

The Impact of Monitoring and Evaluation Practices on Project Success (An Empirical Study on Development Projects Implemented by Field Medical Foundation (FMF) - Yemen)

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Article History	Abstract
Original Research Article	<p><i>The study investigated how Monitoring and Evaluation (M&E) practices affect the success of Field Medical Foundation (FMF) development projects in Yemen's challenging humanitarian context. It treated M&E as a six-part system (planning, human capacity, resources, stakeholder participation, data quality, and use of findings) and defined project success through relevance, effectiveness, efficiency, impact, sustainability, and stakeholder satisfaction. Using a quantitative survey of 148 FMF staff and statistical analysis (including regression), the study found that all six M&E dimensions significantly and positively influence project success. Overall, M&E practices had a strong effect on outcomes ($\beta = 0.846$) and explained 71.5% of the variation in project success. The study concludes that strong, well-integrated, and evidence-based M&E systems are essential for improving development project performance in fragile settings. It recommends strengthening M&E capacity, improving data systems, increasing participation, and better using findings in decision-making, while urging NGOs and donors to invest more strategically in M&E systems.</i></p> <p>Key words: Monitoring and Evaluation, Field Medical Foundation, human capacity, resource allocation, stakeholder participation.</p>
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Background of the Study

The passage highlights the critical role of Monitoring and Evaluation (M&E) in improving the success of humanitarian and development projects in Yemen. It focuses on the Field Medical Foundation (FMF), a Yemeni NGO providing health, nutrition, and WASH services in a complex humanitarian context. The study explains that modern M&E supports accountability, learning, and effective project management through areas such as planning, staff capacity, stakeholder participation, data quality, and evidence use. It also notes that project success is multidimensional, including relevance, effectiveness, efficiency, impact, sustainability, and stakeholder

satisfaction. Since limited research exists on how specific M&E practices influence project success in Yemeni national NGOs, the study investigates the relationship between six M&E dimensions and the success of FMF's development projects.

Problem Statement

National NGOs in Yemen, including FMF, face insecurity, limited capacity, and donor pressures while delivering accountable humanitarian projects. Effective M&E systems are essential but often weakened by poor planning, limited skills, inadequate resources, weak data systems, and limited use of findings. Although project success now includes

relevance, effectiveness, efficiency, sustainability, and stakeholder satisfaction, there is little evidence on how specific M&E practices influence project success in Yemeni NGOs. This study examines how six dimensions of M&E practices affect the multidimensional success of FMF's development projects in Yemen.

Research Objectives

Grounded in the problem statement and the multidimensional conceptualization of Monitoring and Evaluation (M&E) practices, this study aims to empirically assess how different dimensions of M&E influence the success of development projects implemented by the Field Medical Foundation (FMF) in Yemen. The overarching objective is supported by seven specific objectives, each aligned with the six core dimensions of M&E and the combined effect of the overall system:

Main Objective

RQ1: To examine the overall impact of M&E practices on the success of development projects implemented by FMF.

Specific Objectives

1. To examine the impact of M&E planning and design on project success.
2. To examine the impact of M&E human capacity on project success.
3. To examine the impact of M&E resource allocation on project success.
4. To examine the impact of stakeholder participation in M&E on project success.
5. To examine the impact of data quality and information management on project success.
6. To examine the impact of M&E findings on project success.

Research Questions

To address the research objectives and deepen understanding of how M&E practices function as organizational capabilities within FMF, the study is guided by the following research questions:

Main Research Question

RQ: To what extent do M&E practices influence the success of development projects implemented by FMF?

Sub-Questions

RQ1: To what extent does M&E planning and design impact project success?

RQ2: To what extent does M&E human capacity impact project success?

RQ3: To what extent does M&E resource allocation impact project success?

RQ4: To what extent does stakeholder participation in M&E impact project success?

RQ5: To what extent do data quality and information management impact project success?

RQ6: To what extent do M&E findings impact project success?

