



Title: A Study of Innovation Competency Among Healthcare Sector Employees in Saudi Arabia

Student Name: Mohammed Abdulaziz Aldwaisan

Academic ID: 243001288

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University: Midocean University

College: College of Innovation and Entrepreneurship

Associate Professor: Ahmed Rageh Ismail

1. Introduction

Innovation is an essential catalyst for transformation in healthcare, allowing systems to address evolving challenges, integrate new technology, enhance patient outcomes, and provide increased value throughout the sector. In accordance with Saudi Arabia's Vision 2030, the healthcare industry is experiencing significant reforms, with innovation identified as a fundamental component of national development.

Nonetheless, despite the increasing focus, there is still a paucity of empirical knowledge regarding the innovative skill levels of healthcare personnel in the Kingdom. This study seeks to evaluate the existing level of innovation competency among several professional jobs within the Saudi healthcare industry.

2. Problem Statement

Innovation in healthcare is crucial for enhancing patient outcomes, enhancing efficiency, and responding to emerging difficulties. For innovation to flourish, a common comprehension of its definition must first be established across various roles and institutions. The Saudi Arabian healthcare industry exhibits ambiguity over the definition and scope of innovation, resulting in discrepancies in its perception and implementation.

Moreover, although innovation is frequently promoted, there is insufficient data regarding the actual proficiency levels of healthcare workers in this domain—that is, their capacity to produce, accept, and apply new ideas efficiently. In the absence of this underlying understanding, healthcare organizations and policymakers struggle to formulate effective policies, training programs, or performance criteria. This knowledge deficit constitutes a substantial obstacle to cultivating an innovation-ready workforce inside the Saudi healthcare system.

3. Research Objectives

- 1) To evaluate the existing degree of innovation competency among healthcare sector workers in Saudi Arabia and to investigate whether there is a uniform comprehension of what defines "innovation" in the workplace.
- 2) To examine disparities in innovation competency between clinical and non-clinical personnel.

3) To examine the impact of variables such as training, professional experience, and departmental affiliation on innovation competency.

4) To pinpoint potential development areas and provide strategies that strengthen innovation competency within the healthcare workforce.

4. Research Questions

1) What degree of innovation competency do healthcare sector workers currently possess, in Saudi Arabia?

2) Are there substantial disparities in innovation competency between clinical and non-clinical workers?

3) To what degree do elements such as innovation training, years of experience, and departmental affiliation affect degrees of innovation competency?

4) Is there a uniform comprehension of the term “innovation” among healthcare workers across various roles?

5. Justification for Choosing the Topic

As Saudi Arabia tirelessly invests in digital transformation and healthcare innovation, worker readiness emerges as a pivotal success factor. Innovation extends beyond research, patient experience, and information technology; it must encompass a comprehensive system-wide capability. In numerous healthcare institutions, innovation initiatives are frequently confined to particular departments like R&D, IT, or Quality, resulting in a fragmented or "siloe" methodology. This may lead to neglecting the undiscovered potential of frontline clinical and non-clinical personnel who offer useful, experience-derived insights.

This study aims to evaluate innovation competency across various healthcare jobs to illuminate the current state and uncover latent opportunities for fostering a more inclusive innovation culture. The results will furnish foundational data to guide specialized training programs, institutional strategies, and national policy initiatives. This research ultimately supports Saudi Arabia's Vision 2030 by fostering the development of a more agile, creative, and innovative healthcare workforce.

6. Theoretical Framework

This study utilizes a three-tiered theoretical framework to systematically evaluate innovation competency in Saudi healthcare:

- 1) **Behavioral discovery skills**, using The Innovator's DNA (Dyer et al., 2009), to evaluate individual innovation potential via five fundamental behaviors.
- 2) **Human capital indicators**, evaluating the impact of formal education and professional experience on innovation preparedness.
- 3) **Rogers' diffusion constructs**, examining organizational mechanisms—communication channels, adoption stages, and social systems—that facilitate or hinder innovation spread.

This organized approach facilitates a comprehensive analysis by connecting individual innovation behaviors and workforce characteristics to organizational diffusion efforts. The findings are going to guide the development of strategic recommendations including the establishment of a centralized innovation center to enhance systemic innovation capabilities across various healthcare roles.

7. Methodology

1) Research Design

A cross-sectional quantitative survey was administered to healthcare employees (clinical, non-clinical, Quality, IT, R&D) across both public and private institutions in Saudi Arabia.

2) Survey Instrument

A. Discovery Skills Scale

- Based on *The Innovator's DNA* model (Dyer, Gregersen & Christensen, 2009), measuring five innovation behaviors: associating, questioning, observing, networking, and experimenting.

Each behavior will be assessed using 4–6 Likert-scale items (1 = Strongly Disagree to 5 = Strongly Agree).

