

***Optimizing Project Resource Management in Health Care Facilities in
Jimma Zone, Ethiopia***

BY: BILISUMMA TESFAYE (BA)

***A Thesis Submitted to the School of Graduate Studies of Jimma
University in Partial Fulfillment of the Requirements for the Award of
the Degree of Project Management and Finance***



***JIMMA UNIVERSITY
COLLEGE OF BUSINESS & ECONOMICS
MA PROGRAM***

June 5, 2024
Jimma University

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Under the Guidance of:

**Mengistu Deyassa (Ass. Professor) and
Belay Wube (MA)**

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CERTIFICATE

This is to certify that the thesis entitles “Optimizing Project Resource Management in Health Care Facilities in Jimma Zone, Ethiopia”, submitted to Jimma University for the award of the Degree of Master of Project Management and Finance and is a record of bonafide research work carried out by Miss. Bilisuma Tesfaye, under our guidance and supervision.

Therefore, we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree or diploma.

Main Adviser's Name

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Mengistu Deyassa (Ass. Professor)

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Date

Signature

Belay Wube (MA)

DECLARATION

I hereby declare that this thesis entitled “Optimizing Project Resource Management in Health Care Facilities in Jimma Zone, Ethiopia”, has been carried out by me under the guidance and supervision of Mengistu Deyassa (Ass. Professor) and Belay Wube (MA)

The thesis is original and has not been submitted for the award of any degree or diploma to any university or institutions.

Researcher’s Name

Date

Signature

Bilisuma Tesfaye

Abstract

*This study aims to assess project resource management in healthcare facilities and its associated factors in Jimma Zone, Ethiopia. The study tried to propose effective strategies for optimizing resource allocation and utilization. Explanatory & descriptive study design was employed to assess the current state of project resource management and its associated factors. Our research adopts a **mixed (quantitative & qualitative) approach** to evaluate the existing project resource management practices of healthcare facilities and the factors associated with them.*

A mixed method study was conducted in six districts of Jimma Zone, targeting managers, administrators, and project health facility staffs involved in healthcare projects. Data was collected through face-to-face interviews with healthcare providers, project board members and community representatives using structured questionnaire. The collected data were entered and analyzed using EpiData version 4.3 and SPSS software version 25. Descriptive statistics was used to summarize the data, and binary and multiple logistic regressions was employed to identify factors associated with health facility project resource management. Variables with a p-value less than 0.25 in bivariate analysis were included in the multivariable backward logistic regression procedure to control confounding variables and determine the final determinants of health facility project resource management. For qualitative purposive sampling technique was used to recruit participants of key informant interviews. Finally, thematic analysis approaches was used and the data was manually coded, categorized and thematized.

The study showed that 81.3% of health facilities plan ahead for projects, 74.4% allocate budgets by priority, 70.9% face human resource issues, and 75.3% report inadequate infrastructure. Key challenges include financial constraints and inaccurate cost estimation. Significant variables for efficient management include favorable attitudes (AOR=1.96), stakeholder engagement (AOR=2.37), and smooth procurement practices (AOR=2.21). Effective strategies are monitoring (70.9%), stakeholder engagement, and smooth procurement. The qualitative finding also supported this.

Efficient management is linked to favorable attitudes, stakeholder engagement, and smooth procurement. These findings underscore the importance of strategic foresight, resource prioritization, and effective stakeholder involvement in healthcare project management.

Key Words: Health facility, resource management, Ethiopia

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I would like to thank Jimma University for its outstanding program, which emphasizes community-based teaching and learning approaches. The university's methodical investigation techniques encourage students to thoroughly examine questions, leading to the discovery of facts that can help establish or revise theories or develop action plans based on the facts discovered. This meticulously organized program empowers students with expertise in problem identification and problem-solving.

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ACRONYMS/ABBREVIATIONS

RBV	Resource Based View
RAI	Resource Allocation Index
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.1. Background of the study

Healthcare project management involves coordinating, planning, and implementing a project and its resources. By implementing project management, healthcare organizations can enhance patient care quality through streamlined processes, improved productivity, and sharpened efficiency (Jackson, 2024).

Healthcare facilities play a crucial role in promoting community well-being, but effective resource management is essential for their successful operation. However, challenges in resource management often hinder optimal service delivery. According to various sources, some of the top challenges in healthcare facilities management include changing facility emergency systems' requirements following new regulations, financial pressures demanding lower overhead costs, security concerns, more facilities and insurers looking at treatment outcomes and patient satisfaction, managing budgets and finances, managing health facility staffs and resources, maintaining and updating facilities, managing patient flow, cleanliness and hygiene, energy efficiency, equipment maintenance, health facility staffing, supply chain, technology, preparing for the next emergency, lack of facility information access, inefficient facility compliance, and financial inefficiency in healthcare facilities (Figuerola et al., 2019; Mosadeghrad, 2014).

The effective management of resources within healthcare facilities is crucial for ensuring optimal service delivery. Budgeting, human resources, infrastructure, and project implementation are all interconnected and crucial for healthcare project success. In Ethiopia, inadequate medical equipment management hampers healthcare capacity, emphasizing the need for effective resource management (Ademe et al., 2016). However, Ethiopian public hospitals face persistent human resource shortages, and policy and hospital reforms have resulted in limited progress towards addressing the strategic human resource management (Gile et al., 2022).

Despite the significance of resource management, healthcare face persistent challenges that impact their ability to execute projects efficiently. One of the primary challenges is the limited financial resources available for healthcare projects (Yusefi et al., 2022). Studies conducted highlighted the financial constraints faced by healthcare facilities in Ethiopia. These constraints often lead to inadequate budgeting for projects, hindering the timely completion of initiatives aimed at improving healthcare services (Akafu et al., 2023).

The shortage of skilled personnel is another critical challenge affecting healthcare facilities. The insufficient number of healthcare professionals in Ethiopia poses a significant obstacle to project implementation. The scarcity of trained health facility staffs impacts the overall efficiency of healthcare projects and can result in delays and suboptimal outcomes (Gebrekidan et al., 2023). Infrastructure plays a vital role in healthcare service delivery. However, inadequate infrastructure poses a challenge to the effective resource management of healthcare projects (Luxon, 2015).

According to a study by Deresse et al. (2016), there are many problems with project execution in healthcare institutions. It is crucial to address problems including inadequate monitoring and evaluation systems, poor project planning, and a lack of coordination. During project implementation, these variables lead to inefficiencies in the use of resources. A lack of healthcare workers, such as physicians, nurses, and technicians, as well as geographic restrictions are further obstacles to the implementation of health projects. Limited financial, human, and infrastructure resources are also a problem. Obtaining sufficient initial funding to support the program can also be challenging, and technological problems may occur when bringing about changes in clinics, hospitals, or even hospital systems as a whole (Issues, 2023; Ochieng, 2023; Sullivan et al., 2018).

Addressing these challenges is imperative for optimizing resource management in healthcare facilities in Jimma Zone. Optimized resource management contributes to the timely completion of projects, cost-effectiveness, and improved healthcare service delivery. By enhancing resource allocation and utilization, healthcare facilities can better meet the needs of their communities and contribute to the overall health and well-being of the population. Several studies provide valuable insights into healthcare resource management, offering a foundation for understanding the challenges faced by healthcare facilities. In a global context, study examined resource allocation practices in healthcare projects. The study identified common issues such as inadequate budgeting and the lack of skilled project management personnel. The findings emphasize the need for comprehensive solutions to address resource management challenges in healthcare projects (Zosmer, 2015).

The context of Jimma Zone, Ethiopia, presents a unique setting with diverse and dynamic healthcare needs, making the effective management of resources within healthcare facilities crucial for ensuring optimal service delivery. However, the region faces challenges such as service disparity, low-quality health services, inadequate equipment and health facility staffs, and

lack of trained personnel, which impact healthcare financing and resource allocation (Debie et al., 2022; Mulat et al., 2022). This necessitates this study which aims to enhance project resource management in healthcare facilities within Jimma Zone, Ethiopia, by comprehensively evaluating the current state, identifying challenges and factors associated with health facility resource management, and propose effective strategies for optimizing health facility resource management.

1.2. Statement of the Problem

Healthcare facilities encounter difficulties in efficiently managing resources for projects, leading to delays, cost overruns, and compromised service quality (Love & Ika, 2022). Effective resource management for a variety of initiatives is a major concern for healthcare organizations. Significant obstacles stem from this situation include project delays, cost overruns, and a drop in the caliber of services rendered. As the current issues make it difficult for resources to be allocated and used efficiently, it becomes clear that systematic improvements are required (Ravi Acharya, 2012).

In the context of project implementation, delays have become the norm, which affects the prompt provision of vital services to the community. Problems including poor planning, ineffective resource allocation, and subpar project management techniques are the cause of these delays. As a result, the community's ability to obtain timely healthcare services is interrupted (Tulu, 2018). Furthermore, one major worry for healthcare projects is cost overruns. The project needs are frequently not fully met by the first resource allocation. This shortage causes financial strains that have an impact on healthcare facilities' overall financial health, along with budgetary restrictions, faulty cost estimates, and unanticipated difficulties during project implementation (Xie et al., 2022). Budgetary constraints are a significant barrier that necessitates deliberate adjustments. It is crucial to look at strategies for overcoming these constraints, including ways to increase income, improve budgeting skills, and find long-term financial solutions (Brossard et al., 2022; Mathewos Oridanigo et al., 2021).

Impaired service quality is an additional outcome of ineffective resource allocation. The inequitable distribution of infrastructure, financial, and human resources has a direct impact on healthcare service quality. In addition to having an impact on patient outcomes, this tradeoff lowers community satisfaction with the healthcare services offered (Pu, 2021; Riley, 2012). Systematic changes are required to address these issues. The optimization of resource allocation

strategies ought to be a primary priority. This entails distributing resources fairly, keeping discrepancies in resource allocation across different project components to a minimum, and matching resources with project priorities (Jason Willis, Kelsey Krausen & and Tia Taylor Willis, J., Krausen, K., Caparas, R. & Taylor, 2019; Toe, 2024).

