427) employed by Minia University Emergency Hospital and Minia University Kidney and Urology Hospital at the time of data collection, by using **Raso soft program and calculation** employing the down statistical formula.

$$x = Z^{(c/100)^2} r(100-r)$$

$$n = N x / ((N-1) E^2 + x)$$

$$E = \text{Sqrt} [(N - n) x / n(N-1)]$$

Data Collection Tools

This study used three tools to accomplish its purpose, which is as follows:

Tool I: Lean-agile Leadership Practice Scale: it consists of two parts as coming:

Part 1: Demographic Data Sheet: The researchers created to gather information on nurse's age, gender, residence, educational level, and experience years.

Part II: Lean-agile Leadership Practice Scale: The scale was developed by the researchers-based on a review of the literature, (**Borycki et al., 2014; Trapani, 2018; Hayward, 2021; Maximini, 2018; James et al., 2019**). It composed of 37 items used to assess nurses' perception level toward lean-agile leadership behavior. A three-point Likert scale was used to score the responses. Using the numbers 1 for disagree, 2 for neutral, and 3 for agreement. **Scoring system** was ranged from (37-111), the

perception level of nurses was considered low from (37–62) points”, scores from (63–86) were denoted as “moderate”, and scores from (87–111) were considered “high”.

Tool II- Nurse’s Connectivity Questionnaire: This tool was developed by (Abaahaam & Gretehen, 2009) It consisted of 10 items. Each statement was measured by a three-point Likert scale ranging as (1 = rarely, 2= sometimes, 3 = and 3 = always), It was used to assess nurses’ connectivity level at their workplace. **The scoring system** ranged from (10 to 30) and was classified into three levels as follows: The low level of nurses’ connectivity ranged from 10 to 17, the moderate level of nurses’ connectivity ranged from 18 to 23 and the high level of nurses’ connectivity ranged from 24 to 30.

Tool III: Sustainable Development Practices Scale: This scale, which consists of 21 items, was modified from **Temminck et al. (2015) Dumitri et al. (2015)**. The nurses' responses to questions about sustainable development practices at work were measured using this scale. A three-point rating system was used to assign each answer, with the first response meaning "not at all" and the third saying "answer which represents a great extent." The scale's total staff nurses' responses were added up to a score between (21 - 63); (21–35) indicated "low sustainable practices level," (36–49) indicated "moderate sustainable practices level," and (50–63) indicated "high sustainable practices level."

Tools Validity and Reliability

The content validity of the study instruments was determined by a group consisting of three nursing administration specialists, one professor, and two assistant professors from Minia University's Faculty of Nursing. Each expert was asked to review the content, clarity, coverage, terminology,

format, length, and overall appearance of the instrument. Cronbach's Alpha Coefficient was used to compute the reliability test for the three instruments, and the results revealed that the surveys had a high degree of dependability. The lean-agile leadership, sustainable development practices, and nurse connectivity instruments measures yielded the following scores: 0.795, 0.805, and 0.886, respectively.

Ten percent of the present sample participated in the pilot study, which was conducted to evaluate the items' clarity and applicability as well as to estimate the time required to finish the questionnaire. It took a total of twenty-five to thirty minutes, according to the results. No modifications were made, based on the pilot study's analysis. As a result, the study's sample included all 43 nurses of the pilot study.

Ethical consideration

Consent was obtained from each participating nurse prior to the collection of any data. The goal of the study was explained to participants before data collection started. The information provided by participants was guaranteed to remain private and anonymous. There was an assurance that each volunteer would take part in the trial voluntarily. Participants were informed that they might withdraw the study at any time, for any reason, and without warning.

Procedure

A survey of pertinent literature covering many aspects of the subject was carried out using easily accessible books and periodicals to help one become familiar with the research challenge and select the best study equipment. Then the tool's translation into Arabic was completed, after that the purpose of the work was described to the faculty ethics committee which was approached to obtain formal approval.