These questions ensure alignment with the study's theoretical foundations and empirical design, enabling a comprehensive examination of M&E as a multidimensional determinant of project performance in FMF's humanitarian context.

Significance of the Study

This study is significant for academic research, organizational practice, and development policy in fragile settings like Yemen. It examines M&E practices as a multidimensional organizational capability and explores their impact on project success, contributing valuable insights to humanitarian and development operations.

Theoretical Significance

Academically, the study improves understanding of how specific M&E dimensions—such as planning, capacity, resources, participation, data quality, and use of findings—affect project success in national NGOs. It fills gaps in existing research by providing evidence from a Yemeni NGO operating in a prolonged crisis, contributing to theories of results-based management, organizational learning, and performance measurement in humanitarian settings.

Practical Significance

For FMF and similar national NGOs, the study provides practical guidance for improving project performance by identifying which M&E dimensions most influence success. The findings can help organizations strengthen staff capacity, improve data systems and quality assurance, enhance stakeholder engagement, improve planning and adaptive management, and increase the use of M&E findings in decision-making. This supports evidence-based organizational improvement and operational effectiveness.

Scope of the Study

This study is delimited by several conceptual, geographical, organizational, and methodological boundaries designed to provide clarity and ensure alignment with the research objectives.

Conceptual Scope

The study focuses specifically on **Monitoring and Evaluation (M&E) practices** as a multidimensional construct comprising six dimensions:

1. M&E planning and design
2. M&E human capacity
3. M&E resource allocation

4. Stakeholder participation in M&E
5. Data quality and information management
6. Use of M&E findings

Project success is similarly conceptualized as a **multidimensional outcome**, including relevance, effectiveness, efficiency, impact, sustainability, and stakeholder satisfaction.

The study does not examine other organizational factors (e.g., leadership, organizational culture, funding stability) that may also influence project success.

Operational Definitions

To ensure conceptual clarity and consistency across the study, the following key terms are defined operationally based on their use in the research instrument, analytical procedures, and conceptual framework.

Monitoring and Evaluation (M&E) Practices

A multidimensional organizational capability encompassing six components—planning and design, human capacity, resource allocation, stakeholder participation, data quality and information management, and use of findings. In this study, M&E practices are measured through respondents' perceptions of FMF's systems, processes, competencies, and utilization of evidence in project management.

M&E Planning and Design

The processes through which project objectives, indicators, logical frameworks, data-collection plans, baselines, and monitoring schedules are formulated. This dimension reflects the extent to which M&E tools and frameworks are systematically developed to guide implementation and performance measurement.

M&E Human Capacity

The knowledge, skills, experience, and technical competencies of staff responsible for planning, implementing, and overseeing M&E activities. This includes MEAL officers, project managers, field supervisors, and other personnel engaged in data collection, analysis, or reporting.

M&E Resource Allocation

The financial, logistical, and technological resources dedicated to M&E activities, including budgets for field monitoring, transportation, digital tools, data-collection devices, and staff time. It reflects the organization's commitment to adequately supporting M&E functions.

Stakeholder Participation in M&E

The involvement of internal and external stakeholders—such as field teams, technical officers, community members, and local authorities—in M&E processes. This

includes participatory monitoring, joint field visits, feedback mechanisms, and collaborative review sessions.

Data Quality and Information Management

The accuracy, completeness, timeliness, reliability, storage, and management of project data. This dimension captures the effectiveness of FMF's digital systems, data-verification procedures, documentation practices, and information flows.

Use of M&E Findings

The degree to which monitoring results, evaluation findings, and performance reports inform decision-making, adaptive management, learning activities, and strategic planning. This includes integration of evidence into improvement actions, reviews, and management response processes.

1. Development Project

A donor-funded, time-bound intervention delivered by FMF in areas such as health, nutrition, and WASH. Development projects aim to improve the well-being of crisis-affected communities and are implemented with defined objectives, indicators, and monitoring frameworks.

