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The Impact of Project Management Methodologies on Project Success in the Health Care
Sector in Saudi Arabia.

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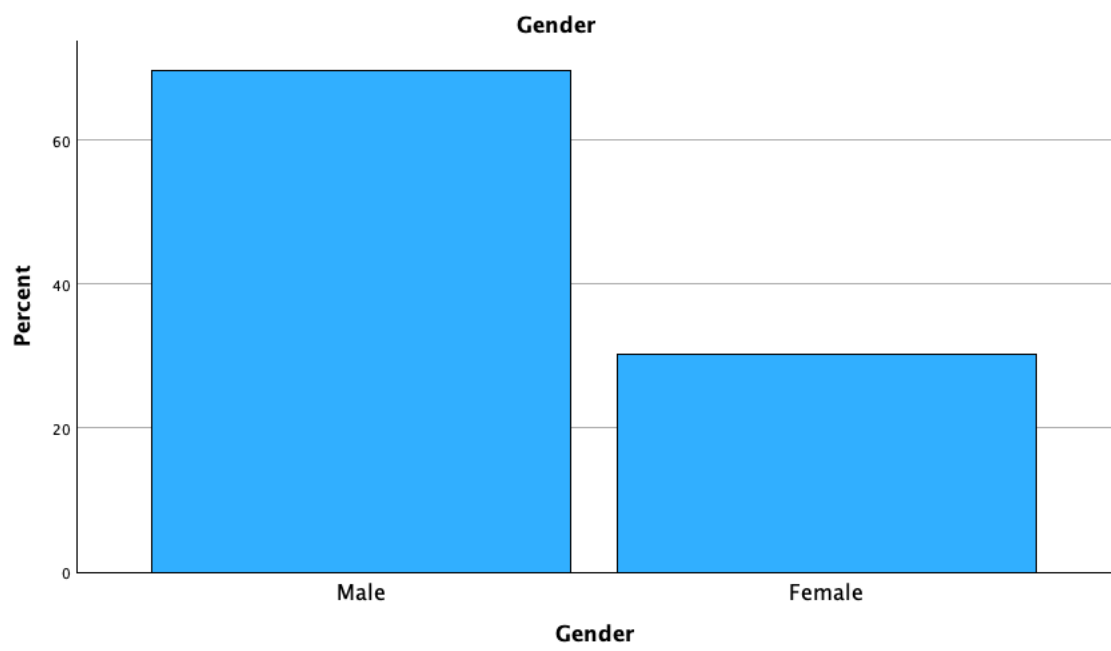