The information was collected between the beginning of October and the first half of

November 2023. During the data collection phase, the researchers distributed the questionnaires to each participant nurse in their unit individually and requested that they fill them out. The researchers waited for the participants to complete their paperwork and be ready to answer questions. After the surveys were finished, the researchers gathered them to complete the statistical analysis.

Statistical design

Data entry and statistical analysis were performed using SPSS version 27, a statistical tool for social sciences. The necessary descriptive statistics, such as means, frequencies, and percentages, were applied to the quantitative and qualitative variables, respectively. The degree of association between the variables was determined using the correlation coefficient (r) test. At a p-value of 0.05, all tests were deemed statistically significant.

Results:

Table 1: displays regard the distribution of nurses based on their age that (58.8%) fall within the age range of 20 to 30 years, with a mean score of 28.2 ± 8.54 . In terms of gender, (72.4%) of the studied nurses are female, and (45.7%) held a technical degree. Regarding experience, the table indicates that (48.9%) of nurses had between 1 to 10 years of experience, with a mean score of 8.45 ± 23.5 .

Figure 1: denotes that (65.6%, 69.8% & 69.3%) of nurses at the Emergency as well as Kidney and Urology Minia University Hospitals exhibited "high" responses toward lean-agile leadership practices, nurses' connectivity, and sustainable development practices respectively.

Table 2. reveals that there were no statistically significant differences at any of

lean-agile leadership, nurses' connectivity or sustainable development practice relating to nurses' sociodemographic data.

Figure.2. shows a strong positive correlation between lean-agile leadership practice and nurses' connectivity practice among the nurses working at the two hospitals ($r = .695^{**}$, $P = .000$).

Figure (3) illustrates a robust positive correlation between lean-agile leadership practices and sustainable development practices among the nurses employed at the two hospitals ($r = .760^{**}$, $P = .000$).

Figure (4) depicts weak positive statistically significant correlation between connectivity and sustainable development practices among the nurses employed at the two hospitals ($r = .798^{**}$, $P = .000$).

Table (1): Percentage distribution of nurse's demographic data (no.=427).

Items	Nurses' demographic data	
	no.	%
Age		
20-30yrs	251	58.8
31-40yrs	108	25.3
>41yrs	68	15.9
Mean ± SD	28.2±8.54	
Gender		
Male	118	27.6
Female	309	72.4
Residence		
Rural	305	71.4
Urban	122	28.6
Educational qualification		
Diploma	121	28.3
Technical	195	45.7
Bachelor	111	26
Years of experience		
1-10yrs	209	48.9
11-20yrs	87	20.4
>21yrs	131	30.7
Mean ± SD	8.45±23.5	