It is necessary to make improvements to project planning procedures. Effective project plans are essential for resource allocation, anticipating obstacles, and avoiding project delays. Efficient resource management relies on building capacity among employees in healthcare facilities. By providing professional growth and training opportunities, health facility staffs members will have the necessary tools to effectively plan, execute, and oversee projects. It is crucial to foster collaboration with local communities, NGOs, and governmental organizations. By involving stakeholders in decision-making, project requirements are better understood and resource allocation is streamlined to meet community demands. By involving stakeholders in decision-making, project requirements are better understood and resource allocation is streamlined to meet community demands (Atlassian, 2022). The challenges faced by healthcare facilities in Jimma Zone necessitate studies. Therefore this study aims to answer the following research questions.

1.3. Objectives

1.3.1. General Objective

To assess the current project resource management practices of healthcare facilities and its associated factors and propose effective strategies for optimizing resource allocation and utilization.

1.3.2. Specific Objectives

- To determine the current state of project resource management in healthcare facilities of Jimma Zone, Ethiopia
- To assess factors associated with health facility project resource management
- Propose strategies to optimize project resource management in healthcare facilities.

1.4. Research Questions

- What are the current resource management practices in healthcare projects in Jimma Zone?
- What are the factors associated with resource management practices of healthcare facilities?
- How can project resource management be optimized to improve healthcare service delivery?

1.5. Significance of the Study

The findings of this study increase our understanding about health facility project resource management in selected Districts of Jimma Zone, which in turn helps to formulate an action plan based on the recommendations made to policy and program implementers. This study is significant because it attempts to provide insightful analysis and suggestions for improving project resource management effectiveness in healthcare settings. Policymakers, healthcare administrators, and project managers find value in the findings, which ultimately raise the standard of healthcare provided in Jimma Zone.

1.6. Scope of the study

This study analyzed current project resource management practices in health care facilities within selected districts of Jimma Zone. The study will focus on understanding the challenges

and opportunities associated with resource allocation, utilization, and optimization in the context of healthcare projects in Jimma Zone.

1.7. Organization of the paper

The paper is structured with several sections to provide a comprehensive and organized presentation of the research. It begins with a Table of Contents for easy navigation, followed by a Summary that gives a concise overview of the entire paper. Chapter 1 focuses on the Background of the Study and includes sections such as Introduction, Statement of the Problem, Research Questions, Research Objectives, Significance of the Study, Scope of the Study, and Operational Definitions. Chapter 2 is dedicated to the Literature Review, covering Theoretical Frameworks in Project Resource Management, Models of Project Resource Management, and Empirical Studies on Project Resource Management in Healthcare, Best Practices and Strategies for Project Resource Management, and a Conceptual Framework. Chapter 3 presents the Methodology, including sections on Study Setting, Research Design, Population of the Study, Sample Size, Sampling Technique, Types of Data, Data Collection Tool and Procedure, Study Variables, Data Analysis, and Ethical Considerations. Chapter 4 includes Result and discussion. Chapter Five includes conclusion and Recommendations. The paper ends with a References section listing all the cited sources and an Annexes section with Annex 1 containing the Data Collection Tool.

CHAPTER 2: REVIEW of RELATED LITERATURE

Project resource management within healthcare settings is a multifaceted domain that requires careful consideration of financial, human, and infrastructure resources. In this literature review, we delve into existing theories, models, and empirical studies to gain insights into the challenges and opportunities associated with project resource management in healthcare settings. The aim is to establish a foundation for understanding the complexities of resource management and to identify best practices that can be applied to optimize healthcare projects (Ika & Pinto, 2022).

2.1. Theoretical Frameworks in Project Resource Management:

Resource-Based View (RBV)

The Resource-Based View (RBV) provides a theoretical lens through which organizations can analyze their internal resources and capabilities to gain a sustainable competitive advantage. When it comes to healthcare projects, this theory underscores the strategic significance of resources such as trained personnel, financial capital, and advanced technologies. Healthcare organizations can use RBV principles to align resource allocation with project goals, guaranteeing valuable and rare resources for project development (Brossard et al., 2022; Ferlie et al., 2015).

Institutional Theory

The impact of institutional contexts on organizational behavior and decision-making is emphasized by institutional theory. Within healthcare environments, resource management methods are greatly influenced by institutional constraints such as industry conventions and regulatory regulations. Healthcare firms must comprehend these institutional influences in order to manage complex regulatory environments and make resource allocation decisions that adhere to industry norms (Bresnen et al., 2017).

2.2. Models of Project Resource Management

The Triple Constraint Model

The Triple Constraint Model, also known as the iron triangle, posits that projects are bound by three interrelated constraints: time, cost, and scope. In healthcare projects, these constraints are particularly salient. For instance, a delay in project completion may affect patient care, and cost overruns could strain limited healthcare budgets. Effective resource management in healthcare

projects requires a delicate balance among these constraints to ensure successful project outcomes (Eby, 2023).

Resource Allocation Models

Allocating resources according to project priorities can be done quantitatively with the use of resource allocation models like the Resource Allocation Index (RAI). These models have been used in the healthcare industry to maximize the distribution of resources in areas like hiring, purchasing equipment, and growing facilities. Healthcare initiatives can be made more efficient by comprehending and putting into practice resource allocation models, which systematically distribute and prioritize resources according to project requirements (Bodina et al., 2017; Data et al., 2022; *Health Care Resource Allocation Models - A Critical Review*, 1977).

2.3. Project management in healthcare facilities

Various studies have analyzed the status of project resource management in healthcare facilities in Ethiopia, shedding light on the obstacles and potentials in this vital domain. In a study by Lemma et al. (2019), the focus was on resource planning and allocation practices in Ethiopian hospitals, as an example. The study found that healthcare facilities frequently encounter budget limitations and lack organized methods for resource planning, resulting in ineffective resource allocation. Similarly, Molla et al. (2021) conducted a study on human resource management in healthcare projects, emphasizing the shortage of skilled healthcare professionals and the need for capacity building initiatives (Gile et al., 2022; United States of America Department of Commerce, 2016).

Financial resource management is a vital part of project management in healthcare facilities, alongside resource planning and allocation. A study by Tadesse et al. (2020) investigated financial resource management practices in Ethiopian hospitals. The study identified obstacles including insufficient financial systems, restricted funding, and challenges in financial reporting. The study highlighted the need to enhance financial management capacity and implement efficient control mechanisms for better resource utilization (Debie et al., 2022).

Managing materials and equipment is crucial in healthcare facility project resource management. A study by Awoke et al. (2022) explored the challenges and opportunities in material and equipment management in Ethiopian hospitals. The study uncovered problems like insufficient inventory management systems, unreliable supply chains, and difficulties with equipment maintenance. The study highlighted the importance of strategic planning, enhanced procurement

processes, and efficient maintenance strategies for ensuring the availability and functionality of vital materials and equipment(Team, 2023).

Data management and information technology play a vital role in project resource management in healthcare facilities. The state of information technology and data management practices in Ethiopian healthcare projects was investigated in a study by Gebre et al. (2023). The study exposed flaws in data gathering, analysis, and reporting mechanisms, impeding evidence-driven decision-making. To enhance information management practices, the study suggested adopting digital health technologies, improving data management capabilities, and establishing data governance frameworks (Asfaw et al., 2020).

2.4. Existing Project Resource Management and strategies

Stakeholder Engagement

A key component of effective project resource management is stakeholder interaction. Research shown how crucial it is to involve all relevant parties in the resource management process, such as patients, administrators, and healthcare professionals. Involving stakeholders makes sure that different viewpoints are taken into account, which results in better judgments on the distribution of resources(Pandi-Perumal et al., 2015).

Continuous Monitoring and Evaluation

Continuous monitoring and evaluation are essential for identifying resource management issues early in the project lifecycle. One study emphasized the significance of implementing monitoring and evaluation mechanisms to track resource utilization, assess project progress, and make timely adjustments to ensure project success (Agencies et al., 2020).

This literature review provides a comprehensive overview of theoretical frameworks, models, and empirical studies related to project resource management in healthcare settings. The Resource-Based View and Institutional Theory offer theoretical insights, while the Triple Constraint Model and resource allocation models provide practical frameworks for understanding and optimizing resource management(Thune & Mina, 2016). Empirical studies underscore the challenges faced by healthcare organizations, including budgeting constraints, technology adoption, and human resource management issues. Understanding the intricacies of project resource management in healthcare settings is crucial for addressing the unique challenges faced by healthcare organizations.

2.5. Factors associated with health facility project resource management

Several factors affects health facility project resource Empirical studies highlight pervasive challenges in healthcare resource management. One study identified key challenges, including inadequate budgeting, lack of skilled project management personnel, and the complexity of healthcare project environments. These challenges underscore the need for comprehensive approaches to address resource management issues in healthcare settings(Kluge, 2007; Yusefi et al., 2022).

Human Resource Management in Healthcare Projects

The successful execution of health facility projects relies on effective human resources management. Skilled personnel availability, competency-based training, workforce planning, and effective communication and collaboration are essential factors. Effective allocation and utilization of human resources greatly enhance project efficiency and quality(Heyworth, 2004; Negi, 2021). A study conducted by Kabene et al showed that Human resources play a crucial role in healthcare initiatives, and research has explored the correlation between well-managed human resources and project success. The study highlighted how knowledgeable project teams and strong leadership can help mitigate human resource management issues in healthcare projects (Kabene et al., 2006).