2. Project Success

A multidimensional measure aligned with OECD-DAC evaluation criteria, captured through six components: relevance, effectiveness, efficiency, impact, sustainability, and stakeholder satisfaction. In this study, project success reflects respondents' perceptions of FMF's performance in achieving desired results and delivering value to affected populations. The following sub-definitions specify how each dimension of project success is operationalized in this study:

a. Relevance

The extent to which project objectives, activities, and outputs are consistent with the priority needs of target communities, national and local health and nutrition priorities, and donor or cluster strategies. Relevance reflects how well the project responds to the actual context and vulnerabilities of affected populations.

b. Effectiveness

The degree to which project objectives and intended outcomes are achieved. Effectiveness captures the perceived success of the project in delivering planned results, improving health and nutrition conditions, and meeting key performance targets.

c. Efficiency

The extent to which project results are achieved with optimal use of resources, including time, funds, human resources, and logistics. Efficiency reflects perceptions of

timely implementation, reasonable cost per output, and avoidance of unnecessary delays or redundancies.

d. Impact

The broader, longer-term positive or negative changes attributable, at least in part, to the project's interventions. Impact includes perceived improvements in health status, service utilization, resilience of communities, and system-level benefits beyond immediate outputs.

e. Sustainability

The likelihood that project benefits will continue after external support ends. Sustainability reflects the extent to which capacities, systems, behaviors, or services established or strengthened by the project can be maintained by local institutions, communities, or health facilities.

f. Stakeholder Satisfaction

The perceived satisfaction of key stakeholders—including beneficiaries, communities, partners, local authorities, and donors—with the project's processes, services, and results. This dimension reflects perceived responsiveness, quality of services, communication, and overall value of the intervention.

Literature Review

This chapter reviews literature on how M&E practices influence development project success in FMF, Yemen. It discusses Yemen's humanitarian context, the evolution of project success into a multidimensional concept, and key M&E dimensions such as planning, capacity, resources, participation, data quality, and use of findings. The chapter also examines relevant theories, reviews empirical studies, identifies research gaps in fragile contexts like Yemen, and develops a conceptual framework linking six M&E dimensions to project success. *Development Projects and NGOs in Humanitarian and Protracted-Crisis Contexts*

Monitoring and Evaluation Practices

Monitoring and evaluation (M&E) have become central pillars of development and humanitarian project management. Originally conceived as administrative tools to track resources and compliance with donor requirements, M&E practices have evolved into sophisticated systems aimed at enhancing accountability, performance, learning, and strategic decision-making. In contemporary development practice, effective M&E is widely viewed as a critical organizational capability that enables NGOs and other implementing agencies to understand whether interventions are producing the intended changes, to identify implementation bottlenecks, and to improve service delivery in complex and dynamic environments. This section provides an integrated conceptual review of M&E practices, covering their evolution, conceptual

foundations, system components, dimensions, measurement approaches, and their specific relevance for NGOs operating in challenging contexts such as Yemen.

Conceptual Foundations:

Monitoring is the continuous or periodic collection, analysis, and use of information to track project performance against planned activities, outputs, and, increasingly, outcomes. It focuses on whether implementation is proceeding as intended, whether resources are being used appropriately, and whether early signs of progress or problems are emerging. Monitoring provides real-time or near-real-time information that managers can use to make timely adjustments (Crawford & Bryce, 2003; Kusek & Rist, 2004).

Evaluation, in contrast, is a systematic and objective assessment of an ongoing or completed project, programs, or policy. Evaluations examine relevance, effectiveness, efficiency, impact, and sustainability. They explore why certain results were or were not achieved, the validity of assumptions, and the influence of contextual factors (OECD, 2021). Evaluations may be formative (improving a project during implementation) or summative (assessing results for accountability and learning). They often occur at mid-term, end line, or after project completion.

Research Gap

A final gap relates to the absence of empirical studies focusing on FMF, despite its national significance and its extensive role in delivering health and nutrition services across multiple governorates in Yemen. Although FMF routinely conducts monitoring, reporting, and learning activities as part of donor requirements, no academic research to date has examined the effectiveness of these M&E practices or their relationship with project success. This study is therefore the first to systematically assess FMF's M&E practices in relation to measurable dimensions of project success, offering insights that can strengthen its internal systems and contribute to evidence-based organizational improvement.