Figure 2

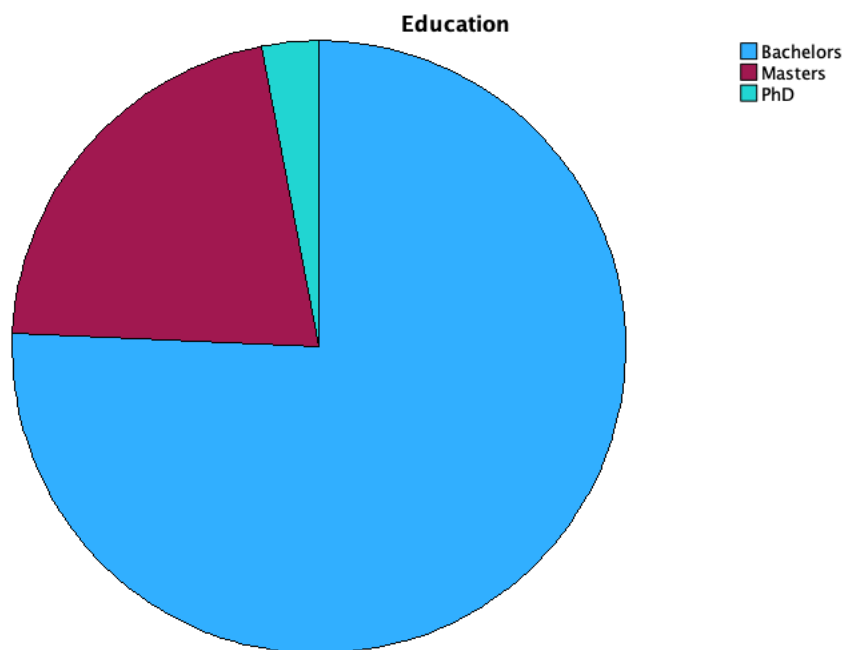


Figure 3

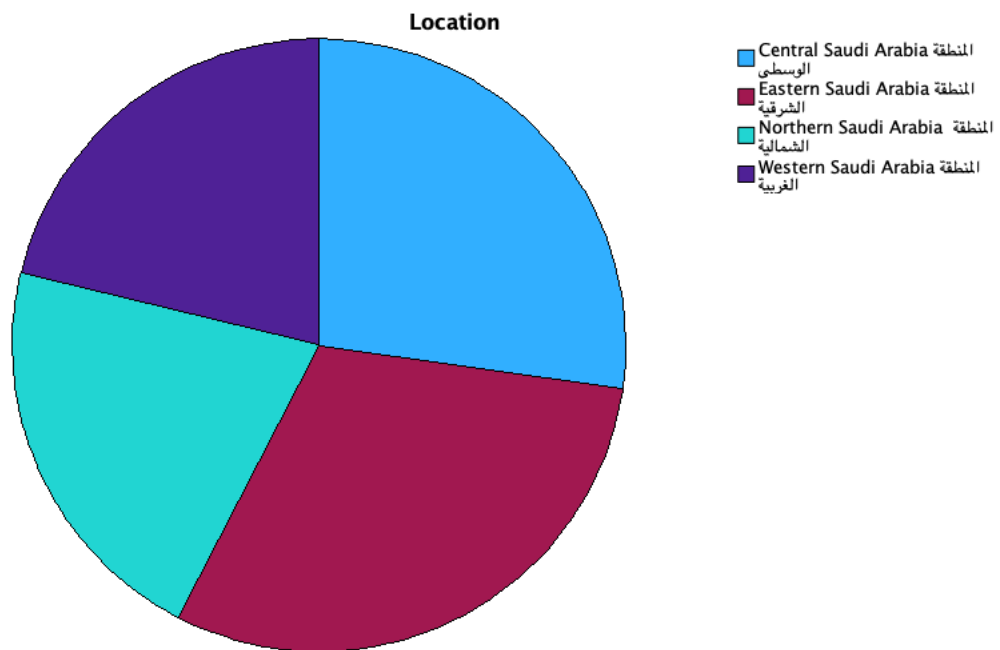


Figure 4

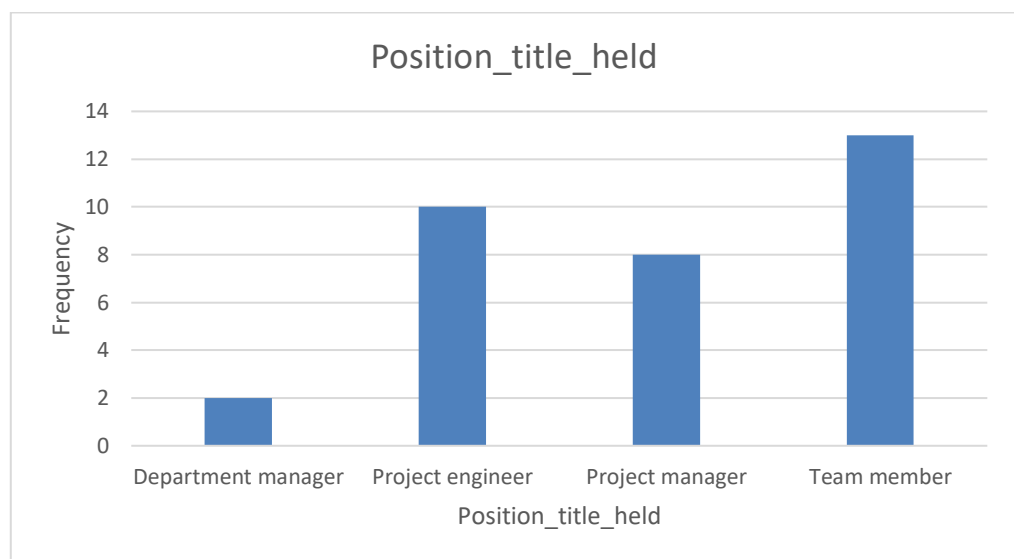
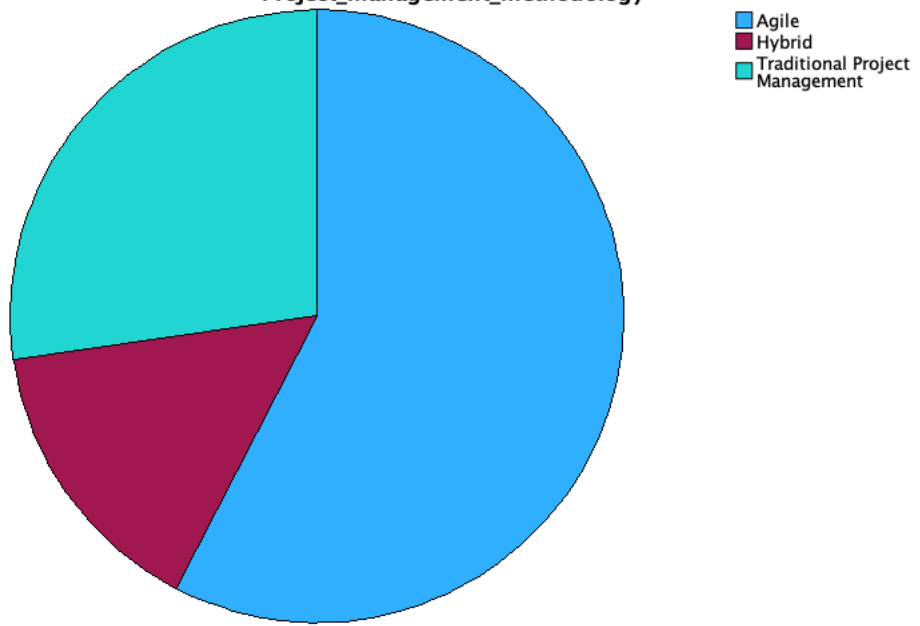


FIGURE 6

Project_management_methodology



Acknowledgments

I would like to express our sincere gratitude to all those who contributed to the completion of this research project

First and foremost, we extend our thanks to the healthcare professionals, administrators, and stakeholders in Saudi Arabia who generously shared their insights, experiences, and valuable perspectives, without which this study would not have been possible

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المستخلص : Abstract

In the rapidly evolving healthcare landscape of Saudi Arabia, the efficacy of project management methodologies stands as a critical determinant of the success and efficiency of various healthcare initiatives. This study aims to investigate the influence of project management methodologies on project success within the Saudi Arabian healthcare context, addressing the persistent challenge of selecting appropriate methodologies amidst complex organizational dynamics.

Drawing on insights from prior research and leveraging a sample of 33 participants, this study explores the relationship between project management methodologies and project success metrics, such as timely delivery, cost-effectiveness, and stakeholder satisfaction. The demographic analysis of participants reveals a diverse workforce predominantly consisting of Saudis with varying levels of educational attainment and professional experience, primarily concentrated in Eastern and Central Saudi Arabia.

Key findings indicate that Agile emerges as the most commonly utilized project management methodology in the healthcare sector, followed by traditional project management and Hybrid. The study further examines the impact of risk factors—complexity, urgency, and technology level—on the selection and effectiveness of project management methodologies. Results show that complexity significantly influences project management methodology selection, whereas urgency and technology level exhibit non-significant associations.

Keywords : Project management methodologies, iterative, agile, traditional, waterfall, project success,

CHAPTER I

Introduction

In the dynamic landscape of the health care sector in Saudi Arabia, the effectiveness of project management methodologies plays a pivotal role in determining the success and efficiency of various initiatives aimed at improving patient care, operational processes, and overall organizational outcomes. In recent years, the health care sector in Saudi Arabia has witnessed rapid expansion and transformation, driven by technological advancements, evolving patient needs, and increasing demands for quality care delivery (Alasiri, A& Mohammed,V, 2022). Amidst this environment, the successful execution of projects within healthcare organizations is paramount for achieving strategic objectives, enhancing service delivery, and ensuring optimal resource utilization (Huebner & Flessa, 2022; Baran & Woznyj, 2020). Successful completion of a project is the ultimate goal of all companies and stakeholders; hence, ensuring successful completion of a project is a desire for every business(Abdulla et al., 2019). This study aims to investigate the influence of project management methodologies on the success of projects in the health care sector in Saudi Arabia. By examining various project management approaches such as Agile, Waterfall, and Hybrid, we will be able to identify which methodologies are most effective in improving project outcomes in healthcare settings. This research will provide valuable insights for healthcare organizations in Saudi Arabia seeking to enhance the efficiency and effectiveness of their projects through proper project management practices. It endeavours to explore and analyse the relationship between project management methodologies and project success in the healthcare sector of Saudi Arabia, shedding light on key factors, challenges, and opportunities for improving project outcomes in this dynamic and rapidly evolving domain.

Problem Statement

In the realm of project management within the healthcare sector of Saudi Arabia, one of the prominent challenges confronting project managers is the selection of an appropriate project management methodology. Previous research, such as that conducted by Kraiem et al. (2023), underscores the complexity inherent in this decision-making process. Despite the fundamental role of projects in organizational advancement, the persistently high failure rates documented by Gupta et al. (2019) underscore a critical issue: the significant financial losses incurred annually by businesses due to project failures.