Financial factors

The management of resources in health facility projects is greatly influenced by financial factors. Adequate funding, accurate cost estimation, and effective budgeting are essential for the success of projects in healthcare facilities. Key factors influencing financial resource management include financial constraints, funding sources, cost control measures, and financial risk management(Atlassian, 2022; Jackson, n.d.; Terra, 2023).

Technology Adoption in Healthcare Projects

A study conducted by Kluge indicated that in healthcare initiatives, the incorporation of technology is a crucial component of resource management. The effect of implementing digital technology on resource efficiency in healthcare settings was investigated in a study. Results indicated that implementing technology in healthcare initiatives can improve communication, expedite procedures, and maximize the use of available resources (Kluge, 2007).

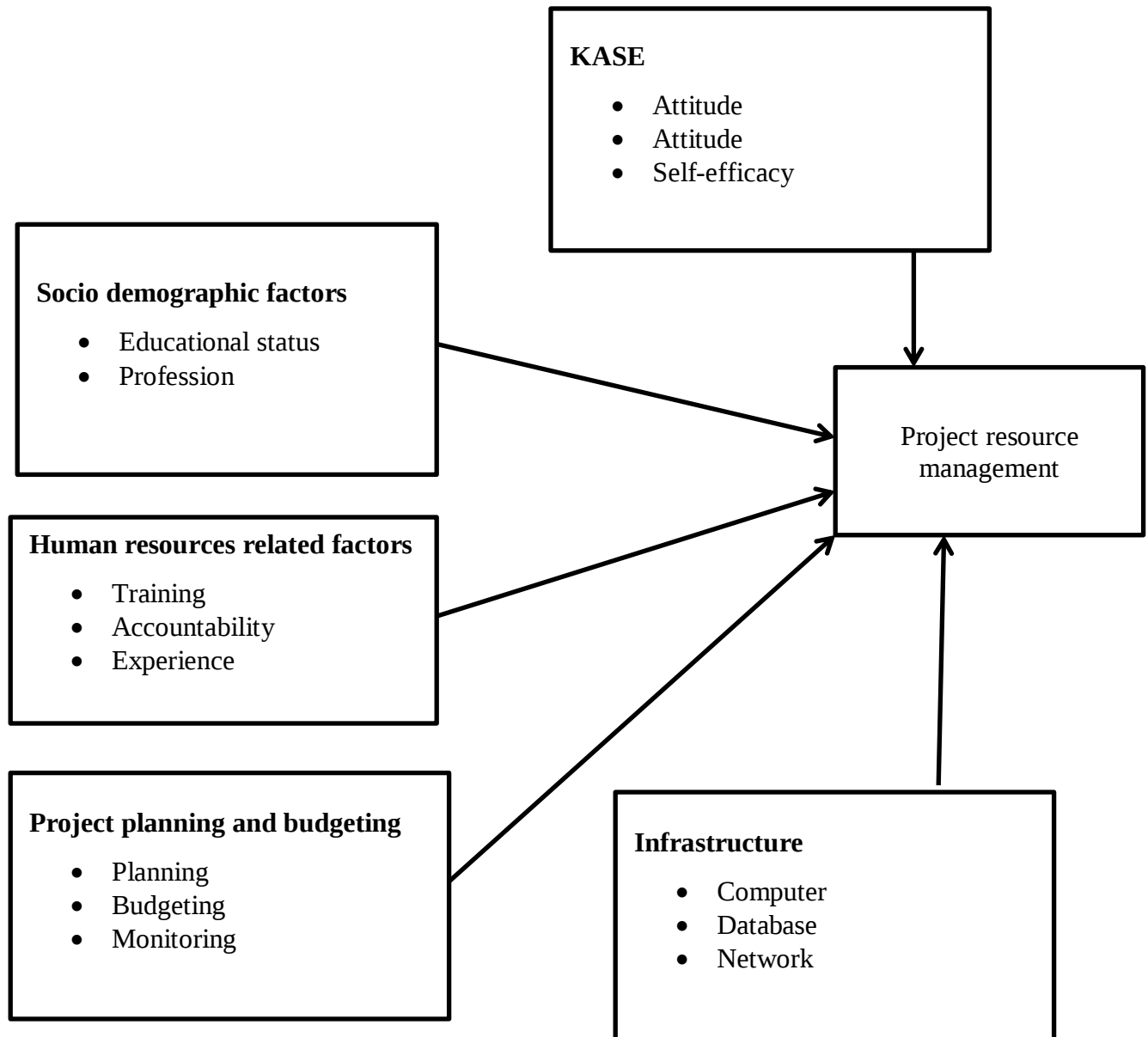
Procurement and Supply Chain Management

Effective procurement and supply chain management are crucial for ensuring resources are available on time in health facility projects. Supplier selection, contract management, inventory control, and logistics are vital factors in this process. Efficient supply chain management reduces project delays and costs while improving overall project performance (Partners, 2024).

Stakeholder Engagement

Effective stakeholder engagement is essential for resource management in health facility projects. Better utilization of resources and project outcomes are achieved through effective communication and collaboration with stakeholders such as healthcare professionals, government agencies, community members, and project teams. Active stakeholder engagement and addressing their concerns contribute to project success and sustainability (Khan et al., 2018).

2.6. Conceptual Framework



CHAPTER 3: RESEARCH DESIGN & METHODOLOGY

3.1. Study Area

The research was conducted in healthcare facilities within Jimma Zone, Ethiopia. Jimma is situated 354 km away from Addis Ababa in South western part of Ethiopia; based on CSA report, the total population of the district is estimated to be 190,137 in 2016. There are 556 kebeles, of which 512 are rural and the rest are urban kebeles. There are 122 health centers, 556 health posts and eight hospitals in Jimma Zone. Jimma zone, situated in the southwestern part of Ethiopia, is characterized by a diverse mix of urban and rural areas, each with its unique healthcare challenges and demands. The choice of this setting is deliberate, as it allows for a comprehensive understanding of the multifaceted issues that may arise in both urban and rural healthcare contexts.

3.2. Study Design

Explanatory & descriptive study design was employed to assess the current state of project resource management and its associated factors. Data for status of health facility project resource management and its associated factors were collected at a point in time.

3.3. Research approach and strategy

A mixed study design was employed to assess the current state of project resource management and its associated factors. To accomplish this, we employed an explanatory design that entails collecting quantitative data initially, followed by qualitative data. The qualitative data served to elucidate and expand upon the quantitative findings, thereby offering deeper insights into the research problem.

3.4. Population of the study

The source population was total health facility staffs, board members and community representative in six selected districts of Jimma Zone health facility staffs. The study population was health facility staffs selected health facility staffs, board members and community representative in six selected districts of Jimma Zone. Out of the total 21 districts, we selected the six districts based on recommendations of most statistical books, which suggest taking 30% could satisfy the representativeness of the sample. The total numbers of individuals across the three groups were 1344 (board members -336, health facility health facility staffs -960 and community representatives – 48).

3.5. Sample Size

To calculate the sample size for our study, we utilized the Taro Yamane formula, considering that our population is finite. The Yamane formula is a widely accepted method for determining the appropriate sample size when conducting research on a finite population. By using this formula, we aimed to ensure that our sample size adequately represents the entire population of interest, thereby enhancing the validity and generalizability of our findings.

The assumptions used for sample size calculation is: 95% confidence level. And other assumptions was follows:

N= Total population (1344)

e= the margin of error between the sample statistics and the population parameter (=0.05)

$$n = \frac{N}{1+N e^2} = \frac{1344}{1+1344(0.05)^2} = 308$$

Now by considering 5% non-response rate, the final sample size was 324.

3.6. Sampling Technique

Simple random sampling techniques were used to ensure representation from different types and sizes of healthcare facilities. The study encompass a range of healthcare facilities, including hospitals, health centers, and health posts, to capture the broad spectrum of health facilities resource management and its associated factors. Selection criteria for participating facilities was based on their size, location (urban or rural), and the types of services they offer. This inclusive approach ensures a representative sample that reflects the diversity of healthcare provision in the Zone. Urban facilities may contend with issues related to high patient volumes, greater infrastructure demands, and increased competition for resources. In contrast, rural facilities might face challenges such as limited access to essential services, scarcity of skilled personnel, and inadequate infrastructure. By including both urban and rural healthcare facilities, the study aims to provide insights that are applicable across diverse contexts. Lists of health professionals and project board members at health facility level were sampling frame for our study. For qualitative purposive sampling technique was used to recruit participants of key informant interviews. Finally, thematic analysis approaches was used and the data was manually coded, categorized and thematized.

Table 1. Proportional to size allocation (Districts)

Woreda	HFs		Total board members		Total health facility staffs members		Total community representatives		Total	
	Total	Selected	Existing	Selected	Existing	Selected	Existing	Selected	Existing	Selected
Manna	7	3	49	12	140	33	7	2	196	47
Sh.Sombo	6	2	42	10	120	29	6	2	168	41
Dedo	8	3	56	14	160	38	8	2	224	54
O.Nada	8	3	56	14	160	38	8	2	224	54
Gomma	11	4	77	19	220	53	11	2	308	74
L.Kossa	8	3	56	14	160	38	8	2	224	54
	48	18	336	83	960	229	48	12	1344	324

Table 2. Proportional to size allocation (Health facility)

District	Health facilities	Total board members		Total staff members		Total community representatives		Total	
		Existing	Selected	Existing	Selected	Existing	Selected	Existing	Selected
Manna	Yabu	7	4	18	10	1	1	26	15
	Haro	7	4	21	11	1	0	29	15
	Bilida	7	4	23	12	1	1	31	17
Sh.Sombo	Kishe	7	5	19	14	1	0	27	19
	Sombo	7	5	22	16	1	1	30	22
Dedo	Sheki hospital	7	5	178	30	1	1	186	36
	O.Hidhata	7	5	26	4	1	0	34	9
	Defkela	7	4	23	4	1	1	31	9
O.Nada	Gudeta Bula	7	4	28	5	1	0	36	9
	Nada Hospital	7	5	189	30	1	1	197	36
	Asendabo	7	5	25	3	1	1	33	9
Gomma	Beshasha	7	5	34	16	1	1	42	22
	Gembe	7	5	27	13	1	0	35	18
	O.Gurude	7	5	27	13	1	1	35	19
	Kedemasa	7	4	23	11	1	0	31	15
L.Kossa	L.Kossa Hospital	7	5	187	30	1	1	195	36
	Galle	7	5	23	3	1	1	31	9
	Jimate	7	4	23	4	1	1	31	9
Total		126	83	916	229	18	12	1060	324

3.7. Types of data

Primary data was collected from study participants, secondary data was collected from project management documents of health facilities and observation was made for some documents.