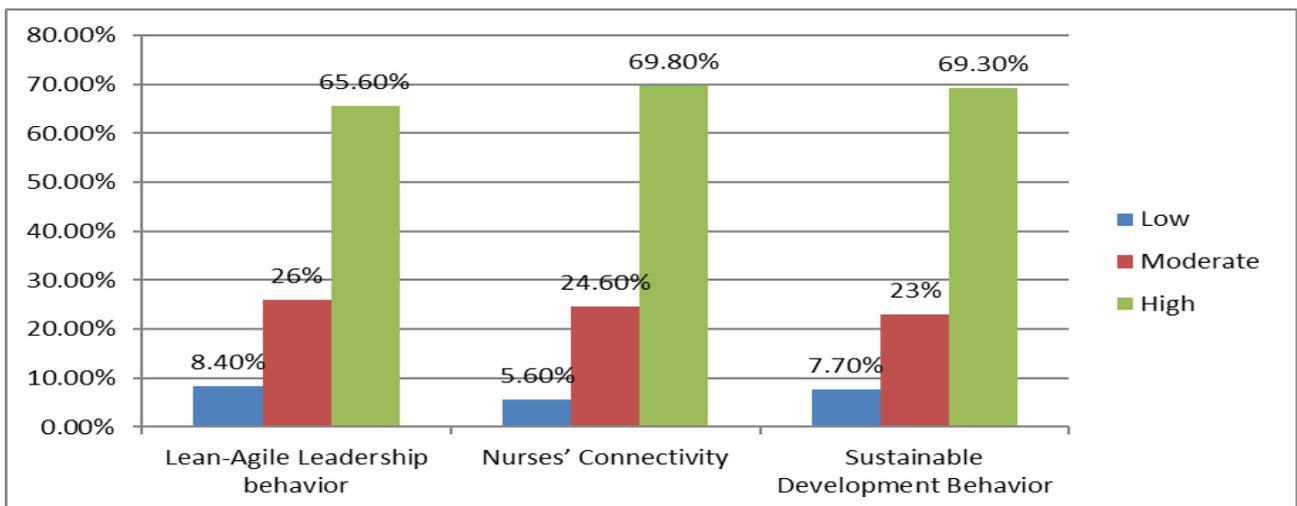
**Figure (1): Levels of Lean-agile Leadership, Connectivity and Sustainable Development Practices among the study nurses (no.=427).**

Table (2): Association between nurses' perception of lean-agile leadership, connectivity, and sustainable development practices and their demographic data (no=427).

Demographic data	Lean-Agile Leadership		Nurses' Connectivity		Sustainable Development Practice	
	Mean	+SD	Mean	+SD	Mean	+SD
Age						
20-30yrs	87.39	18.1	24.34	4.61	50.23	9.76
31-40yrs	89.51	15.96	25.01	4.06	52.02	9.33
> 40yrs	87.05	19.57	24.48	4.48	50.32	11.1
ANOVA(P-value)	.660 (.518) NS		.838 (.433) NS		1.31(.272) NS	
Years of experience						
1-10yrs	86.70	18.3	24.19	4.71	49.67	10.1
11-20yrs	89.93	14.5	24.85	4.03	52.48	8.27
> 21yrs	88.18	18.7	24.87	4.29	51.16	10.4
ANOVA(P-value)	1.05 (.350) NS		1.19(.305) NS		2.70(.068) NS	
Educational qualification						
Diploma	87.08	19.4	24.61	4.44	50.74	10.9
Technical	86.45	18.3	24.08	4.71	49.71	9.97
Bachelor	91.00	14.9	25.24	3.93	52.38	8.15
ANOVA(P-value)	2.46(.086) NS		2.44(.088) NS		2.60(.075) NS	
Gender						
Male	88.72	16.3	24.66	3.85	50.69	8.93
Female	87.46	18.3	24.48	4.67	50.70	10.2
T-test (P-value)	.656(.512) NS		.381(.703) NS		.010(.992) NS	
Residence						
Rural	88.13	17.3	24.38	4.58	50.81	9.65
Urban	87.01	18.9	24.90	4.13	50.1	10.0
T-test (P-value)	.586 (.558) NS		1.09 (.274) NS		.376 (.707) NS	

* $p \leq 0.05$ (significant), F-test P – Value based on compares mean. T-test: P – value based on independent sample t-test, * Statistically significant difference, NS= No Significant difference.