Within the healthcare domain, where projects are vital for advancing patient care, operational efficiency, and technological integration, the imperative to mitigate project failure is particularly pronounced. However, despite the growing body of knowledge elucidating the determinants of project success and failure, healthcare projects continue to grapple with a fundamental dilemma: identifying the project management approaches that best align with organizational objectives, enhance efficiency, and ultimately ensure project success.

This research aims to address this persistent challenge by delving into the intricate dynamics between project management methodologies and project outcomes within the Saudi Arabian healthcare context. By building upon the insights garnered from prior research endeavors, this study seeks to contribute novel perspectives to the existing scientific knowledge base. Specifically, it endeavors to shed light on the unique contextual factors influencing the selection and implementation of project management methodologies within Saudi Arabia's healthcare landscape.

Furthermore, this study seeks to delineate the specific challenges encountered by project managers and stakeholders within the Saudi Arabian healthcare sector, offering actionable insights and recommendations aimed at enhancing project success rates. By elucidating the nexus between project management methodologies and project success in

this specific context, this research aspires to equip healthcare organizations with the requisite knowledge and tools to navigate the complexities of project management effectively.

In sum, this study endeavors to crystallize the existing challenges faced by project managers in selecting and implementing appropriate project management methodologies within the Saudi Arabian healthcare sector. By leveraging insights from previous research, this study aims to advance scientific understanding and offer pragmatic solutions to enhance project success rates, ultimately contributing to the broader advancement of healthcare delivery and organizational effectiveness in Saudi Arabia.

Objective of the study

The main Goal of the study is to investigate the impact of Project Management Methodologies (PPMs) on project success within the healthcare sector in Saudi Arabia.

Sub-Goals:

1. To identify and analyze the various Project Management Methodologies (PPMs) commonly utilized in healthcare projects in Saudi Arabia.
2. To assess the key success metrics of healthcare projects, including timely delivery, cost-effectiveness, stakeholder satisfaction, and overall project outcomes.
3. To empirically examine the relationship between different PPMs and project success metrics within the context of healthcare projects in Saudi Arabia.

4. To determine which project management methodologies are most effective in optimizing project success within the unique challenges and dynamics of the Saudi Arabian healthcare sector.
5. To provide actionable insights and recommendations for healthcare practitioners, policymakers, and project managers to enhance project management practices and improve the delivery of healthcare projects in Saudi Arabia.
6. To contribute to the advancement of knowledge in project management theory by filling the gap in the literature regarding the effectiveness of PPMs in the healthcare sector in Saudi Arabia.

Research Questions

1. What are the key factors contributing to project success in health care projects in Saudi Arabia?
2. What are the most common project methodologies in healthcare used in Saudi Arabia?
3. What is the relationship between use management methodologies and project success in the health care sector in Saudi Arabia?

The purpose of study

In the healthcare sector, project implementation encompasses a range of methodologies aimed at optimizing performance and increasing the chances of success. The selection of the appropriate methodology is pivotal for organizations, as it significantly influences project execution effectiveness. Despite meticulous selection, challenges may still arise during the implementation phase.

This paper is centered on analysing the project methodologies utilized by diverse organizations within Saudi Arabia's healthcare sector. The examination commences with an assessment of project methodologies and their association with project success. Theoretical exploration into organizational methodologies will ensue, culminating in an assessment of their strengths and weaknesses. Furthermore, the study seeks to evaluate the impact of these methodologies, whether positive or negative, on project outcomes.

The insights derived from this research can offer valuable guidance to organizations engaged in project management, providing them with effective tools and techniques. Additionally, it illuminates the challenges encountered during project implementation, presenting practical solutions for organizations to navigate these obstacles. Given the novelty of this study within the Saudi Arabian context, its findings are particularly pertinent to organizations operating within the region, potentially catalysing transformative changes. This paper serves as a blueprint for organizations aiming to enhance their success rates in project implementation and lays the groundwork for future research endeavours in the field of project management.

Significance of the Research

Scientific Importance:

1. **Advancing Project Management Theory:** This research contributes to the scientific scope by examining the impact of various Project Management Methodologies (PPMs) on project success within the healthcare sector in Saudi Arabia. By empirically investigating this relationship, the study adds to the existing body of knowledge in project management theory, providing insights into the efficacy of different methodologies within a specific industry context.
2. **Filling Knowledge Gaps:** The study addresses a significant gap in the literature by focusing on the healthcare sector in Saudi Arabia. While project management methodologies have been extensively studied in various industries globally, there is a lack of research specifically tailored to the unique challenges and dynamics of the Saudi Arabian healthcare context. This research aims to fill this void by providing tailored insights that can inform both theory and practice.
3. **Methodological Rigor:** Through rigorous empirical analysis, including data collection, analysis, and interpretation, this study upholds the standards of academic research. By employing robust research methodologies, the findings generated are reliable and contribute to the methodological rigor of project management research.

Practical Importance:

1. **Enhancing Healthcare Project Delivery:** By understanding the impact of different PPMs on project success metrics such as timely delivery, cost-effectiveness, and stakeholder satisfaction, this research offers practical insights for healthcare practitioners, policymakers, and project managers in Saudi Arabia. The findings can inform decision-making processes, enabling stakeholders to adopt the most

effective project management approaches tailored to the unique challenges of the healthcare sector.

2. **Alignment with National Healthcare Objectives:** As Saudi Arabia strives to achieve its Vision 2030 goals, including significant investments in healthcare infrastructure, the findings of this research are crucial for aligning project strategies with broader national healthcare objectives. By identifying best practices and areas for improvement in project management methodologies, this study facilitates the alignment of project strategies with national priorities, thereby enhancing the efficiency and effectiveness of healthcare project delivery.
3. **Sustainable Healthcare Development:** By providing actionable insights derived from empirical research, this study contributes to the sustainable development of the healthcare sector in Saudi Arabia. By optimizing resource allocation and improving project outcomes, the research supports the long-term sustainability of healthcare infrastructure and services, ultimately benefiting the well-being of individuals and communities.

In conclusion, this research holds both scientific and practical importance by advancing project management theory, addressing knowledge gaps, and providing actionable insights to enhance healthcare project delivery and support sustainable development in Saudi Arabia.

Assumption

Basic Hypothesis: H0: There is significant relationship between project management methodologies on project success in the healthcare sector in Saudi Arabia.

Sub-Hypotheses:

1. H1a: We assume factors list downs are crucial to project success.

Project efficiency, Organizational advantages ,Project effect ,Satisfied stakeholders, and Future possibilities.

2. H1b: Agile project management methodologies have significant impact on project success in the healthcare sector in Saudi Arabia.