Conceptual Framework and Research Hypotheses

Conceptual Framework

The conceptual framework guiding this thesis synthesizes the key theoretical perspectives and empirical findings reviewed in this chapter. It draws on results-based management (RBM), theory of change, program theory, agency theory, the resource-based view (RBV), and dynamic capabilities to conceptualize M&E practices as a core organizational capability that influences development project success through multiple pathways as depicted in figure 2.1.

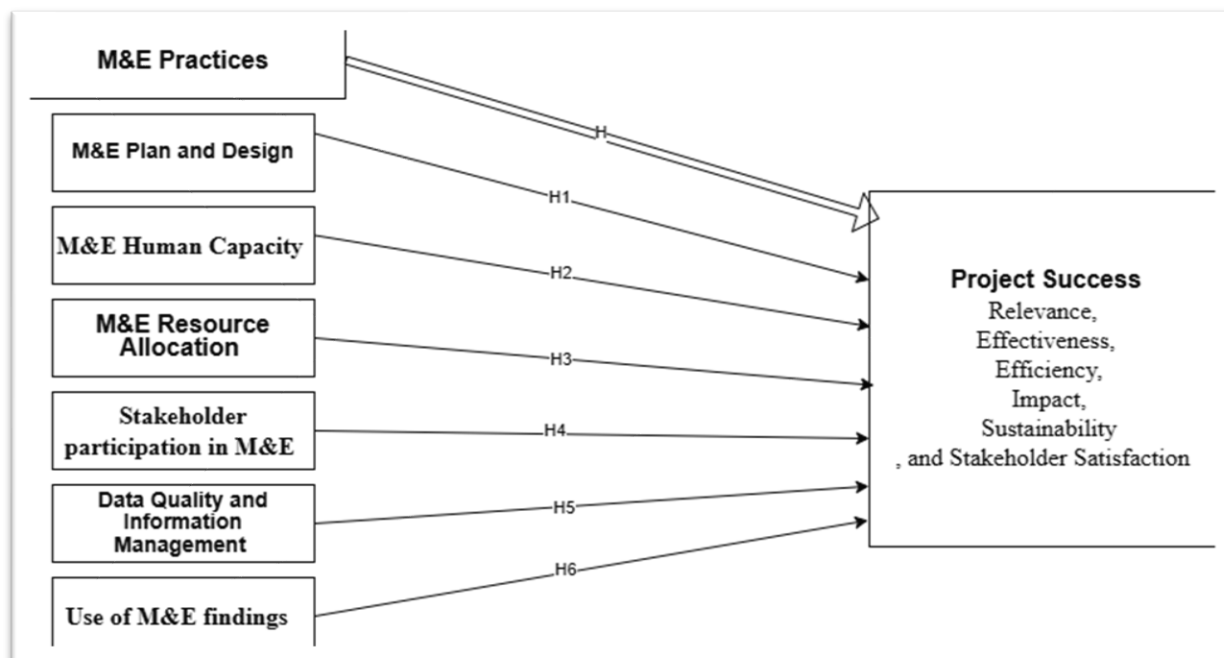


Figure 2. 1 Conceptual Framework

Research Hypotheses

Based on the conceptual framework, monitoring and evaluation (M&E) practices are expected to exert a direct, positive influence on development project success in Field Medical Foundation (FMF). Accordingly, the following broad hypothesis was proposed:

H: *Monitoring and evaluation practices, taken as a multidimensional construct, have a significant positive effect on development project success in FMF.*

In order to test the above-broad hypothesis, the following sub-hypotheses were proposed:

H1: *M&E planning and design has a positive effect on development project success in FMF.*

H2: *M&E human capacity has a positive effect on development project success in FMF.*