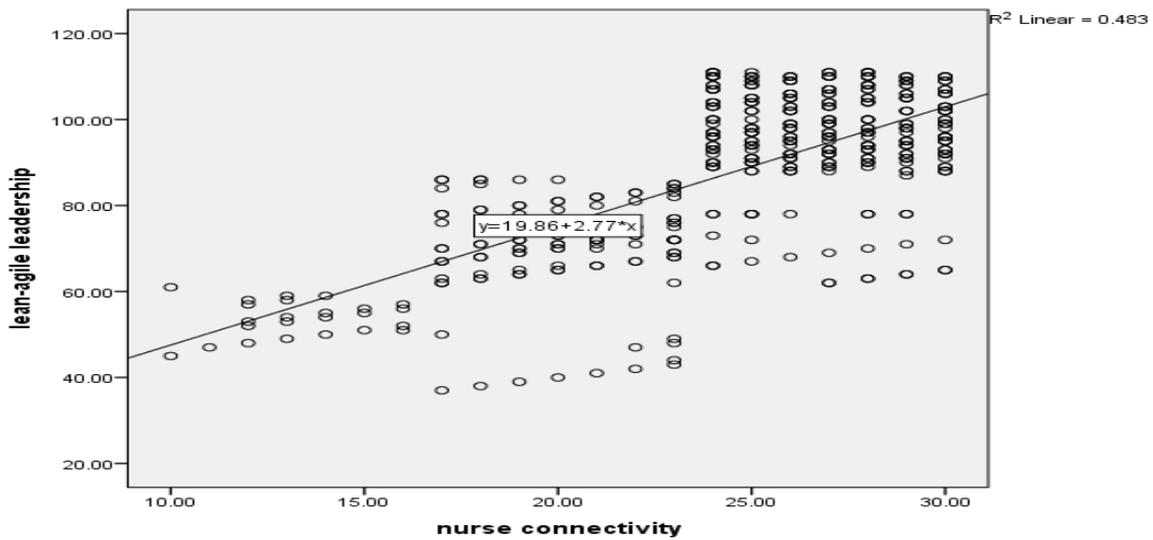


Figure (2): Association between lean-agile leadership and connectivity among study nurses (no.=427)

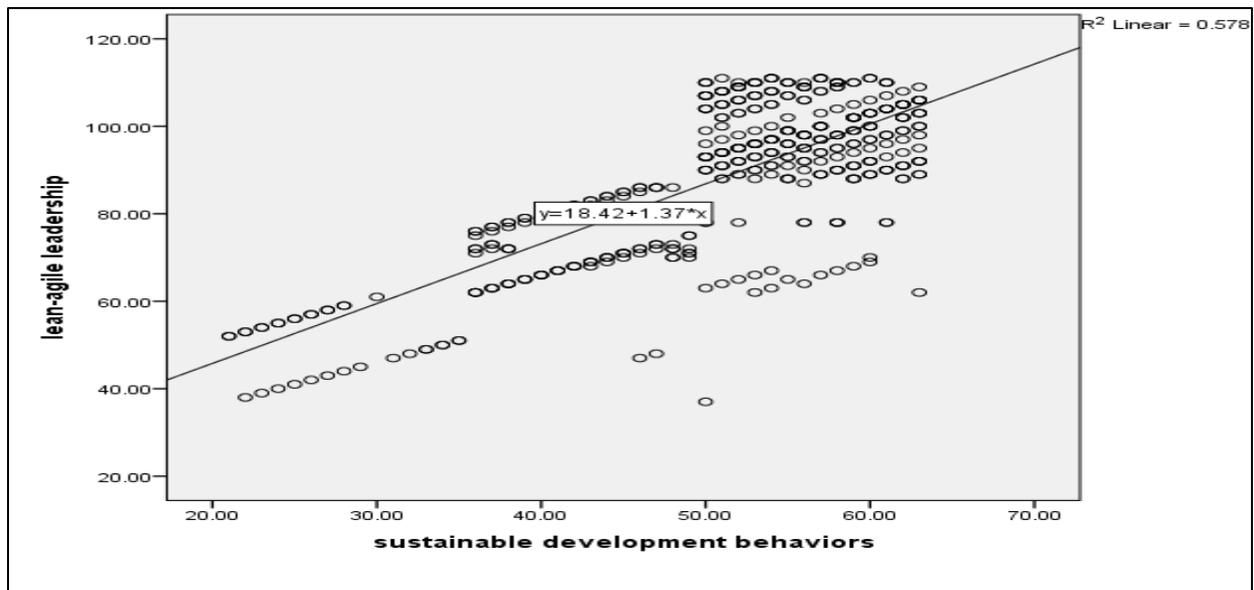


Figure (3): Association between lean-agile leadership and sustainable development practices among study nurses (no.=427)