CHAPTER II

Literature review

The literature review was performed to collect recent studies regarding The Impact of Project Management Methodologies on Project Success in the Health Care Sector in Saudi Arabia. This literature review aims to identify knowledge gaps and provide a plan to address them. The chapter begins with an overview of project management methodologies. Second, explain the factors that contribute to project success. The literature review was implemented to collect the recent studies regarding of impact of Project Management Methodologies on Project Success in the health care sector in Saudi Arabia. The database searched for the following literature review include Google Scholar and Web of science. The following key words were used for the searching process: Project Management Methodologies, Project Success, Project organization, Healthcare in Saudi Arabia.

Overview of project management methodologies

In 1995, the Standish Group released "CHAOS," a significant research study often cited in discussions about project management. This study involved a survey of 365 US IT executives overseeing more than 8,380 IT application projects within the consulting industry. The title of the research, "CHAOS," aptly reflects the chaotic nature of these efforts. During the early 1990s, IT application development projects in the US incurred annual costs exceeding \$250 billion. Analysis of these projects revealed a success rate of only 16.2%, with 31% being terminated before completion and 51.7% encountering various difficulties.

Before delving further into this topic, it's essential to understand methodologies and their historical context. The Merriam-Webster Dictionary defines 'methodology' as "a body of methods, rules, and postulates employed by a discipline" (Methodology, n.d.).

Around 50 years ago, government organizations established the initial Project Management Methodologies (PMMs) to oversee project plans, budgets, and quality (Packendorff, 1995).

2.1 Waterfall Project Management

The traditional or waterfall approach stands as one of the earliest formal project management methodologies (Pace, 2019). This approach, characterized by systematic task separation, operates on the belief that tasks can be easily controlled and predicted (Saynisch, 2010). Winston Royce first used the waterfall method in the 1970s, but Herbert Benington first talked about it in the 1950s (Royce, 1970; Benington, 1983). Royce didn't like the organized nature of the waterfall approach and pushed for methods that let you move forward and backward between stages, which is something that modern waterfall methods don't have (Royce, 1970). In the beginning stages of a project, the scope and needs needed to complete that goal are spelled out (Thomas and Fernandez, 2008). After this planning part, the project is put into action by setting goals and ending officially. Changes to scope are strictly controlled by scope control. Proponents say that dividing up work into separate tasks makes planning and estimating easier, while the linear method improves quality by finding mistakes sooner (James, 2008). Defined boundaries, assuming predictability and linearity, facilitate optimization and efficiency (Stare, 2014; Spundak, 2014). Moreover, its familiarity since the 1950s renders it user-friendly (Laufer et al., 2015).

Joslin and Muller clarify that PMBoK is not a methodology but rather a collection of best practices applicable across various methods. (Joslin and Muller, 2015). The waterfall approach has the benefit of being easily comprehensible and manageable by a team, even when dealing with a large number of individuals, and define and achieve the objectives and

deliverables (Rasch, 2019). The disadvantage arises when a mistake occurs, requiring the whole project to be restarted in order to correct it, testing is the last step of the project cycle, and reduces efficiency by not enabling phases to occur simultaneously. Additionally, waterfall is not recommended for complicated projects.(Rasch, 2019)

2.2. Agile Project Management

Agile is widely recognized as one of the most prominent methodologies in project management. Originally created in 2001 for Information technology (IT) purposes, the method is currently used in both IT and non-IT fields (Rasch, 2019). Traditional project management models have flaws that led to the development of agile project management as a continuous method (Spundak, 2014; Heeager and Schlichter, 2016). Leybourne (2009) says that agile project management grew out of a break from traditional ways of doing things, putting an emphasis on trying new things. An important part of agile project management is the idea that planning everything ahead of time might not guarantee success. This is why ongoing planning is so important (Nichols et al., 2015). These principles say that people and interactions should be valued more than tools and processes; that working software should be prioritized over detailed documentation; that customer collaboration should be encouraged over negotiation; and that plans should be flexible rather than rigidly followed (Heeager and Schlichter, 2016).

The fundamental framework of agile project management revolves around a series of iterative cycles, encompassing planning, design, coding, and testing phases (Stettina and Horz, 2014; Stare, 2014). Agile methodologies mitigate the emphasis on extensive upfront planning and documentation (Leybourne, 2009), striving to minimize non-value-added work, particularly concerning documentation (Dingsøy et al., 2012). The iterative rounds continue until the final product meets the exact specifications of the client.

The advantages of the agile approach include able to scale, enhance team efficiency, clarity of project details, and adaptability to change (Rasch, 2019). Jackson (2012) argues that agile methodologies are particularly suited to projects characterized by uncertainty, volatility, or risk. Furthermore, agile frameworks can streamline bureaucratic overhead inherent in traditional methods (Stare, 2014). Alaa and Fitzgerald (2013) highlight the ability of agile methodologies to accommodate evolving scope and requirements as a major advantage.

However, agile methodologies are not without challenges. Critics argue that while agile methodology may seem less burdensome in terms of paperwork, it requires strict adherence to established procedures (Alaa and Fitzgerald, 2013). The concept of self-organizing teams, a cornerstone of agile, presents implementation challenges, especially within managerial contexts accustomed to hierarchical control structures (Augustine and Cuellar, 2006). Thillaisthanam states that if agile is adopted without completely integrating its components, it may lead to chaos and tension (, 2013). This requires an organizational culture that is open to change (Laufer et al., 2015). Furthermore, the changing demands in agile approaches might result in exceeding the budget and encountering failures as a result of the need for additional work (Conforto and Amaral, 2016).

Project success

As per the Project Management Institute (PMI), a project involves a series of structured tasks, activities, and outcomes that are carefully executed to achieve a specific objective.

They are temporary projects focused on creating value through unique products, services, and procedures (PMI, n.d). The definition of project success proposed by Serrador and Pinto (2015) incorporates both project efficiency and stakeholder satisfaction, reflecting the multifaceted nature of project outcomes. Since the late 1960s, project management scholars have been studying project success criteria and have developed results that have been extensively mirrored in practitioner literature (Kloppenborg et al, 2003). Even though these well-known research results, decades of individual and collective experience of managing projects (Morris et al,1994). With rapid growth in project management professional bodies, and a dramatic increase in project work in industry, project results continue to disappoint stakeholders (Cooke-Davies, 2001). The concept of project success has undergone a significant evolution over time, transitioning from traditional metrics such as time, cost, and quality (or scope) to a broader understanding that encompasses organizational benefits (Pinto and Slevin, 1988; Kerzner, 2004; Williams et al., 2015; Parker et al., 2015). However, a lack of consensus on its definition remains a prominent issue within project management literature, prompting ongoing efforts to define project success, identify success criteria, and determine critical success factors influencing project outcomes.

Pinto and Slevin (1989) conducted seminal research in this area, correlating 14 success factors with project success through non-experimental methods. Their study, which focused on 159 research and development projects across various industries, identified factors such as management support, project mission, and schedule as critical predictors of success. The authors emphasized the importance of these factors throughout different stages of the project lifecycle, offering insights into project monitoring and evaluation using their Project Implementation Profile (PIP).