3.8. Data Collection Tool and Procedure:

Data was collected using a structured questionnaire that was developed based on the objectives of the study. The questionnaire included sections on demographic characteristics, knowledge, attitudes and attitude towards health facility resource management, and its associated factors. Data was collected through face-to-face interviews with healthcare providers, project board members and community representatives; these are the sampling unit for our study. For qualitative data was gathered through in-depth and key informant interviews involving various stakeholders, including project managers, health workers, and community representativeness. All interviews were conducted in private settings to ensure confidentiality, with only the participant and the data collector present during each session. An open-ended interview guide, pre-tested for accuracy and relevance, was employed to facilitate the interviews.

3.9. Study Variables

3.9.1. Independent variables

- Socio-demographic factors
 - ✓ Educational status
 - ✓ Profession
- Project planning and budgeting
 - ✓ Planning
 - ✓ Budgeting
 - ✓ Monitoring
- Human resources-related factors
 - ✓ Experience
 - ✓ Training
 - ✓ Accountability
- Infrastructure
 - ✓ Computer
 - ✓ Database

- ✓ Network
- KASE (Knowledge, Attitude and Self Efficacy)
 - ✓ Knowledge
 - ✓ Attitude
 - ✓ Self-efficacy

3.9.2. Dependent variable

- Project resource management

3.10. Data Analysis

Data was entered using the Epidata version 4.3 and was exported to SPSS software version 25 for analysis. Collected data was checked for completeness, cleaned, coded, entered, and analyzed using Epi data version 3.1 and SPSS version 25 statistical package. We checked for the Goodness of Fit and explanation capacity for the model using the Hosmer and Lemeshow test that assumes a good fit for p-value >0.05, and the receiver operating character curve (ROC Curve), respectively.

Descriptive statistics (frequencies, means, standard deviations and proportions of all variables) was determined and tabulated to describe the data. Binary and multiple logistic regressions were employed to determine factors associated with health facility project resource management.

The variables in bivariate analysis with a p-value less than 0.25 were simultaneously included in the multivariable backward logistic regression procedure to control the confounding variables and describe the final determinants of health facility project resource management.

Multi collinearity diagnosis was done by checking variance inflation factor (VIF.. The crude and adjusted odds ratios with a 95% confidence interval were reported to measure the strength of the association between independent and outcome variables. The results of multivariate logistic regression was considered statistically significant at $p < 0.05$.

For qualitative thematic analysis approaches was used and the data was manually coded, categorized and thematized.

3.11. Ethical Considerations

Ethical clearance was obtained from Ethical Review Board of Jimma University, college of of business and economics. Department of project management and finance wrote a letter of approval to Jimma Zone Health office. We explained the aim of the study to the study

participants. Written informed consent was taken from the study participants before gathering information and Privacy of the respondents was kept during interview. All the information gathered from the participants and from their records was kept confidential. Participation in the study were purely voluntary, with no consequences for non-participation.

3.12. Measurement

The internal consistency of the key constructs was checked using Cronbach's alpha, and all the constructs showed acceptable Cronbach alpha coefficient values. The Cronbach's alpha coefficient scores for knowledge, attitude, self-efficacy, technology adoption, stakeholder engagement, procurement practice, experience and project management practice, were 0.81, 0.92, 0.86, 0.88, 0.81, 0.93, 0.86 and 0.78 respectively.

Knowledge: defined as a comprehensive grasp and familiarity with the principles, practices, and intricacies linked to project resource management within healthcare facilities. Utilizing a set of 10 Likert scale questions, knowledge is quantitatively measured. Participants scoring above the mean on these questions were categorized as knowledgeable, signifying a higher level of understanding, while scores below the mean was classified as less knowledgeable.

Attitude: The measurement of attitude employs a set of 10 Likert scale questions. Scores above the mean on these questions was categorized as reflecting a favorable attitude, indicating a positive and supportive outlook toward project resource management. Conversely, scores below the mean was be classified as indicating an unfavorable attitude, suggesting a more critical or negative perspective regarding the practices and principles related to project resource management in healthcare facilities.

Self-efficacy: Utilizing a set of 10 Likert scale questions, self-efficacy is measured. Scores above the mean on these questions was categorized as indicating high self-efficacy, suggesting a strong belief in one's ability to navigate and excel in the context of project resource management. Conversely, scores below the mean was classified as reflecting low self-efficacy, indicating a lesser degree of confidence in one's capacity to effectively contribute to and manage project resources within the healthcare setting.

Practice: The measurement of practice involves a set of 13 Likert scale questions. These questions are designed to gauge the frequency and effectiveness of participants' practical engagement with project resource management in their healthcare roles. Scores above the mean on these questions was categorized as indicative of high practice, reflecting a consistent and

proficient application of project resource management principles. Conversely, scores below the mean was classified as low practice, signifying a less frequent or less effective implementation of project resource management practices within the healthcare context.

CHAPTER 4: RESULT & DISCUSSION

4.1. RESULT

4.1.1. Socio-demographic characteristics

The demographic profile of respondents reveals a predominance of males, comprising 76.9% of the sample, while females account for 23.1%. The majority of respondents are aged between 24 and 35 years (59.1%), with the remaining 40.9% being over 35 years old. A significant proportion of respondents hold a degree or higher educational qualification (91.3%), followed by those with a diploma (6.3%) and certificate (2.5%). In terms of profession, 49.4% are health professionals, 42.8% are engineers, and 7.8% are business professionals. Marital status shows that a large majority are married (88.8%), with singles (5.3%), divorced (4.1%), separated (0.6%), and widowed (1.3%) making up the rest. Ethnicity is predominantly Oromo (92.8%), with smaller representations from Amhara (2.2%), Dawuro (2.8%), Yem (0.9%), and others (1.3%).

Religious affiliations highlight that 86.6% of respondents are Muslim, 5.3% are Orthodox, 5.9% are Protestant, and 2.2% belong to other religions. Regarding professional roles, the majority are Technical Specialists (69.7%), followed by Health Services Managers (20.9%), Monitoring and Evaluation Officers (6.9%), and Program Coordinators (2.5%). Most respondents have 5-10 years of experience in healthcare management (83.8%), with fewer having 1-5 years (9.1%) and over 10 years (7.2%) of experience. This demographic distribution provides a comprehensive overview of the respondents, highlighting a workforce that is predominantly young, well-educated, professionally diverse, and ethnically homogenous (Table 1).

Table 3. Socio-demographic characteristics of study participants, Jimma Zone, Ethiopia

Variables		Number	%
Sex of respondents	Male	246	76.9
	Female	74	23.1
	24-35 Years	189	59.1
	> 35 Years	131	40.9
Educational level	Certificate	8	2.5
	Diploma	20	6.3
	Degree and above	292	91.3
Profession	Health Profession	158	49.4
	Business	25	7.8
	Engineer	137	42.8
Marital status	Single	17	5.3
	Married	284	88.8
	Divorced	13	4.1
	Separated	2	0.6
	Widowed	4	1.3
Ethnicity	Oromo	297	92.8
	Amhara	7	2.2
	Dawuro	9	2.8
	Yem	3	0.9
	Others	4	1.3
Religion	Muslim	277	86.6
	Orthodox	17	5.3
	Protestant	19	5.9
	Others	7	2.2
Position	Program Coordinator	8	2.5
	Technical Specialist	223	69.7
	Health Services Manager	67	20.9
	Monitoring and Evaluation Officer	22	6.9
Experience in Healthcare Management	1-5 years	29	9.1
	5-10 years	268	83.8
	>10 years	23	7.2

4.1.2. Planning and Budget Allocation Practices

A significant majority of respondents (81.3%) reported planning ahead for all project activities, while 18.8% did not. Budget allocation practices showed that most facilities (74.4%) allocate budgets based on project priority, whereas 11.9% distribute budgets equally across all project components, and 13.8% use other unspecified methods (Table 4).

The majority of KII participants emphasized the critical importance of planning for all project activities, according to them proactive planning is essential to avoid unforeseen challenges and ensure smooth execution.

.... "Planning is crucial for the smooth execution of our projects. It allows us to anticipate and mitigate potential issues before they arise." HCP, Age -28

4.1.3. Human Resource Challenges

Human resource challenges are prevalent, with 70.9% of respondents indicating such issues, compared to 29.1% who did not report these challenges (Table 4).

Human resource challenges emerged as a significant concern among participants, who frequently reported issues such as staff shortages and high turnover rates as major impediments to project efficiency and continuity.

.... "Our biggest challenge is maintaining a stable workforce. The constant need to hire and train new staff disrupts our project timelines and affects overall efficiency."... Engineer, Age 33

4.1.4. Infrastructure Adequacy

Infrastructure adequacy is another critical concern, with 75.3% of respondents describing their facility's infrastructure as insufficient, while only 24.7% found it adequate. Among specific infrastructure-related challenges, outdated equipment was the most common issue (52.5%), followed by inadequate technology infrastructure (14.7%), a lack of necessary facilities (32.2%), and other unspecified challenges (0.6%). These findings highlight the need for strategic planning, priority-based budgeting, and addressing human resource and infrastructure deficiencies in healthcare project management (Table 4).