H3: *M&E resource allocation has a positive effect on development project success in FMF.*

H4: *Stakeholder participation in M&E has a positive effect on development project success in FMF.*

H5: *Data quality and information management have a positive effect on development project success in FMF.*

H6: *Use of M&E findings has a positive effect on development project success in FMF.*

Research Methodology

This chapter therefore describes how the constructs were operationalized, how the measurement items were adapted or developed, how the survey instrument was administered, and how data were prepared and analyzed using appropriate statistical techniques. Structural equation modelling (SEM) is employed as the primary analytical framework, given its

capacity to test multiple relationships simultaneously and to model latent variables with high precision. The chapter also details the procedures used to ensure the reliability and validity of the instrument, including pilot testing, factor analysis, and assessment of measurement model quality.

Target Population

The target population consists of FMF staff involved in technical, managerial, and operational project roles, including project managers, MEAL officers, data personnel, field supervisors, technical officers, and project coordinators. These individuals are selected because of their direct experience with M&E practices and project performance throughout the project cycle. The population is organizationally rather than geographically defined, supporting accurate sampling and reliable organizational research.

Sampling Method

The study used purposive sampling to select FMF staff directly involved in project management, monitoring, and evaluation, ensuring respondents had relevant knowledge of M&E practices and project success. The study also applied stratified purposive sampling to ensure representation across key staff categories and major FMF projects.

Sample Size

Sample size was determined using established guidelines for multiple regression. 100–150 cases selected for reliable regression analysis. Based on these standards, the final sample of 148 respondents is adequate, as it exceeds the minimum requirement, fits within accepted ranges, and

provides sufficient statistical power and stable estimates for analyzing the relationship between M&E practices and project success.

Analysis and Results

Respondent Profile

By analyzing key attributes—including gender, age, educational qualifications, job titles, departmental affiliation, years of experience, and project type—the study establishes the representativeness, diversity, and expertise of the sample. This profile not only enhances the interpretative depth of the results but also strengthens the study’s credibility by demonstrating that respondents are well-positioned to provide.

Gender of Respondents

Table 4.1 presents the gender distribution of respondents participating in the study on the impact of monitoring and evaluation (M&E) practices on project success in development projects implemented by FMF in Aden, Yemen.

Table 4.1 Respondents by Gender

Gender	Frequency	Percent
Male	113	76%
Female	35	24%
Total	148	100%

Of the 148 respondents, 76% were male and 24% female, indicating male dominance in FMF project and M&E roles. This reflects Yemen’s labor-market trends and may affect gender-sensitive monitoring and the study’s perspectives.

Age Distribution

Table 4.2 describes the age distribution of the respondents, providing insight into the generational composition of staff involved in implementing and monitoring FMF development projects.

Table 4.2 Age of Respondents

Category	Frequency	Percent
Less than 25	1	1%
26-35 years	45	30%
36-45 years	48	32%
46-55 years	41	28%
Over 55 years	13	9%
Total	148	100%

Most respondents were aged 26–55, mainly 36–45 (32%) and 26–35 (30%). This shows FMF’s workforce is dominated by experienced mid-career professionals, supporting stability, continuity, and effective project and M&E performance.

Educational Qualifications

Table 4.3 presents the educational qualifications of the respondents, shedding light on the academic background of staff involved in M&E and project management functions at FMF.

Table 4.3 Educational Qualifications of the Respondents

Category	Frequency	Percent
High school or les	4	3%
Under-graduate Diploma	9	6%
Bachelor's Degree	104	70%
Master's Degree	22	15%
Ph.D.	9	6%
Total	148	100%

Most respondents were highly educated, with 91% holding at least a bachelor’s degree. This indicates a qualified workforce with strong technical and analytical skills for M&E, supporting reliable evaluation practices and credible study findings.

Job Title

Table 4.4 summarizes the job titles of the respondents, illustrating the distribution of roles directly or indirectly engaged in monitoring, evaluation, accountability, and learning within FMF development projects.