Building upon Pinto and Slevin's work, Cooke-Davies (2002) conducted qualitative research involving case studies of 70 global organizations to explore factors contributing to project success. Cooke-Davies identified 12 key factors, ranging from strategic elements like project portfolio management to tactical aspects such as risk management and stakeholder engagement. Despite geographical variations, these factors were consistently linked to project success across diverse projects.

Fortune et al. further investigated the relationship between project methods and success, employing a questionnaire-based study involving active project managers from Canada, the UK, and Australia. Their findings indicated increasing professionalism in project management practices across different countries, with a growing emphasis on the use of tools and techniques to enhance project success. (Fortune et al., 2011)

Oracle (2010) conducted a comprehensive survey involving senior managers and project managers worldwide, along with interviews with executives and subject matter experts in project management. Their research highlighted the critical role of robust project management practices in organizational success, emphasizing aspects such as scope and budget control, risk management, and alignment of project objectives with strategic goals.

Despite efforts to improve project success rates, challenges persist, as evidenced by the Standish Group's CHAOS reports and corroborated by recent research (Laufer et al., 2015).

CHAPTER III

Research design and methods

Project management research exhibits Hanisch and Wald (2012) Mode 2 knowledge creation. Research in Mode 2 addresses practical challenges. Research on project management has focused on success or failure (Hanisch and Wald, 2012). According to Serrador and Pinto (2015), project management style affects project success. To replicate their findings, our study includes expertise and industry as moderators. A simple, random sample from a double opt-in access panel was used to recruit participants via an intermediary to reduce bias from a single source.

3.1. Population and Sample

The research focused on individuals working in the healthcare industry in Saudi Arabia. The study examined project management approach, Reported Process Success, industry, and experience. The sample frame included persons who voluntarily elected to participate in the online survey. The population satisfied the inclusion requirements of being employed in the area of healthcare projects and being 25 years of age or older. Participants who did not provide informed permission were excluded from the research based on this criterion.

3.2. Instrument

The research will employ a self-administered questionnaire designed by Joslin and Muller (2015) as the survey instrument. The survey employed to evaluate the relationship between project success and project management methodologies.

There are fourteen questions on the survey. The survey was divided into four sections: participant demographics, project details, project management techniques, and project success. A convenience non-probability sample of the target population was used in this investigation.

All current healthcare project specialists in Saudi Arabia who were engaged at the time of the survey in either public or private healthcare institutions met the inclusion criteria.

Health care workers, students, and non-healthcare project specialists were among the exclusion criteria.

The Serrador and Pinto (2015) tool has 58 items, using a 5-point Likert scale to measure answers. The survey included of three sections: demographic information, inquiries pertaining to a successful project, and inquiries pertaining to a less successful or problematic project. Within each of these subsequent parts, the questions pertain to either the effectiveness of the project or the achievement of stakeholder objectives (Serrador and Pinto,2015)

3.3. Data Collection

This research used a solitary electronic survey instrument as its main measurement tool.

The data collecting method used was a straightforward random sampling strategy. At the beginning of the online survey, potential participants examined the informed consent form

for the research. Participants were obligated to agree to the conditions of the informed consent before to starting with the survey .Participants who declined to agree were not permitted to continue with the survey and were instead shown a message expressing appreciation before being dismissed from the poll. Individuals who satisfied the specified criteria for inclusion and agreed to the conditions of consent were allowed to continue with the survey. Data collection was conducted using a Google form. However, it is important to note that surveys like this might pose risk to the validity of the data, since they may affect the accuracy and reliability of the replies.

3.4. Data Analysis

The survey results were analyzed using the Statistical Package for the Social Sciences (SPSS). The data was determined to be full, without missing variables that may hinder ..analysis. Analysis of summary statistics and data normality evaluated data quality

The first and subsequent sets of hypotheses used descriptive statistics and Pearson's correlation coefficient to ascertain and quantify disparities in claimed success among the PMM (Creswell, 2009). The third hypothesis was examined by the use of multiple linear regression. many linear regression is a valuable tool for determining the extent of connections between many predictor factors and a single outcome variable, particularly when influenced by another group of variables (Nathans et al., 2012).

3.5. Validity and Reliability

A model of success factors was created by Khan et al. (2013) based on a survey of the previous 40 years' literature. Their methodology employs 25 variables arranged in five categories to quantify performance while providing a balance between hard and soft

aspects. In addition to the four extra project success criterion dimensions listed below, the model includes the three requirements for the iron triangle:

1. *Project efficiency,*
2. *Organizational benefits,*
4. *Project impact,*
5. *Stakeholder satisfaction, and*
6. *Future potential.*

The model was selected for this study because it is based on the latest research and encompasses the success criteria defined by leading project success experts. In conclusion, while project management offers opportunities for organizational improvement and capacity-building, addressing the complexities of project success remains a critical endeavor, necessitating ongoing research and practical interventions to enhance project outcomes and mitigate financial risks for organizations.

The instrument has been published and has established validity and reliability as measured by Cronbach's alpha. The Cronbach's alpha for the success factor questions is above 0.7. The Cronbach's alpha for Project efficiency questions is 0.893, Organizational benefits questions is 0.796, Project impact questions is 0.811, Future potential questions is 0.762, and for stakeholder satisfaction questions is 0.725, with a total 50.90%

Instrumentation

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All current Saudi Arabian healthcare project specialists who were engaged at the time of the survey in either public or private healthcare institutions met the inclusion criteria.

Health care workers, students, and non-healthcare project specialists were among the exclusion criteria.

▪ Methods and Sources

This is a cross-sectional study that we will conduct using a custom survey to assess the attitude of experts in the healthcare project management field from several organizations in Saudi Arabia. We will ask them multiple questions in order to understand the relationship between project management methods and project success in the healthcare sector. The participants sample are 33 project professionals. The survey was available from the first day of March 2024 to the 31st of March 2024. Participants included employees in the healthcare sector, particularly those working in project management roles and top administrative positions. Health care workers and project management employees not in the healthcare sector was excluded. The data has been analysed using SPSS version 29.

Practical Considerations

For ensuring the validity and integrity of our study. There are some strategies we have implemented in order to deal with these challenges:

- **Lack of Participant Cooperation:**

We guess that some participants may not be willing to provide accurate or complete responses. To mitigate this, we assured participants on the online questionnaire of confidentiality and anonymity, and we provided them on the questionnaire with the email address of one of the principal investigators, so if they had any concerns, they could contact us in order to get answers to their inquiries.

- **Sample Bias**

To address that, we have sent the questionnaire to a director of project management in each institution related to the health care sector, so he or she can forward it to our target sample. In addition, we excluded any questionnaires irrelevant to the study.

Ethical Issues

- **Informed Consent**

To address that, we have written in the survey that “By clicking the button below, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason” so if the participant click that I consent, begin the study, so it will be able to continue.