B. Human Capital Indicators

- **Self-reported data on:**
 - Whether the respondent had formal innovation training (Yes/No).
 - Total years of professional experience.

- Period spent in the current role.

C. Diffusion Constructs (Rogers' Theory)

- **Adoption Stages:** Participants self-identified their stage according to Rogers' model (knowledge, persuasion, decision, implementation, confirmation).
- **Adopter Categories:** Respondents indicated whether they see themselves as Innovators, Early Adopters, Early Majority, Late Majority, or Laggards.

D. Engagement in Innovation Initiatives

Participants provided information on:

- Role type (clinical, non-clinical, or multiple functions).
- Department/unit (e.g., nursing, IT, HR, respiratory care, business unit).
- Institution type (public/private).
- Region of work (Central, Eastern, Western, etc.).
- Age group and gender.

E. Demographics

- Additional items were included to capture whether participants had initiated or participated in innovation initiatives within their organization.

3) Sampling & Administration

- **Population:** Healthcare employees across Saudi Arabia
Sampling: Stratified random sampling to ensure representation across departments and roles.
- **Sample Size:** The initial target sample size was $N = 300$ to enable robust statistical analysis and subgroup comparisons. However, due to time constraints and recruitment challenges, only 18 valid responses were collected. The survey was disseminated online via Google Forms, and participation was anonymous and voluntary. No identifying information was collected, and informed consent was obtained at the beginning of the questionnaire.
Given the limited sample, the study is classified as exploratory and is best understood as a pilot investigation that provides preliminary insights and informs the design of future large-scale studies

8. Results

- **Demographics:** 78% male, 55% aged 25–34, 89% from the Central region, 61% working in public institutions. Roles: 44% non-clinical, 39% clinical, 11% hybrid.
- **Innovation Training:** 33% received formal training; 67% had not.
- **Initiatives:** 50% had initiated/led innovation projects; 50% had participated.
- **Adoption Stage:** 33% knowledge, 11% persuasion, 11% decision, 33% implementation, 11% confirmation.
- **Adopter Categories:** 28% early adopters, 22% innovators, 22% early majority, 11% late majority, 17% laggards.
- **Discovery Skills (Likert means):** Associating = 4.6, Experimenting = 4.3, Observing = 4.2, Networking = 4.1, Questioning = 4.0

9. Discussion

Findings indicate that employees perceive themselves as strong in innovation skills, especially associating and experimenting, despite limited formal training. This aligns with Innovator's DNA, which stresses these behaviors as central to innovative capacity.

Both clinical and non-clinical staff reported involvement in innovation, reflecting Omachonu & Einspruch's (2010) view that innovation is multidisciplinary. Adoption stages and categories varied, echoing Rogers' Diffusion theory.

Training gaps highlight the need for structured programs, as emphasized in Vision 2030 literature (Albejaidi & Nair, 2019).

10. Limitations

- Small sample size (N=18).
- Regional concentration (mostly Central region).
- Time constraints and recruitment challenges.
- Reliance on self-reported data, with possible bias.

Despite these, the study demonstrates feasibility and provides preliminary insights

11. Conclusion and Recommendations

This exploratory study assessed innovation competency among healthcare sector employees in Saudi Arabia. Despite the small sample size, results show that participants generally rated themselves highly on innovation-related behaviors such as associating and experimenting. However, only one-third had received formal innovation training, indicating a reliance on experiential rather than structured learning.

Respondents were distributed across different adopter categories and adoption stages, demonstrating diverse perceptions and readiness levels toward innovation. Both clinical and non-clinical staff, as well as individuals in hybrid roles, reported involvement in innovation initiatives, highlighting that innovation competency is not restricted to specific professional categories.

Overall, the findings provide preliminary evidence that while individual innovation skills are present, institutional mechanisms—particularly training and capacity-building—remain underdeveloped.

Recommendations:

Based on the findings, the following recommendations are suggested:

1. **Expand Innovation Training Programs:** Introduce structured innovation education and workshops across both clinical and non-clinical roles to strengthen competencies identified as critical in the Innovator's DNA model.
2. **Promote Cross-Department Collaboration:** Encourage interdisciplinary teams that integrate clinical and administrative staff to break down silos and enhance idea sharing.
3. **Tailor Innovation Strategies:** Design interventions that address different adopter categories—for example, supporting laggards with mentoring while empowering innovators with leadership opportunities.
4. **Broaden Participation Beyond the Central Region:** Future research should aim to capture perspectives from all regions of Saudi Arabia for a more comprehensive understanding.
5. **Use the Present Study as a Pilot:** Treat these findings as preliminary evidence and expand the study with a larger, more representative sample to improve validity and generalizability.

12. References

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