Table 4.4 Respondents by Job Title

Category	Frequency	Percent
MEAL Officer	28.0	18.9%
Field Supervisor	27.0	18.2%
Technical Officer (Health/Nutrition)	24.0	16.2%
Project Manager	22.0	14.9%
MEAL Assistant	19.0	12.8%
Other	17.0	11.5%
Data Officer	11.0	7.4%
Total	148	%100

Respondents came from diverse roles, mainly MEAL Officers and Field Supervisors, along with technical, managerial, and data staff. This balanced representation provides practical, strategic, and data-management perspectives, strengthening the study’s overall insights.

Department / Unit

Table 4.5 presents the departmental or unit affiliation of respondents, providing an overview of the organizational locations from which perceptions of M&E practices and project success are derived.

Table 4.5 Respondents by Department/ Unit

Category	Frequency	Percent
Program and Project	45	30%
MEAL	34	23%
Operations	29	20%
Logistics	15	10%
Admin	12	8%
Other	13	9%
Total	148	100%

Most respondents were from Program/Project (30%) and MEAL (23%) departments, with additional input from Operations, Logistics, and Admin staff. This broad departmental representation strengthens the study by providing diverse perspectives on project implementation and M&E practices.

Project Type

Table 4.6 presents the distribution of respondents according to the types of projects with which they are primarily involved, reflecting the sectoral focus of FMF's portfolio as represented in the study sample.

Table 4. 6 Respondents by Project Type

Category	Frequency	Percent
Health	53.0	35.8%
WASH	30.0	20.3%
Nutrition	27.0	18.2%
Multi-sector	18.0	12.2%
Protection	16.0	10.8%
Other	4.0	2.7%
Total	148	100%

Most respondents worked in health (35.8%) and WASH (20.3%) projects, followed by nutrition, protection, and multi-sector programs. This sectoral diversity strengthens the study by reflecting varied M&E experiences, indicators, and reporting requirements across FMF programs.

Years of Experience in FMF Projects

Table 4.7 reports respondents' years of experience working on FMF projects, offering insight into their familiarity with the organization's systems, procedures, and project cycles.

Table 4. 7 Years of Experience of Respondents

Category	Frequency	Percent
Less than 1 year	2	1%
1–3 years	44	30%
3–5 years	45	30%
6-10 years	41	28%
More than 10 years	16	11%
Total	148	100%

The respondents are mostly experienced, mid-career, and well-educated staff with diverse roles and sectoral backgrounds, providing informed perspectives on M&E practices and project success. This diversity strengthens the credibility of the findings, though the male-dominated sample and FMF-specific context may limit broader generalizability.

Descriptive Statistics

This section analyzes M&E practices, internal systems, and project outcomes in Aden, Yemen, highlighting factors that influence project performance, including planning, resources, stakeholder engagement, and data quality. It also evaluates project success dimensions to support later inferential and structural analyses.

Descriptive Statistics of M&E Practices

A. M&E Planning and Design

The M&E Planning and Design items evaluate how well FMF projects apply structured planning, including clear indicators, M&E plans, baselines, benchmarks, logical frameworks, and risk identification, reflecting readiness for accountability and learning. The descriptive statistics of the responses on these items are summarized in table 4.8.

Table 4. 8 Descriptive Statistics of M&E Planning and Design

No.	Item	Mean	SD	t-value	p-value	%
1	Project indicators are clearly defined and measurable.	3.77	0.89	10.54	0	75.4
2	The project has a well-developed M&E plan aligned with donor and cluster requirements.	3.78	0.81	11.73	0	75.7
3	Baseline data were collected before project implementation.	3.80	0.88	11.14	0	76.1
4	Targets and performance benchmarks are clearly established.	3.75	0.88	10.37	0	75.0
5	The logical framework/Theory of Change guides monitoring activities.	3.80	0.81	12.15	0	76.1
6	Risks and assumptions affecting project results are identified and monitored.	3.75	0.86	10.66	0	75.0
	M&E Planning and Design	3.78	0.74	12.87	0	75.5

The findings show a generally strong perception that FMF has well-established and systematic M&E planning structures (mean = 3.78, 75.5%). Respondents highlighted particularly strong use of Theory of Change and baseline data collection.