- **Confidentiality and Anonymity**

For Protect participants' privacy, we never ask them about their names, ID, date of birth, so the participant would be able to continue without any concerns about that.

Implications and contributions to knowledge

This study aims to investigate the influence of project management methodologies on the success of projects in the health care sector in Saudi Arabia. As a result, this project will help project managers in the health care industry concludes which ideal project management methodologies to use based on strengths and weaknesses. Also, this study will answer research questions such as which project factors could positively impact its success.

Practical Implications

The finding of study could provide a comprehensive overview on healthcare project management.

Theoretical Implications

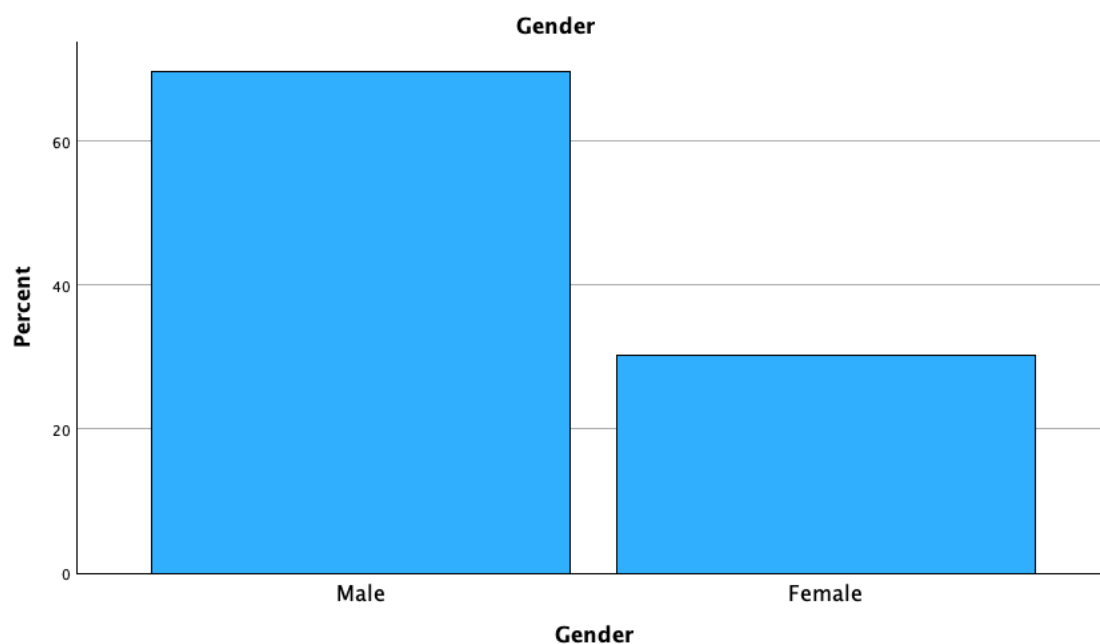
In fact, agile frameworks have the ability to be the best among project methodologies, resulting in their flexibility and increased efficiency and productivity; however, some PPMs have other features that might be perfect for a particular kind of work. So in this study, I am going to illustrate the details of that and shed light on the difference between them. Also, through the cross-sectional study, I would know what the most common PPM used by their health companies was.

CHAPTER IV

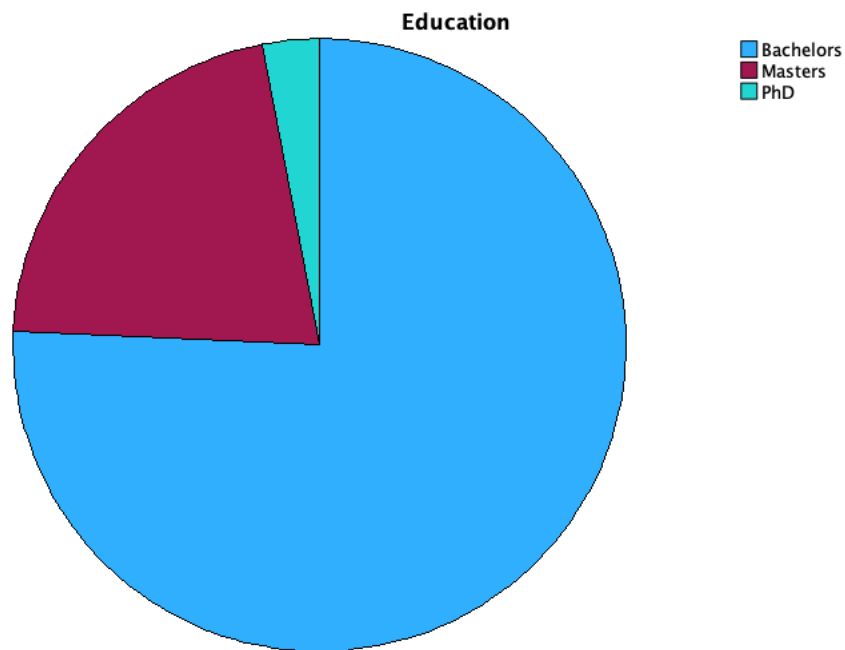
Result :

The study has a total of 33 participants. The mean age of population was 41.55 ± 8.228 years. Males accounted for 69.7% of the population, while females made up 30.3%. The distribution of participants' positions is as follows: 6.1% are department managers, 30.3% are project engineers, 24.2% are project managers, and 39.4% are team members. The demographic sample consisted of 66.7% Saudis, 15.2% Egyptians, and 18.3% Indians, Jordanians, and Lebanese combined. The bulk of the population had a bachelor's degree, accounting for 75.8% of the total. 21.2% of the population had a master's degree, while just 3% held a PhD. The largest proportion of the population is employed in Eastern Saudi Arabia, accounting for 30.3%. Central Saudi Arabia follows closely behind with 27.3%, while northern and western Saudi Arabia each have a workforce of 21.2%. No participants from southern Saudi Arabia have completed the survey. The cumulative data revealed that those with 1 to 5 years of experience accounted for 18.2% of the total, those with 6 to 10 years represented 21.2%, individuals with 11 to 15 years constituted 21.2%, and those with more than 20 years of experience made up 15.2%. While 39% of the total project work experience was comprised of 1 to 5 years, 27% was 6 to 10 years, 23% was 16 to 20 years and above 20%, and 12.1% was the smallest group. The mean of total work experience was 12.73 ± 6.559 , while the mean of the total of project work experience was 9.36 ± 6.509 . The field of the last project as they report was 51.5% of them engineering or construction project while almost half were between information technology specialists, and research/development area. Agile was the most common methodologies used in health care sector by 63.6% while traditional project management methodology was 27.3% and the six sigma was 9.1%.