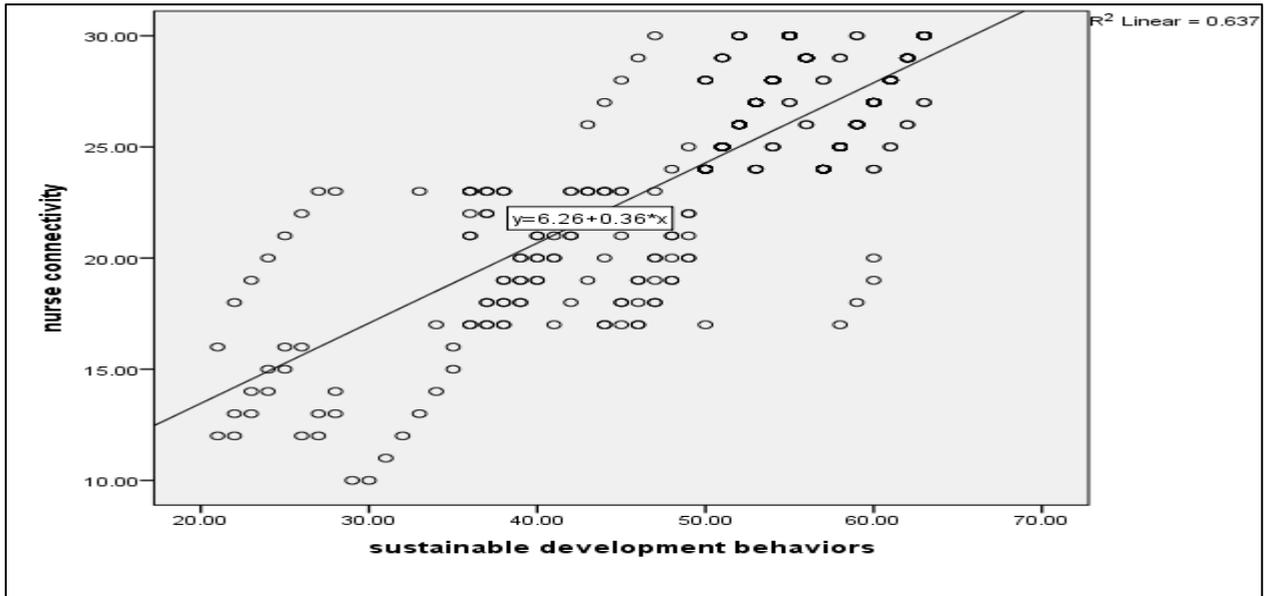


Figure (4): Association between nurses' connectivity and sustainable development practices among study nurses (no.=427).

Discussion

Healthcare environments are uncertain and dynamic, which has put hospitals under pressure to be both flexible and lean. Combining lean and agile management techniques has been proposed as a means of achieving efficiency, controlling costs, and responding flexibly. These two interconnected approaches assist hospital administration in making the best use of their current resources while also opening the door to the discovery of new ones. Green healthcare practices might also be adopted to meet sustainable development health care goals, and nurses, who make up most of the workforce, might lead the way in implementing these practices. The primary aim of this study was to study the association of lean-agile leadership with both the practices of nurses regarding sustainable development and the level of connectivity experienced within nursing workforces.

Regarding the demographic' characteristics of the study nurses, near to sixty percentage of nurses aged between

twenty to thirty years old. Above two thirds of them are females as well as are living in rural villages. As regard to their educational requisites, more than forty five percent of them hold technical institute in nursing and more than one-quarter hold diploma degree while near to thirty percent hold bachelor's degree in nursing sciences. Regarding their work experience, around half of nurses had less than ten years and slightly above thirty percent had more than twenty years of experience.