However, comparatively lower scores for risk monitoring and performance benchmarking suggest some areas for improvement. Overall, M&E planning appears well institutionalized and supports implementation, accountability, and adaptive management, but strengthening risk monitoring and clearer target-setting could further enhance responsiveness to operational challenges.

M&E Human Capacity

The descriptive statistics of the responses on these items are summarized in table 4.9.

Table 4. 9 Descriptive Statistics of M&E Human Capacities

No.	Item	Mean	SD	t-value	p-value	%
1	FMF has qualified staff dedicated to M&E functions.	3.87	0.87	12.23	0	77%
2	M&E staff possess adequate technical skills in data collection and analysis.	3.90	0.88	12.44	0	78%
3	Staff receive regular training on M&E tools and methodologies.	3.85	0.89	11.62	0	77%
4	M&E staff can use digital data-collection tools.	3.87	0.83	12.68	0	77%
5	Project teams understand their M&E roles and responsibilities.	3.85	0.83	12.37	0	77%
6	Field staff are trained in data accuracy and quality assurance.	3.86	0.90	11.65	0	77%
	M&E Human Capacity	3.87	0.75	13.95	0	77%

B. The results show strong agreement that FMF has skilled and well-trained M&E staff (mean = 3.87, 77%), with consistently high ratings across all items. This indicates a capable workforce with strong technical skills and effective use of digital tools, supporting reliable data and effective project monitoring.

M&E Resource Allocation

The descriptive statistics of the responses on these items are summarized in table 4.10.

Table 4. 10 Descriptive Statistics of M&E Resource Allocation

No.	Item	Mean	SD	t-value	p-value	%
1	Adequate budget is allocated for M&E activities.	3.93	0.92	12.25	3.93	79%
2	Transportation and field logistics are available for monitoring visits.	3.83	0.91	11.15	3.83	77%
3	M&E staff have required tools (tablets, laptops, internet access).	3.93	0.88	12.78	3.93	79%
4	Sufficient time is allocated for monitoring and reporting.	3.87	0.87	12.23	3.87	77%
5	Evaluation activities are funded and supported.	3.81	0.90	10.98	3.81	76%
	M&E Resource Allocation	3.87	0.80	13.33	3.87	78%

C. The results show strong agreement that FMF provides adequate resources for M&E, with an overall mean of 3.87 (78%), SD = 0.80, and statistically significant results ($t = 13.33$, $p < .001$). Item scores ranged from 3.81 to 3.93, with the highest ratings for budget allocation and availability of digital tools (both 3.93, 79%).

D. These findings indicate that FMF has strong financial and material support for monitoring functions, creating an enabling environment for data collection and reporting. However, slightly lower scores for funding dedicated evaluation activities (76%) suggest a minor gap. Overall, while M&E resourcing is strong, increasing investment in evaluation-specific budgets could further improve learning and evidence use.

E. Stakeholder Participation in M&E

The descriptive statistics of the responses on these items are summarized in table 4.11.

Table 4. 11 Descriptive Statistics of Stakeholder Participation in M&E

Code	Item	Mean	SD	t-value	p-value	%
1	Community members participate in monitoring or feedback processes.	3.78	0.90	10.57	0.00	76%
2	Beneficiary feedback is routinely collected and used.	3.74	0.91	9.92	0.00	75%
3	Local authorities are consulted during monitoring and reporting.	3.79	0.89	10.80	0.00	76%
4	Field teams participate in developing M&E tools.	3.74	0.90	9.97	0.00	75%
5	Partners contribute to data verification and validation.	3.78	0.91	10.39	0.00	76%
6	Complaints and feedback mechanisms are functional and accessible.	3.70	0.86	9.82	0.00	74%
	Stakeholder Participation in M&E	3.75	0.78	11.80	0.00	75%

The findings show moderate-to-high stakeholder engagement (mean = 3.75, 75%), with some variation across items. While community participation and feedback are generally positive, complaints and feedback mechanisms are the weakest area, indicating a need to strengthen accountability and improve feedback systems.