The study investigated the impact between project management methodologies and risk factors such as complexity, urgency, and technology level. it found that Complexity is statistically significant ($p = .048$), indicating that it has a significant impact on Project management methodology. urgency was not statistically significant at the conventional alpha level of 0.05 ($p = .174$), as well as technology level with ($p = .226$).

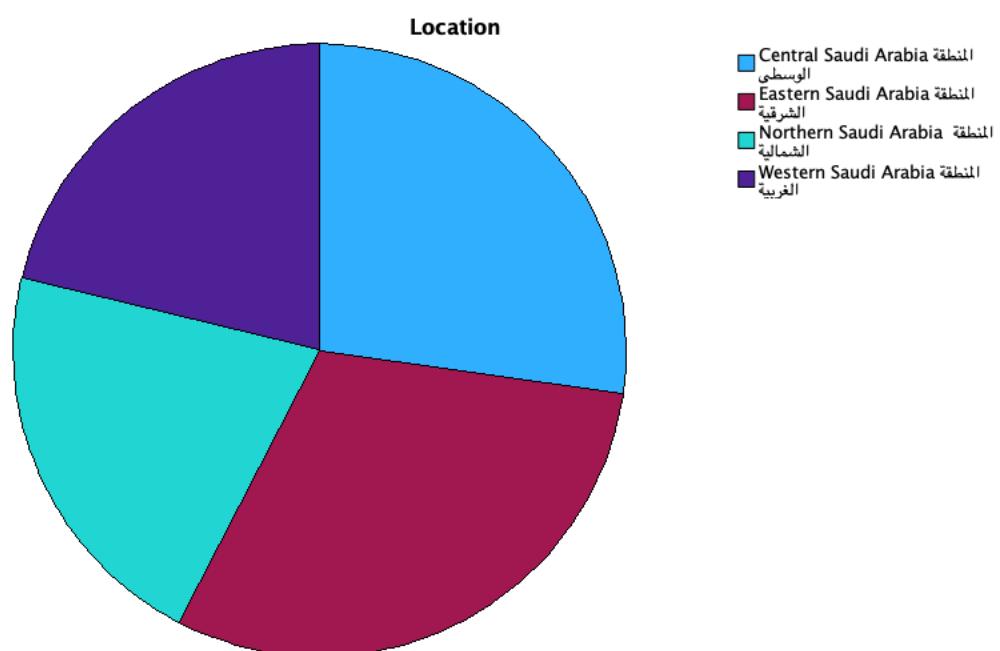


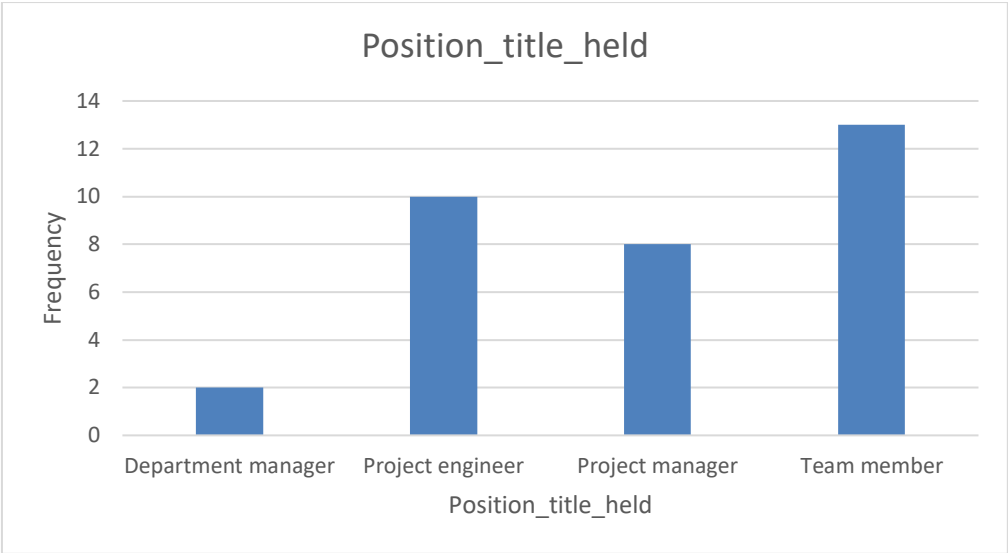
The bar graphs indicate the gender distribution of the participant sample, with 69.7% being male and 30.3% being female. As to the International Labour Organization (ILO), the worldwide female labor force participation rate is at just below 47%, whereas the figure for males is 72%. Recent data from the Project Management Institute (PMI) reveals a significant gender disparity in employment, particularly in the area of project management. The study shows that male project managers outnumber their female counterparts by a ratio of 3:1. (The State of Women in Project Management, 2023).

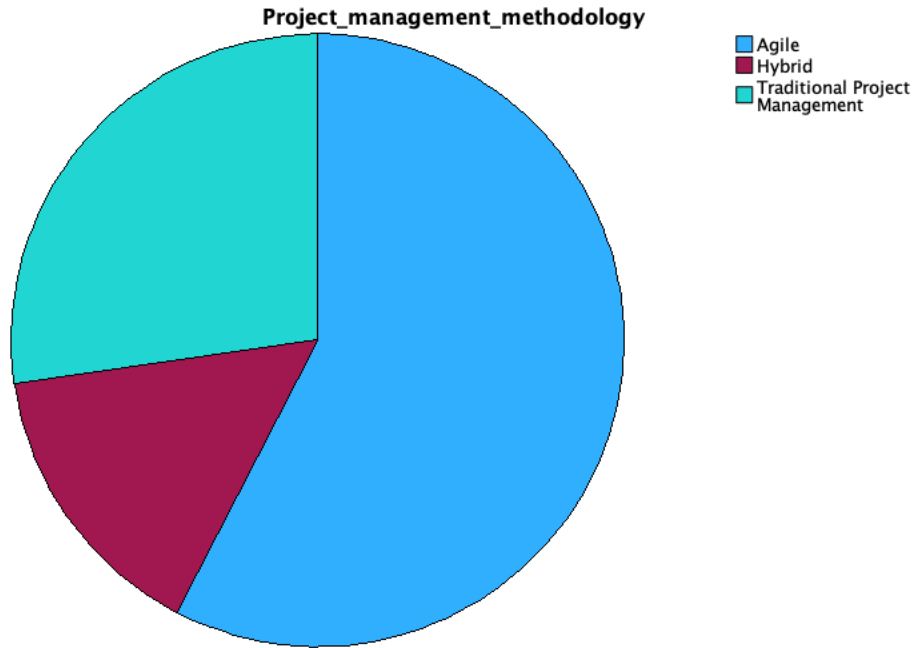


The pie chart revealed that the majority of participants, 75.9%, had a bachelor's degree.

This was followed by 21.2% who held a master's degree, and 3% who had a PhD.







The pie chart indicates that the healthcare sector in Saudi Arabia mostly employs the Agile project methodology, accounting for 63.6% of the industry. The waterfall technique is the second most often used method, with a share of 27.3%, followed by the hybrid methodology at 9.1%.