KII Participants widely reported infrastructure inadequacy as a critical concern, identifying common issues such as outdated equipment, inadequate technology infrastructure, and a lack of necessary facilities.

... "Our outdated equipment significantly hampers our ability to deliver quality care and meet project goals. Modernizing our infrastructure is an urgent need." PHCU director, Age 30

Table 4. Current project resource management status of health facilities, Jimma 2016

Variables		#	%
Planning a head for all project activities	Yes	260	81.3
	No	60	18.8
Budget allocation for healthcare projects	Equally across all project components	38	11.9
	Based on project priority	238	74.4
	Other	44	13.8
Human resource related challenges	Yes	227	70.9
	No	93	29.1
Infrastructure in your healthcare facility	Adequate	79	24.7
	Insufficient	241	75.3
Infrastructure-related challenges	Lack of necessary facilities	103	32.2
	Outdated equipment	168	52.5
	Inadequate technology infrastructure	47	14.7
	Other	2	0.6

4.1.5. Budgeting Challenges

The major challenges in budgeting for healthcare projects, as reported by respondents, highlight several critical issues. The most significant challenge is limited financial resources, cited by 196 respondents, representing 61.3% of the sample. This is followed by a lack of accurate cost estimation, which was identified by 50 respondents (15.6%), and inadequate budget allocation for specific project components, noted by 47 respondents (14.7%). Additionally, 27 respondents (8.4%) pointed out other miscellaneous challenges. These findings underscore the predominant concern of financial constraints in healthcare project budgeting, along with the need for improved cost estimation and more precise budget allocation (Fig 1).

Participants identified several critical challenges in budgeting for healthcare projects, with limited financial resources being the most significant issue. This financial constraint forces facilities to make difficult decisions and often compromises the quality of project outcomes.

.... "We are constantly struggling to make ends meet with the limited funds available. It often forces us to cut corners, which can compromise the quality of our projects." Finance Officer, Age , Age 29

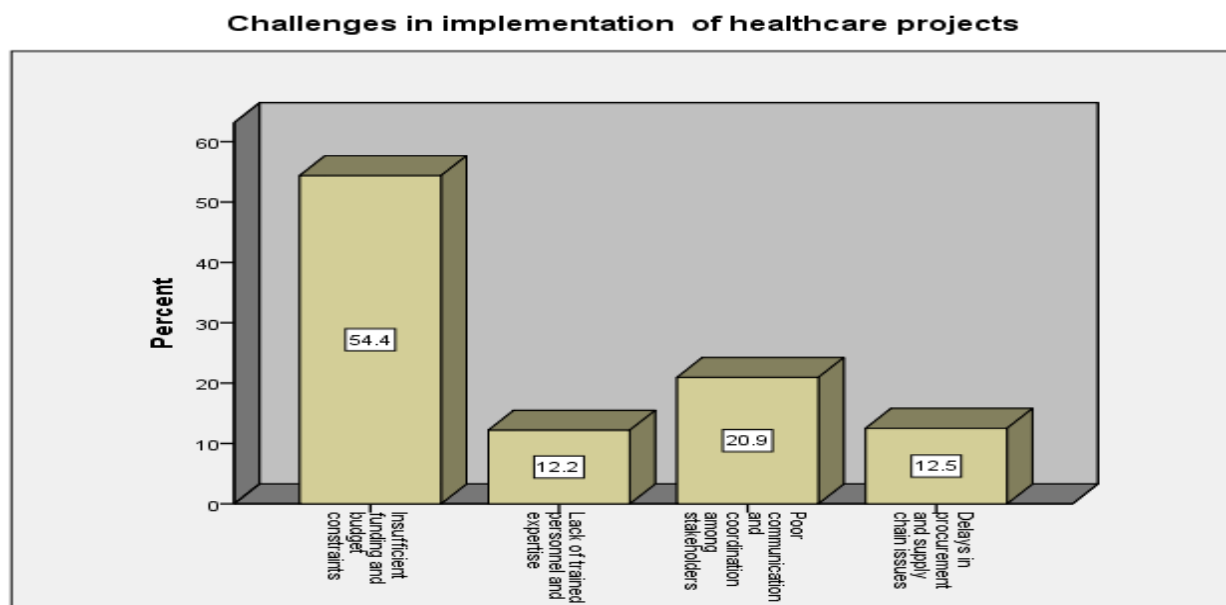


Figure 1. Challenges in Implementation of Health facility project resource management, Jimma 2016

4.1.6. Strategies for Optimizing Resource Management

To optimize project resource management in healthcare facilities, respondents overwhelmingly suggested monitoring as the most effective strategy, with 227 individuals (70.9%) endorsing this approach. This indicates a strong consensus on the importance of continuous oversight to ensure efficient resource utilization. Other strategies included taking action, supported by 35 respondents (10.9%), and auditing, favored by 33 respondents (10.3%), emphasizing the need for proactive measures and regular evaluations. Planning was also mentioned by 25 respondents (7.8%), highlighting the role of strategic foresight in resource management (Fig. 2).

To optimize project resource management, participants overwhelmingly endorsed continuous monitoring as the most effective strategy. This approach allows for regular oversight and timely adjustments to ensure efficient resource utilization.

.... "Regular monitoring allows us to stay on top of resource allocation and make adjustments as needed to avoid wastage and ensure efficiency." , HCP, Age 35

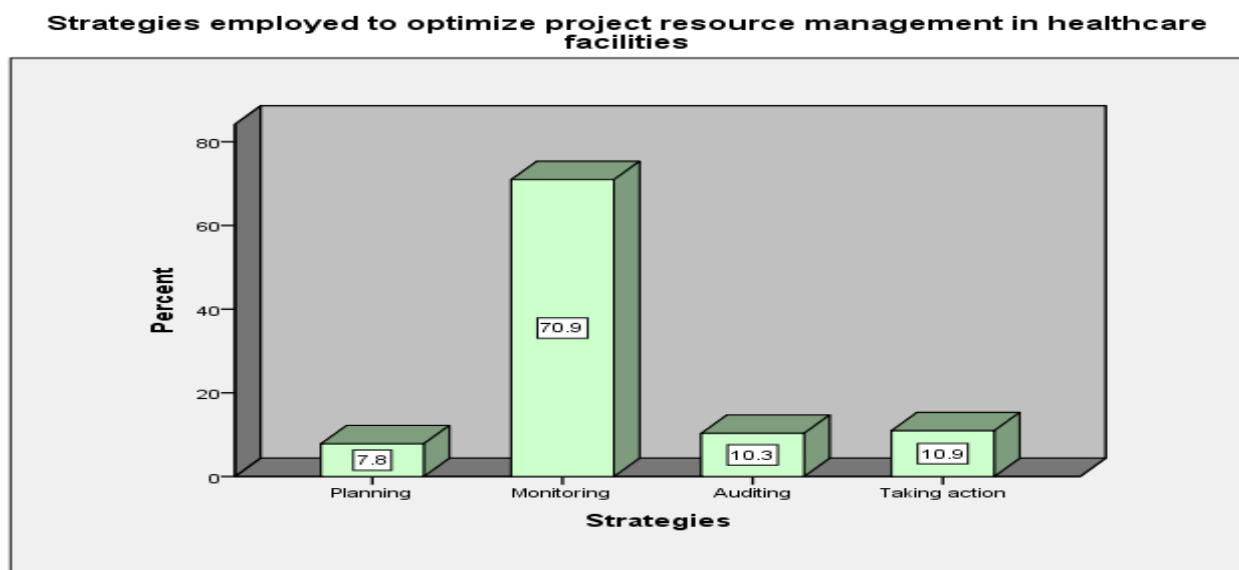


Figure 2. Strategies employed to optimize project resource management in healthcare facilities, Jimma 2016

4.1.7. Factors associated with health facility

For individuals who are less knowledgeable about HF project management, 69.1% were found to be less efficient, while 30.9% were efficient. In contrast, 53.8% of knowledgeable individuals were less efficient, and 46.2% were efficient. Those with an unfavorable attitude towards HF project management exhibited 68.9% inefficiency, compared to 53.8% among those with a favorable attitude. Low self-efficacy corresponded with 69.8% inefficiency, whereas high self-efficacy showed a closer balance with 50.4% inefficiency and 49.6% efficiency. Similarly, poor technology adoption and stakeholder engagement were associated with higher inefficiency rates of 69.3% and 70.3%, respectively. Smooth procurement practices and well-adopted technologies both resulted in better efficiency, with smooth procurement yielding 47.2% efficiency and well-adopted technology yielding 46.9% efficiency. Those with more experience and better practices were more efficient (45.5% and 45.7%, respectively), compared to their less experienced and poorer practicing counterparts (31.4% and 30.6%, respectively). Overall, the data highlights that higher knowledge, favorable attitudes, high self-efficacy, good technology adoption, stakeholder engagement, smooth procurement, and practical experience are crucial for efficient HF project management (Table 5).