Concerning the levels of lean-agile leadership as well as connectivity and sustainable development practices among the studied nurses, the research findings clarified that, most of nurses exhibited "high" responses for lean-agile leadership and connectivity as well as sustainable development practices.

These findings, according to the researchers, could be explained by the premise that an effective nurse leader must possess agile leadership to motivate their fellow nurses to perform at their highest level in a supportive work environment. They also expected head nurses who possessed strong agile leadership abilities to perform well on

the job, be qualified, have significant results, and share knowledge with other healthcare professionals to ensure sustainability and development goals.

The different work specialty departments at the hospitals under study also encouraged nurses at different levels to be more adaptable and open in their work practices to maintain sustainability, which may account for some of the results obtained. In addition, many of the nurses under study were young, which allowed them to have a high degree of ability to make effective suggestions during applied nursing clinical practices that enhance inter-professional connectivity and ongoing sustainable development activities as well as high-quality nursing practices to ensure achieving the organization's objectives.

The findings of **Ibrahim et al. (2022)** revealed a significant increase in both the knowledge and practice of agile leadership among head nurses after the implementation of an educational program. These results align with and provide support for previous research findings on the positive impact of educational interventions on enhancing leadership capabilities within healthcare settings. According to **Bogosian's (2018)** findings, an agile organization should begin with an assessment of the current state of the workforce to ascertain the readiness of both employees and management. Additionally, managers need to be supported in their decision-making by having the necessary knowledge, skills, and practical competencies.

Furthermore, **Moslem and Selim (2018)** underlined in the same context that their research revealed a strong desire and readiness on the part of employees to recognize and develop the agile management approach through standard work, multifunctional workers, continuous improvement, and work site organization.

Furthermore, the results of the present study were consistent with the research conducted by **Temminck et al. (2015)** and **Al-Atwi et al. (2021)**. These studies have affirmed that the capacity of nursing staff and leaders to formulate sustainable plans for quality assurance, staff engagement, and the implementation of effective leadership strategies is pivotal for successful organizational development. These components play a crucial role in supporting and sustaining planned changes in developmental practices within the organization.

These results also corroborate the findings of **(Hafermalz & Riemer, 2020)**, who came to the conclusion that interpersonal connectivity is a crucial skill, especially for leaders operating in increasingly dispersed, flexible, and transient work contexts—such as those found in hospitals. Conversely, this finding contradicts that of **Sorour et al. (2021)**, who listed that most nurses showed low or moderate levels of regard for nurses' staff sustainable development practice.

As regards the variations in the studied variables relating to nurses' sociodemographic traits, current findings revealed no statistically significant differences among the studied nurses in lean-agile leadership, connectivity, and sustainable development practices regarding their demographic data. The results of **Sorour et al. (2021)** revealed a statistically significant difference in the responses of staff nurses to whole items related to sustainable development practice levels, which contradicts the findings of this study.

Regarding the correlation among the study's variables, the actual research clarified that lean-agile leadership practice was strong positively correlated to both nurses' connectivity and sustainable development practices in addition to the

existence of a strong positive association between nurses' connectivity and sustainable development practices.

This study, in the opinion of the researcher, was valuable because it strengthens the importance of sustainable growth practices among nursing professionals and guarantees that nursing practice may be enhanced by implementing a lean-agile leadership style to encourage interactive nursing connectedness. This leadership approach's potential application in organizational contexts to generate flexible workforce-led sustainability recommendations for cutting waste (in time, effort, and resources) and overseeing sustainable development practices at work is in addition to its practical worth.

Furthermore, it emphasizes how important an effective agile leadership style is in fostering nurses' sense of community and sustainable development practices. This is because nurses are increasingly expected to take the initiative, speak up, and share differing viewpoints with management because service organizations are often made up of deeply interdependent teams of qualified people who are called upon to "complete demanding, complex, time-pressured projects." This draws attention to the fact that hospital administrators must provide an appropriate IT infrastructure in order to manage data sets effectively and convert them into concepts that the organization can implement.