There are Nemours factors that contribution on project success in healthcare industry in Saudi arabia including supplier satisfaction, sponsor satisfaction, and project team satisfaction $p = <0.001$. Those support

The study found that Project Management Methodology has strong positive correlations with several variables such as Completed according to the specification, Supplier Satisfied, Met planned quality standard, Steering group satisfaction, Sponsor satisfaction, Project achieved a high national profile, Yielded business and other benefits, Enabling of Other Project Work in Future, and Resources mobilized and used as planned ($p = 0.001$)

- Completed according to the specification shows direct strong positive correlations on project management methods with $p=0.001$
- Supplier Satisfied is strongly correlated on project management methods with $p=0.001$.
- Met client requirement exhibits strong correlations on project management methods with $p=0.038$.
- Met planned quality standard correlates strongly on project management methods with $p=0.001$.
- Met safety standards shows strong correlations on project management methods with $p=0.038$.
- Finished on time has weak positive correlations on project management methods with $p=0.259$.
- Steering group satisfaction is strongly correlated on project management methods with $p=0.038$.
- End-user satisfaction has strong correlations on project management methods with $p=0.038$.
- Sponsor satisfaction is strongly correlated on project management methods with $p=0.001$.
- The project satisfies the needs of users is strongly correlated on project management methods with $p=0.04$.

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- Enabling of Other Project Work in Future shows strong correlations with several variables such as Project achieved a high national profile, Yielded business and other benefits, Resources mobilized and used as planned, and others.
- Project achieved a high national profile has strong correlations with Supplier Satisfied, Steering group satisfaction, Sponsor satisfaction, and others.
- Yielded business and other benefits is strongly correlated with Supplier Satisfied, Steering group satisfaction, Sponsor satisfaction, and others.
- Minimum disruption to organization shows a moderate negative correlation with Learned from project and a moderate positive correlation with Smooth handover of project outputs.
- Cost effectiveness of work has strong correlations with Steering group satisfaction, Sponsor satisfaction, and others.
- Adhered to defined procedures exhibits strong correlations with Steering group satisfaction, Sponsor satisfaction, and others.
- Learned from project shows a strong negative correlation with Smooth handover of project outputs and a moderate negative correlation with Resources mobilized and used as planned.
- Smooth handover of project outputs has strong correlations with Steering group satisfaction, Sponsor satisfaction, and others.

- Resources mobilized and used as planned exhibits strong correlations with Steering group satisfaction, Sponsor satisfaction, and others.
- Improvement in organizational capability shows a strong negative correlation with Learned from project and a moderate positive correlation with Smooth handover of project outputs.

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CHAPTER V

5.1 Interpretation of Findings

The findings of this study provide valuable insights into the relationship between project management methodologies and project success in the healthcare sector in Saudi Arabia. Our analysis focused on the impact of traditional waterfall, agile, and Hybrid methodologies on various success factors, including complexity, urgency, technology level, meeting planned quality standards, finishing projects on time, and end-user satisfaction.

5.2 Comparison with Previous Literature

Our findings align with previous research indicating the growing adoption of agile methodologies in project management, especially in dynamic and uncertain environments such as healthcare. The dominance of agile (63.6%) over traditional (27.3%) and Hybrid (9.1%) methodologies reflects a global trend towards more flexible and adaptive approaches to project management (Leybourne, 2009; Stettina and Horz, 2014). However, the presence of traditional methodologies highlights the persistence of established practices within certain contexts.

5.3 Complexity and Project Management Methodologies

The statistically significant impact of complexity on project management methodologies ($p=0.039$) underscores the importance of selecting appropriate methodologies based on project characteristics. Agile methodologies, known for their flexibility and responsiveness to change, may be better suited for complex projects with evolving requirements (Jackson, 2012). Conversely, traditional methodologies may struggle to accommodate complexity due to their sequential and rigid nature (Saynisch, 2010b).

5.4 Urgency and Technology Level

While urgency with ($p= 0.206$) and technology level with ($p= 0.418$) did not show statistically significant impacts on project management methodologies in our study, their influence cannot be overlooked. Urgency, although not significant at conventional alpha levels, may still exert pressure on project timelines and resource allocation, affecting the choice of methodologies (Conforto and Amaral, 2016). Similarly, technology level, while not statistically significant, may shape the suitability of methodologies, especially in highly technical projects where innovation and rapid iteration are crucial (Kruchten, 2004).

5.5 Meeting Planned Quality Standards and Timely Completion

The strong positive impact of meeting planned quality standards and the negative impact of timely completion on project management methodologies highlight the importance of balancing quality with efficiency. Agile methodologies, with their focus on continuous improvement and customer collaboration, may excel in delivering high-quality outcomes aligned with stakeholder expectations (Stare, 2014). However, the negative impact on timely completion suggests potential challenges in managing project schedules within agile frameworks, emphasizing the need for effective planning and prioritization (Heeager and Schlichter, 2016).

5.6 End-User Satisfaction

Interestingly, the relationship between end-user satisfaction and project management methodologies was not statistically significant in our study. This finding contrasts with previous research emphasizing the customer-centric approach of agile methodologies and their positive impact on stakeholder satisfaction (Alaa and Fitzgerald, 2013). Further exploration into the factors influencing end-user satisfaction within different methodologies may shed light on this discrepancy.

5.7 Practical Implications

Our study has practical implications for project managers and healthcare organizations in Saudi Arabia. The dominance of agile methodologies suggests a shift towards more adaptive and collaborative approaches to project management, aligning with the dynamic nature of healthcare delivery. Understanding the impact of project characteristics on methodology selection can help project managers make informed decisions to optimize project outcomes and mitigate risks.

5.8 Theoretical Contributions

Theoretical contributions of this study lie in its exploration of the complex interplay between project management methodologies and project success factors. By empirically examining these relationships in the healthcare context, we contribute to a deeper understanding of how different methodologies shape project outcomes. Our findings challenge simplistic assumptions about the superiority of certain methodologies and underscore the importance of context-specific considerations in project management research.

5.9 Limitations and Future Research Directions

Despite its contributions, this study has several limitations. The reliance on self-reported data and the cross-sectional design may introduce biases and limit causal inference.

Additionally, the focus on healthcare projects in Saudi Arabia may limit the generalizability of findings to other contexts. Future research could address these limitations by employing longitudinal designs, incorporating objective measures of project success, and examining diverse industry sectors.

5.10 Conclusion

In conclusion, this study provides valuable insights into the relationship between project management methodologies and project success in the healthcare sector in Saudi Arabia. Our findings highlight the dominance of agile methodologies, the influence of project characteristics on methodology selection, and the complex interplay between methodologies and project success factors. By addressing practical and theoretical considerations, this study contributes to the ongoing discourse on effective project management in dynamic environments.

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