Participants across study area identified various factors influencing efficiency in health facility project management, including knowledge, attitude, self-efficacy, technology adoption, stakeholder engagement, procurement practices, and practical experience. Individuals with higher knowledge about HF project management were notably more efficient. One knowledgeable respondent remarked,

..."Understanding the intricacies of project management is essential. It directly impacts our ability to execute projects effectively." ...HCP, Age 36

Table 5. Factors associated with health facility project management, Jimma Zone 2016

Variables and categories		Project Management		
		Less efficient # (%)	Efficient # (%)	Total #(%)
Knowledge towards HF project management	Less knowledgeable	130 (69.1)	58 (30.9)	188(58.7)
	Knowledgeable	71(53.8)	61 (46.2)	132(41.3)
Attitude towards HF project management	Unfavorable attitude	131(68.9)	59(31.1)	190(59.4)
	Favorable attitude	70(53.8)	60(46.2)	130(40.6)
Self-efficacy towards HF project management	Low self-efficacy	143(69.8)	62(30.2)	205(64.1)
	High self-efficacy	58(50.4)	57(49.6)	115(35.9)
Technology adoption	Not well adopted	133(69.3)	59(30.7)	192(60)
	Well adopted	68(53.1)	60(46.9)	128(40)
Stakeholder engagement	Not well engaged	142(70.3)	60(29.7)	202(63.1)
	Well engaged	59(50)	59(50)	118(36.9)
Procurement practice	Not smooth procurement	134(69.4)	59(30.6)	193(60.3)
	Smooth procurement	67(52.8)	60(47.2)	12739.7)
Experience	Not well experienced	129(68.6)	59(31.4)	188(58.8)
	Well exprienced	72(54.5)	60(45.5)	132(41.3)
Practice	Poor Practice	125(69.4)	55(30.6)	180(56.3)
	Good practice	76(54.3)	64(45.7)	140(43.8)

4.1.8. Bivariate analysis

All of the variables show an association at the bivariate analysis level with project resource management of health facilities. Consequently, all variables were identified as candidates for inclusion in a multivariable logistic regression model. Knowledge towards HF project management was a candidate with a p-value of 0.005. Similarly, attitude towards HF project management was selected with a p-value of 0.006. Self-efficacy towards HF project management met the criterion with a p-value of 0.001. Technology adoption was included with a p-value of 0.004. Stakeholder engagement was also a candidate with a p-value of < 0.005. Procurement

practice was considered for the multivariable analysis with a p-value of 0.003. Experience was another candidate variable with a p-value of 0.011. Lastly, practice was included with a p-value of 0.006 (Table 6).

Table 6. Factors associated with project resource management of health facilities, Jimma 2016

Variables and categories		Project Management			COR(95% CI)	P.Value
		Less efficient	Efficient	Total		
		# (%)	# (%)	#(%)		
Knowledge towards	Less					
HF project	knowledgeable	130 (69.1)	58 (30.9)	188(58.7)	1	
management	Knowledgeable	71(53.8)	61 (46.2)	132(41.3)	1.93(1.21,3.06)	.005
Attitude towards	Unfavorable					
HF project	attitude	138(68.9)	59(31.1)	190(59.4)	1	
management	Favorable attitude	70(53.8)	60(46.2)	130(40.6)	1.90(1.20,3.02)	.006
Self-efficacy	Low self-efficacy	143(69.8)	62(30.2)	205(64.1)	1	
towards HF project						
management	High self-efficacy	58(50.4)	57(49.6)	115(35.9)	2.27(1.41,3.63)	.001
Technology	Not well adopted	133(69.3)	59(30.7)	192(60)	1	
adoption	Well adopted	68(53.1)	60(46.9)	128(40)	1.99(1.25,3.16)	.004
Stakeholder	Not well engaged	142(70.3)	60(29.7)	202(63.1)	1	
engagement	Well engaged	59(50)	59(50)	118(36.9)	2.37(1.48,3.79)	<.005
	Not smooth					
Procurement	procurement	134(69.4)	59(30.6)	193(60.3)	1	
practice	Smooth					
	procurement	67(52.8)	60(47.2)	127(39.7)	2.03(1.28,3.23)	.003
	Not well					
Experience	experienced	129(68.6)	59(31.4)	188(58.8)	1	
	Well experienced	72(54.5)	60(45.5)	132(41.3)	1.82(1.15,2.89)	.011
	Poor Practice	125(69.4)	55(30.6)	180(56.3)	1	
Practice	Good practice	76(54.3)	64(45.7)	140(43.8)	1.91(1.21,3.03)	.006

4.1.9. Multivariable model

In the final multivariable logistic regression model, three out of eight variables showed a significant association with project resource management of health facilities. Those with a favorable attitude towards HF project management showed a 1.96 times higher likelihood of efficient project resource management compared to their counterparts (AOR=1.96, 95% CI: 1.25-3.34, $p=0.002$). Stakeholder engagement was also significant, with well-engaged stakeholders having a 2.37 times higher likelihood of efficient project resource management compared to those not well engaged (AOR=2.37, 95% CI: 1.48-3.79, $p<0.005$). Additionally, smooth procurement practices were associated with a 2.21 times higher likelihood of efficient project resource management compared to those with less smooth procurement processes (AOR=2.21, 95% CI: 1.33-3.56, $p=0.001$). These findings highlight the importance of favorable attitudes, effective stakeholder engagement, and smooth procurement practices in achieving efficient project resource management in health facilities.

Table 7. Multivariable logistic regression showing significant variables with dependent variable, 2016

Variables and categories		Project Management			AOR(95% CI)	P.Value
		Less efficient # (%)	Efficient # (%)	Total #(%)		
Attitude towards HF project management	Unfavorable attitude	138(68.9)	59(31.1)	190(59.4)	1	
	Favorable attitude	70(53.8)	60(46.2)	130(40.6)	1.96(1.25,3.34)	.002
Stakeholder engagement	Not well engaged	142(70.3)	60(29.7)	202(63.1)	1	
	Well engaged	59(50)	59(50)	118(36.9)	2.37(1.48,3.79)	<.005
Procurement practice	Not smooth procurement	134(69.4)	59(30.6)	193(60.3)	1	
	Smooth procurement	67(52.8)	60(47.2)	12739.7)	2.21(1.33,3.56)	.001

4.2. DISCUSSION

The current study showed that majority (81.3%) of respondents reported planning ahead for all project activities. This aligns with a study by Zwikael and Smyrk (2011) which found that planning is critical in project success, especially in complex environments like healthcare. Similarly, a study by Mir and Pinnington (2014) emphasized the importance of thorough planning in ensuring project success and mitigating risks. The high percentage of respondents planning ahead indicates a strong awareness of the importance of this practice in healthcare project management.

Most facilities (74.4%) allocate budgets based on project priority, whereas 11.9% distribute budgets equally, and 13.8% use other methods. According to a study by PMI (2017), priority-based budget allocation is often seen as more effective because it aligns resources with strategic objectives. However, the equitable distribution of budgets can sometimes be justified in scenarios where each component is equally critical. This study's results suggest that most healthcare facilities prefer a more strategic approach, which is consistent with best practices recommended in the literature.

The current study revealed that, 70.9% of respondents reported human resource challenges. This is consistent with findings from studies such as those by Dussault and Franceschini (2006), which highlighted the pervasive issue of human resource shortages in the healthcare sector globally. High staff turnover, lack of specialized skills, and burnout are commonly reported challenges in the literature.

75.3% of respondents described their facility's infrastructure as insufficient. This mirrors findings from WHO (2015) reports that indicate many healthcare facilities, especially in low- and middle-income countries, suffer from inadequate infrastructure. The specific challenges of outdated equipment and inadequate technology infrastructure are also frequently cited in studies like those by Peters et al. (2008).

The most significant budgeting challenge is limited financial resources (61.3%). Financial constraints are a common theme in healthcare management literature. A study by Kaplan and Porter (2011) highlights that limited financial resources often impede the implementation of effective healthcare projects. Accurate cost estimation and precise budget allocation, also identified as significant challenges, are critical for project success as emphasized by Kerzner (2017).

The current study showed that favorable attitude, effective stakeholder engagement, and smooth procurement practices are significantly associated with efficient project resource management. This aligns with multiple studies indicating that these factors significantly influence project outcomes (Chih and Zwikael, 2015; Too and Weaver, 2014). For instance, stakeholder engagement is crucial for project success as it ensures that the needs and expectations of all parties are addressed (Aaltonen, 2011). Favorable attitudes towards project management enhance motivation and commitment (Baker, Murphy, and Fisher, 2008). Effective stakeholder engagement ensures alignment of project goals with stakeholder needs (Aaltonen, 2011). Smooth procurement practices are critical for timely resource availability, a key factor in project success (PMI, 2017).

CHAPTER FIVE: CONCLUSION & RECOMMENDATIONS

5.1. Conclusion

A significant majority of respondents (81.3%) plan ahead for all project activities, emphasizing the importance of strategic foresight in project management. Most facilities (74.4%) allocate budgets based on project priority, indicating a strategic approach to resource allocation, though 25.6% use less effective methods. Human resource challenges are prevalent, with 70.9% of respondents highlighting issues, while infrastructure is deemed inadequate by 75.3%, particularly due to outdated equipment (52.5%), inadequate technology (14.7%), and lack of necessary facilities (32.2%), pointing to a need for substantial investment. Limited financial resources, cited by 61.3% of respondents, are the most significant budgeting challenge, underscoring the need for adequate funding and better financial planning. Monitoring is viewed as the most effective strategy for optimizing project resource management by 70.9% of respondents, indicating a strong consensus on continuous oversight. Knowledge, attitude, self-efficacy, technology adoption, stakeholder engagement, procurement practices, and experience are crucial for project management efficiency, with higher efficiency associated with better practices in these areas. Multivariable analysis shows that favorable attitudes (AOR=1.96), well-engaged stakeholders (AOR=2.37), and smooth procurement practices (AOR=2.21) significantly enhance project resource management efficiency.

5.2. Recommendation

- Enhance strategic planning among healthcare facilities to ensure consistent application of foresight in project management.
- Adopt priority-based budget allocation practices, transitioning from equal or unspecified methods to more strategic approaches.
- Implement targeted interventions to address human resource challenges, such as training programs, improved recruitment, and retention strategies.
- Advocate for substantial investments in healthcare infrastructure, focusing on updating equipment, enhancing technology infrastructure, and expanding necessary facilities.