The current study's researchers clarified that the findings were consistent with the hypothesis put forth by **Mohrman and Winby (2018)**, which suggested that being agile in response to challenges is a necessary component of achieving sustainable development. Additionally, the field of organizational development (OD) may play a significant role in facilitating the shift toward sustainable development, which

in turn may have a significant impact on patient care quality outcomes.

Moreover, these results are consistent with the findings of **Habermalz and Riemer (2020)**, who stated that interpersonal connectivity establishment and maintenance is a particularly important skill in the modern healthcare context, where organizational forms can be optimized for adaptability and flexibility quickly and effectively. In addition, **Sharon and Zoe (2020)** noted that when evaluating healthcare services, economic sustainability should take center stage. This is especially true during uncertain times, like the current coronavirus pandemic and climate change, which plenty of universal healthcare systems are going through. These circumstances have been demonstrated to offer opportunities for improvements and innovation that may require ongoing efforts to ensure sustainability.

Conclusion:

Most of the studied nurses exhibited "high" responses toward lean-agile leadership practice and nurses' connectivity as well as sustainable development practices. Furthermore, there were positive correlations between lean-agile leadership practice and both nurses' connectivity and sustainable development practices, in addition to a positive association between nurses' connectivity and sustainable development practices.

Recommendations:

- Equip nurse leaders with the necessary skills to apply lean-agile methodologies in their day-to-day activities.
- Foster a culture of continuous learning and improvement within the nursing leadership team.

- Encourage nurse leaders to empower their teams by providing autonomy in decision-making related to patient care and process improvements.
- Create an environment that supports and values the input of nurses at all levels, fostering a sense of ownership, accountability, and adaptability.
- Implement regular cross-functional meetings to share insights, address challenges, and collectively work towards sustainable development goals.
- Regularly communicate organizational goals and progress, ensuring that all nurses are aligned with the broader vision of sustainable development.
- Further studies in this research area recommended by the researchers at different settings and for expanded number of nurses as well as other health care professionals to verify and compare those studies' findings with that of the current study.

References

- Ahmed Mohamed Ibrahim, S., Mohammed Araby Ebraheem, S., and Hassan EL-Sayed Mahfouz, H. (2022). Effect of Educational Program about Head Nurses' Agile Leadership on Staff Nurses' Workplace Spirituality and Job Reputation. *Egyptian Journal of Health Care*, 13(1), 1661-1680.
- Al-Atwi, A. A., Amankwah-Amoah, J., and Khan, Z. (2021). Micro-foundations of organizational design and sustainability: The mediating role of learning ambidexterity. *International Business Review*, 30(1), 101656.
- Bogosian, D. R. (2018). Creating and Sustaining an Agile Organization: The Impact of the Digital Economy. *Rutgers Business Review*, 3(1).
- Borycki, E., Mowafa, H., and Kushniruk, A., (2014). Social Media and Mobile Technologies for Health Care, LGL Global, United State of America, p.313.
- Burgess-Pinto, E. S. O. Yastremska, L. Ya. Fedoniuk et al. (2019). Sustainable Development Principles in Health Promotion and Nursing Education, ISSN 1681-2751. *Medical Education*. № 4.
- Carmeli, A., and Spreitzer, G. M. (2009). Trust, connectivity, and thriving: Implications for innovative behaviors at work. *The Journal of Creative Behavior*, 43(3), 169-191.
- Dumitru A, Ricardo D, and Garcíak M, (2015): Sustainable Behaviour In The Workplace: The Role Of Universities In Promoting Pro-Environmental Practice. Doctoral Thesis. International Published. University Coruna, Spain; 38-92.
- Eilers, K., Simmert, B., and Peters, C. (2020). Doing agile vs. being agile-understanding their effects to improve agile work.
- Godsey, J. A., Houghton, D. M., and Hayes, T. (2020). Registered nurse perceptions of factors contributing to the inconsistent brand image of the nursing profession. *Nursing outlook*, 68(6), 808-821.
- Hafermalz, E., and Riemer, K. (2020). Interpersonal connectivity work: Being there with and for geographically distant others. *Organization Studies*, 41(12), 1627-1648.
- Hayward, S. (2021). *The agile leader: How to create an agile business in the digital age*. Kogan Page Publishers.
- James A., Crowder, Friess S. (2019). *Agile Project Management: Manager for Support* Spring Publishing Company, United State of America, Pp7.
- Jin Hong Kim, M. A (2022). Three Essays on the Use of Lean Government in State and Local Government, The Ohio State University, PhD Dissertation. Available © ProQuest LLC.