- Strengthen financial planning capabilities by providing training on accurate cost estimation and effective budget allocation for specific project components.
- Establish continuous monitoring mechanisms as a standard practice for project resource management, with comprehensive frameworks and resources for effective oversight.
- Enhance the knowledge and skills of healthcare project managers through ongoing education and training programs, focusing on project management principles, technology adoption, and stakeholder engagement.
- Cultivate a positive attitude towards project management and boost self-efficacy among staff by recognizing and rewarding efficient practices, providing motivational support, and ensuring a conducive working environment.
- Strengthen stakeholder engagement practices by establishing clear communication channels, involving stakeholders in decision-making processes, and regularly updating them on project progress.
- Improve procurement processes by adopting best practices for timely and smooth acquisition of necessary resources, streamlining procedures, leveraging technology, and training staff on effective procurement management.

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Annexes

Annex 1: Consent form and participant information sheet

This informed consent form is for study subjects participating in the research entitled with “Optimizing Project Resource Management in Health Care Facilities in Jimma Zone, Ethiopia”.

This Informed Consent Form has two parts:

Part I: Information Sheet (to share information about the study with you)

Part II: Certificate of Consent (for signatures if you agree to participate)

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Introduction

I am _____ and I work at Jimma University, Faculty of Business. I am doing research which might help to understand the Project Resource Management in Health Care Facilities in Jimma Zone, Ethiopia. In our research we will interview womens health facility health facility staffss, project board members and community representatives. Now I will explain to you about this study and information so that you could make your choice and decision. This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them of me or of another researcher.

Purpose of the research

The purpose of this study is “Optimizing Project Resource Management in Health Care Facilities in Jimma Zone, Ethiopia”. This will have paramount importance for health program in Jimma Zone to improve project resource management .

Type of Intervention

I will be interviewing you using interview questionnaire to provide me with pertinent data that is helpful for the study. The interview will take about forty minutes. So, I kindly request you to spare me this time for the interview.

Selection of Participants

You are being selected to take part in this research because of random selection. Do you know why we are asking you to take part in this study? Do you know what the study is about?

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. It is okay, if you choose not to participate

Ask: If you decide not to take part in this research study, do you know what your options are? Do you know that you do not have to take part in this research study, if you do not wish to? Do you have any questions?

Procedures

You participate in an interview with [name of interviewer] or myself. During the interview, I or another interviewer will sit down with you in a comfortable place. If you do not wish to answer any of the questions during the interview, you may say so and the interviewer will move on to the next question. No one else but the interviewer will be present unless you would like someone else to be there. The information is confidential, and no one else except research team will access to the information documented during your interview.

Risks

We are asking you to share with us some very important information for the pelvic organ Prolapse and your lived experience, and you may feel uncomfortable talking about some of the topics. You do not have to answer any question or take part in the interview. If you don't wish to do so, and that is also fine. You do not have to give us any reason for not responding to any question, or for refusing to take part in the interview

Benefits

There will be no direct benefit to you, but your participation is likely to help us find out more about Optimizing Project Resource Management in Health Care Facilities in Jimma Zone, Ethiopia.

Reimbursements

You will not be provided any incentive to take part in the research.

Ask: Can you tell me if you have understood correctly the benefits that you will have if you take part in the study? Do you have any other questions?

Confidentiality

The research being done in the community may draw attention and if you participate you may be asked questions by other people in the community. We will not be sharing information about you to anyone outside of the research team. The information that we collect from this research project will be kept private. Any information about you will have a number on it instead of your name.

Only the researchers will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except the research team.

Ask: Did you understand the procedures that we will be using to make sure that any information that we as researchers collect about you will remain confidential?

Sharing the Results

Nothing that you tell us today will be shared with anybody outside the research team, and nothing will be attributed to you by name. The knowledge that we get from this research will be shared with your community before it is made widely available to the public. We will also have small meetings in the community and these will be announced. Following the meetings, we will publish the results so that other interested people may learn from the research.

Right to Refuse or Withdraw

You do not have to take part in this research if you do not wish to do so, and choosing to participate will not affect you in any way. You may stop participating in the interview at any time that you wish.

Contact address

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact any of the following: Bilisumma Tesfaye, Jimma University, e-mail: bilisumatesfaye23@gmail.com, phone: +251920173891)

This proposal has been reviewed and approved by Jimma University, institute of Health Ethical review committee, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the IRB, contact Dr _____, Jimma University (phone: +2519). In addition, the study is reviewed and approved by Oromia regional Health Bureau.

Ask: Do you know that you do not have to take part in this study if you do not wish to? You can say No if you wish to? Do you know that you can ask me questions later, if you wish to? Do you know that I have given the contact details of the person who can give you more information about the study? Etc.

You can ask me any more questions about any part of the research study, if you wish to. Do you have any questions?

Part II: Certificate of Consent

I have been invited to participate in a Study of Optimizing Project Resource Management in Health Care Facilities in Jimma Zone, Ethiopia. I have read or read for me the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Print Name of Participant _____, ID _____

Signature of Participant _____

Date _____

[Day/month/year]

Annex 2: Data Collection tool

Title: Optimizing Project Resource Management in Health Care Facilities in Jimma Zone

Introduction: Thank you for participating in this survey. Your input is invaluable in understanding and improving project resource management in healthcare facilities within Jimma Zone. Please answer the following questions thoughtfully.

S.no	Questions	Response	Skip
Part 1. Socio-demographic information			
101	Woreda		
102	Sex of respondent	1. Male 2. Female	
103	Age	_____years	
104	Educational status	1. Certificate 2. Diploma 3. Degree and above	
105	Profession		
106	Marital status	1. Married 2. Single 3. Widowed 4. Divorced	
107	Religion	1. Oromo 2. Amhara 3. Dawuro 4. Yem 5. Others	
108	Position	_____	
109	Years of Experience in Healthcare Management	_____	
Part 2. Current state of Project Resource Management			
201	How would you rate the current	1. Excellent	

	project resource management practices in your healthcare facility?	2. Good 3. Fair 4. Poor	
202	Please identify the primary challenges you face in managing resources for healthcare projects. (Open-ended)		
Part 3. Budgeting and Financial Management			
301	How the budget is typically allocated for healthcare projects?	1. Equally across all project components 2. Based on project priority 3. Other (please specify)	
302	What are the major challenges in budgeting for healthcare projects? (Select all that apply)	1. Limited financial resources 2. Lack of accurate cost estimation 3. Inadequate budget allocation for specific project components 4. Other (please specify)	
303	Do you face challenges related to human resource availability for healthcare projects?	1. Yes 2. No	
304	If yes, please specify the challenges in human resource management for healthcare projects. (Open-ended)		
Section 4: Infrastructure			
401	How would you describe the current state of infrastructure in your healthcare facility?	1. Adequate 2. Insufficient	

402	What are the primaries infrastructure-related challenges affecting healthcare projects? (Select all that apply)	1. Lack of necessary facilities 2. Outdated equipment 3. Inadequate technology infrastructure 4. Other (please specify)	
Section 6: Project Implementation			
601	Rate the effectiveness of project planning in your healthcare facility.	1. Very Effective 2. Effective 3. Ineffective 4. Very Ineffective	
602	What challenges do you encounter during the implementation phase of healthcare projects? (Open-ended)		
Section 7: Strategies for Optimization			
701	In your opinion, what strategies can be employed to optimize project resource management in healthcare facilities? (Open-ended)		

Section 8. Knowledge Assessment

S.no	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I have a clear understanding of project resource management principles and practices.					
2	I am familiar with the available resources for project management in health care facilities.					
3	I understand the steps involved in project resource planning and budgeting.					
4	I am knowledgeable about strategies for effective procurement and inventory management in healthcare projects.					
5	I have a good understanding of monitoring and evaluation techniques for project resource utilization.					
6	I am aware of the potential challenges and risks associated with project resource management in healthcare.					
7	I can identify opportunities for resource optimization and efficiency improvement in health care facilities.					
8	I understand the importance of stakeholder engagement and communication in project resource management.					
9	I am knowledgeable about best practices for resource allocation and utilization in healthcare projects.					
10	I feel well-informed about the current policies and guidelines related to project resource management in healthcare.					

Section 9: Attitude assessment questions

S.no	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I believe that optimizing project resource management is crucial for improving healthcare services in Jimma Zone.					
2	I think that proper project resource management can lead to cost savings and improved efficiency in healthcare facilities.					
3	I am motivated to actively participate in optimizing project resource management efforts.					
4	I perceive project resource management as an opportunity for continuous improvement in healthcare service delivery.					
5	I believe that proper project resource management contributes to better patient outcomes and satisfaction.					
6	I have a positive attitude towards embracing new tools and technologies for project resource management.					
7	I believe that effective project resource management contributes to the sustainability of healthcare services.					
8	I am committed to promoting a culture of transparency and accountability in project resource management.					
9	I am enthusiastic about learning and adopting innovative approaches to project resource management.					
10	I believe that project resource management should be a priority for all stakeholders involved in healthcare projects.					

Section 10. Self Efficacy assessment questions

S.no	Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I am confident in my ability to effectively allocate and utilize project resources in health care facilities.					
2	I believe that my skills in project resource management can contribute positively to the success of healthcare projects.					
3	I feel capable of identifying and addressing resource gaps in health care facilities.					
4	I am confident in my ability to collaborate with stakeholders to secure necessary resources for healthcare projects.					
5	I feel competent in analyzing and optimizing resource allocation in health care facilities.					
6	I am confident in my ability to develop and implement effective resource management plans in healthcare projects.					
7	I feel empowered to make data-driven decisions regarding resource allocation in healthcare projects.					
8	I believe that my efforts in project resource management can lead to positive changes in health care facilities.					
9	I am confident in my ability to adapt and respond to changing resource needs in health care facilities.					
10	I am motivated to continuously enhance my skills and knowledge in project resource management.					

Section 11. Project Management practice

S.no	Items	Strongly Disagree	Disagree	Neutral	Agree	strongly Agree
1	The project team in our health care facility has a clear understanding of the importance of resource management.					
2	There is effective communication and coordination among different departments regarding resource allocation.					
3	Our health care facility has a systematic process for identifying and prioritizing resource needs.					
4	The project team actively seeks opportunities to collaborate with external stakeholders for resource support.					
5	Our health care facility regularly evaluates the effectiveness of resource allocation and utilization.					
6	Project resource management practices are aligned with the strategic goals of our health care facility.					
7	Our health care facility has a well-defined process for tracking and documenting resource utilization.					
8	The project team is proactive in identifying and addressing resource gaps and bottlenecks.					
9	There is a culture of accountability and responsibility for resource management in our health care facility.					
10	Our health care facility actively seeks feedback from stakeholders to improve resource management practices.					
11	The project team is adept at adapting resource management strategies based on changing needs and circumstances.					
12	Our health care facility has a dedicated budget and resources allocated specifically for project management.					
13	The project team receives adequate training and support to enhance their resource management skills.					

14	Our health care facility utilizes technology and digital tools to streamline resource management processes.					
15	The project team regularly monitors and reports on resource utilization to project board members.					
16	Our health care facility actively seeks opportunities for resource pooling and sharing with other facilities.					
17	The project team effectively manages risks and contingencies related to resource availability and utilization.					
18	Our health care facility encourages innovation and creativity in resource management approaches.					
19	The project team collaborates with the community to identify and leverage local resources for healthcare projects.					
20	Our health care facility has established partnerships with external organizations to secure additional resources.					

Section 12. Experiences related with Project Resource

1. What are the major challenges faced by health care facilities in Jimma Zone when it comes to resource management?
 - a. Limited budget allocation
 - b. Inadequate health facility staffing levels
 - c. Insufficient medical supplies and equipment
2. Are there any specific resource constraints that health care facilities in the region regularly encounter?
 - a. Shortage of qualified healthcare professionals
 - b. Lack of funding for infrastructure development
 - c. Limited availability of essential medicines and supplies
 - d. Yes, there are specific constraints, but they vary by facility
3. How does the availability of financial resources impact resource management in health care facilities?
 - a. It enables effective procurement and allocation of resources
 - b. It limits the ability to hire and retain skilled health facility staffs
 - c. It affects the availability of medical equipment and supplies
4. Are there any regulatory or policy-related factors that influence resource management practices in health care facilities?
 - a. Yes, there are specific regulations and policies in place
 - b. No, regulatory and policy factors do not impact resource management
 - c. It varies depending on the facility
 - d. I'm not sure
5. What role does leadership play in resource management within health care facilities?
 - a. Leaders establish resource allocation priorities
 - b. Leaders promote a culture of efficient resource utilization
 - c. Leaders make decisions related to infrastructure investment
6. How does the level of health facility staffs training and expertise affect resource management in health care facilities?
 - a. Well-trained health facility staffs optimize resource allocation and utilization
 - b. Lack of training leads to inefficient resource management

- c. Expertise improves decision-making regarding resource allocation
7. Are there any cultural or organizational factors that impact resource management in health care facilities?
- a. Organizational structure and hierarchy influence resource distribution
 - b. Cultural norms affect decision-making related to resource allocation
 - c. Communication practices impact coordination among departments
 - d. All of the above
8. What role does technology and infrastructure play in facilitating effective resource management?
- a. Technology enables accurate tracking and monitoring of resources
 - b. Infrastructure provides the necessary facilities for resource utilization
 - c. Both technology and infrastructure are essential for efficient resource management
9. How does the level of collaboration and coordination among different departments or units affect resource management?
- a. Strong collaboration improves resource allocation across departments
 - b. Lack of coordination leads to duplication or underutilization of resources
 - c. Collaboration enhances efficiency in resource utilization
10. Are there any external factors, such as partnerships with other organizations, that influence resource management in health care facilities?
- a. Yes, partnerships with other organizations provide additional resources
 - b. No, external factors do not impact resource management
 - c. It depends on the specific facility
 - d. I'm not sure
11. How does community involvement and engagement impact resource management practices in health care facilities?
- a. Community involvement helps identify local resources and support
 - b. Engagement enhances community understanding of resource constraints
 - c. Community input informs resource allocation decisions
12. Are there any specific strategies or initiatives in place to address resource management challenges in health care facilities?
- a. Yes, there are established strategies or initiatives

- b. No, there are no specific strategies in place
- c. It varies by facility
- d. I'm not sure

13. What role does data collection, analysis, and reporting play in resource management within health care facilities?

- a. Data-driven decision-making improves resource allocation
- b. Analysis helps identify areas for resource optimization
- c. Reporting enables accountability and transparency in resource management

14. Are there any factors related to procurement and supply chain management that affect resource management in health care facilities?

- a. Efficient procurement processes ensure timely availability of resources
- b. Supply chain management impacts resource distribution and utilization
- c. Both procurement and supply chain management affect resource management

15. How does the political and economic context of the region impact resource management in health care facilities?

- a. Political stability enhances resource management practices
- b. Economic conditions affect the availability of financial resources
- c. The political and economic context may influence resource management to varying degrees
- d. I'm not sure

16. Are there any factors related to infrastructure maintenance and asset management that affect resource management?

- a. Adequate infrastructure maintenance ensures optimal resource utilization
- b. Asset management practices impact resource availability and longevity
- c. Both infrastructure maintenance and asset management affect resource management

17. What are the key success factors or best practices identified in health care facilities with effective resource management?

- a. Strong leadership and clear resource management strategies
- b. Robust data collection and analysis systems
- c. Collaborative and coordinated efforts among departments
- d. Regular health facility staffs training and development programs

18. Are there any barriers or resistance to change that affect the adoption of improved resource management practices?

- a. Limited awareness and understanding of resource management principles
- b. Organizational resistance to change and reluctance to adopt new practices
- c. Lack of financial resources for implementing changes

19. How does the level of awareness and understanding of resource management principles among health facility staffs impact overall resource management?

- a. High awareness and understanding lead to efficient resource management practices
- b. Lack of awareness results in suboptimal resource allocation
- c. Health facility staffs understanding impacts decision-making related to resource utilization

20. Are there any opportunities or strategies for resource optimization and efficiency improvement that can be explored?

- a. Implementing lean management principles to eliminate waste
- b. Enhancing technology utilization for better resource tracking and management
- c. Strengthening partnerships with external organizations for resource sharing

Thank you for completing the questionnaire. Your insights are crucial to the success of this research.

Observation Checklist

1. Resource Planning and Allocation

- Are resource needs identified and documented?
- Is there a systematic process for prioritizing resource allocation?
- Are resources allocated based on project requirements and strategic goals?
- Is there a clear budget for project resource management?
- Are resources effectively distributed among different departments or units?

2. Communication and Collaboration

- Is there effective communication among project team members regarding resource management?
- Do different departments collaborate and coordinate regarding resource allocation?
- Are there regular meetings or channels for discussing resource needs and challenges?
- Is there collaboration with external stakeholders for resource support?

3. Tracking and Documentation

- Is there a process for tracking and documenting resource utilization?
- Are records maintained for resource allocation, utilization, and expenditure?
- Is there a system for monitoring resource availability and replenishment?
- Are reports generated to keep project board members informed about resource utilization?

4. Risk Management

- Are potential risks and challenges related to resource availability and utilization identified?
- Is there a plan in place to address resource gaps and bottlenecks?
- Are contingency measures established to mitigate resource-related risks?
- Is there proactive identification and management of risks associated with resource management?

5. Technology and Tools

- Are digital tools or software utilized to streamline resource management processes?
- Is technology used for tracking, analyzing, and optimizing resource allocation?
- Are there systems in place for resource forecasting and demand planning?
- Is technology leveraged for efficient procurement and inventory management?

6. Training and Support

- Are project team members provided with training on resource management practices?
- Is there ongoing support and guidance available for enhancing resource management skills?
- Are resources allocated for professional development related to resource management?
- Are team members encouraged to stay updated with best practices and industry trends?

7. Stakeholder Engagement

- Is there active engagement with stakeholders regarding resource management?
- Are feedback and suggestions from stakeholders sought to improve resource utilization?
- Do stakeholders feel involved and informed about resource allocation decisions?
- Are there mechanisms for involving the community and leveraging local resources?

8. Culture of Accountability

- Is there a culture of accountability and responsibility for resource management?
- Are roles and responsibilities clearly defined for resource allocation and utilization?
- Are there mechanisms for monitoring and ensuring compliance with resource management guidelines?
- Are there consequences or incentives related to effective resource management?

9. Continuous Improvement

- Are lessons learned from previous projects applied to optimize resource management?
- Is there a culture of continuous improvement in resource management practices?
- Are innovative approaches explored and implemented to enhance resource allocation?
- Are feedback mechanisms in place to capture suggestions for resource management enhancements?

Annex 3: Key Informant Interview Guide

Socio-Demographic Information:

a. Age	
b. Sex	
c. Educational background	
d. Occupation	
e. Profession	
f. Experience	
g. Training (Project mgt)	

1. Can you provide an overview of the current project resource management practices in healthcare facilities within Jimma Zone? Planning process? Budget allocation strategies? Budt utilization? How? Why?
2. What are the main challenges or barriers faced in effectively managing project resources in healthcare facilities in Jimma Zone?
3. How do you prioritize resource allocation and utilization in healthcare projects within Jimma Zone?
4. What strategies or approaches have been implemented to optimize project resource management in healthcare facilities?
5. How do you ensure coordination and collaboration among different stakeholders involved in project resource management within healthcare facilities?
6. What are the key factors influencing the successful implementation of project resource management practices in healthcare facilities?
7. Are there any specific tools or technologies being utilized to enhance project resource management in healthcare facilities in Jimma Zone?
8. What recommendations or improvements would you suggest to enhance the efficiency and effectiveness of project resource management in healthcare facilities?