- Koning, P. (2020). *Agile leadership toolkit: Learning to thrive with self-managing teams*. Boston, MA: Addison-Wesley.
- Lee, D. (2021). Impact of organizational culture and capabilities on employee commitment to ethical behavior in the healthcare sector. *Service Business*, 14(1), 47-72.
- Maximini, D. (2022). *Agile leadership in practice: Applying Management 3.0*. Springer Nature.
- Mohrman, S. A., and Winby, S. (2018). Working toward sustainable development: Consulting to the ecosystem. In *Research in Organizational Change and Development* (Vol. 26, pp. 1-45). Emerald Publishing Limited.
- Moslem, A., and Selim, S., (2018): The role of Agile management in achieving creativity among employees in Jawwal Company in Gaza Governorates, Case Study Available at <https://www.ptcdb.edu.ps> , 1-30.
- Nadalin Penno, L., Davies, B., Graham, I. D., Backman, C., MacDonald, I., Bain, J., Johnson, A., Moore, J., and Squires, J. (2019). Identifying relevant concepts and factors for the sustainability of evidence-based practices within acute care contexts: a systematic review and theory analysis of selected sustainability frameworks. *Implementation Science*, 14(1). <http://doi:10.1186/s13012-019-0952-9>.
- Shelton, R. C., and Lee, M. (2019). Sustaining evidence-based interventions and policies: Recent innovations and future directions in implementation science. *American Journal of Public Health*, 109(S2), S132–S134. <http://doi:10.2105/ajph.2018.304913>
- Shelton, R. C., Cooper, B. R., and Stirman, S. W. (2018). The sustainability of evidence based interventions and practices in public health and health care. *Annual Review of Public Health*, 39(1), 55–76. <http://doi:10.1146/annurev-publhealth-040617-014731>
- Solga, M. (2021). The Align-Empower Model of Agile Leadership. *CID Partners*, https://cidpartners.de/files/downloads/Whitepaper/The_20.
- Sorour, M. S., and Elkholy, S. M. (2021). Relationship between Servant Leadership and its' Role on Staff Nurses' Creativity and Sustainable Development Behavior. *Assiut Scientific Nursing Journal*, 9(24.0), 87-101.
- Temminck E, Mearns K, and Fruhen L. (2015) Motivating employees towards sustainable practice. *Business Strategy Environment Journal*; 24(1): 12.
- Trapani, K., (2018). What is Agile? What is Scrum? Agile FAQ's. from https://www.Crime.Com/resources/what-is-agile-what-is-scrum/.or_Entrepreneurial_Style_and_Small_Firm_Performance, (2022).
- Udokporo, C. K. (2017). An integrated decision support framework for the adoption of lean, agile and green practices in product life cycle stages., University of Derby, PhD Thesis. Available © ProQuest LLC.
- Williams, S. J., and Radnor, Z. J. (2022). Moving from service to sustainable services: a healthcare case study. *International Journal of Productivity and Performance Management*, 71(4), 1126-1148.