F. Data Quality and Information Management

The descriptive statistics of the responses on these items are summarized in table 4.12.

Table 4. 12 Descriptive Statistics of Data Quality and Information Management

Code	Item	Mean	SD	t-value	p-value	%
1	Monitoring data from the field are accurate and reliable.	3.85	0.90	11.52	0.00	77%
2	Data are submitted on time according to schedules.	3.87	0.87	12.09	0.00	77%
3	Data verification and quality checks are conducted regularly.	3.86	0.85	12.29	0.00	77%
4	Reporting formats ensure consistency across project sites.	3.89	0.93	11.71	0.00	78%
5	Digital data systems are used effectively.	3.93	0.83	13.64	0.00	79%
6	Data are safely stored and backed up.	3.88	0.78	13.67	0.00	78%
	Data Quality and Information Management	3.88	0.75	14.31	0.00	78%

The findings indicate that FMF maintains a dependable data management system with strong digital integration and quality assurance mechanisms. High data quality supports stronger evaluations, more credible reporting, and timely decision-making, all of which are critical in humanitarian programming. Continued investment in digital systems and verification practices will further reinforce data integrity.

G. Use of M&E Findings

The descriptive statistics of the responses on the items used to measure the use of M&E Findings are summarized in table 4.13.

Table 4. 13 Descriptive Statistics of Use of M&E Findings

Code	Item	Mean	SD	t-value	p-value	%
1	Monitoring findings are discussed in review meetings.	3.91	0.88	12.58	0.00	78%
2	M&E results are used to adjust project activities.	3.87	0.89	11.88	0.00	77%
3	Evaluation recommendations are integrated into new designs.	3.84	0.90	11.28	0.00	77%
4	Lessons learned are shared across teams.	3.91	0.90	12.39	0.00	78%
5	Donor and cluster reports reflect M&E findings.	3.87	0.89	11.91	0.00	77%
6	M&E data are used to identify gaps and corrective actions.	3.89	0.83	12.99	0.00	78%
	Use of M&E Findings	3.88	0.77	13.90	0.00	78%

These results show that FMF adopts a learning-oriented approach in which M&E findings actively shape project improvements and reporting. Strong internal dissemination and use of lessons learned promote adaptive and responsive project management. Enhancing the integration of evaluation recommendations may further strengthen organizational learning cycles.

Descriptive Statistics of Project Success

A. Relevance

The relevance construct evaluates whether implemented projects address priority needs, align with national and cluster agendas, fit the local context, and maintain their appropriateness in the face of contextual changes. The descriptive statistics of the responses on the items are summarized in table 4.14.

Table 4. 14 Descriptive Statistics of Projects' Relevance

No.	Item	Mean	SD	t-value	p-value	%
1	The project addresses urgent needs of the target population.	Mean	SD	t-value	p-value	%
2	Activities align with national cluster priorities.	4.21	0.64	22.93	0.00	84%
3	The project design fits the local context.	4.19	0.62	23.29	0.00	84%
4	The project remains relevant despite changing conditions.	4.18	0.65	22.13	0.00	84%
	Relevance	4.24	0.62	24.22	0.00	85%

B. The results show very high agreement that FMF projects are relevant, with a construct mean of 4.24 (85%), SD = 0.62, and a strong statistical significance ($t = 24.22$, $p < .001$). Item means range from 4.18 to 4.21, indicating consistently strong perceptions across all indicators.

C. Respondents particularly highlighted alignment with cluster priorities (4.21) and suitability to the local context (4.19), with low standard deviations showing strong consensus. Overall, the findings suggest that FMF interventions are well-targeted, contextually appropriate, and aligned with humanitarian coordination frameworks, reflecting strong responsiveness to evolving community needs.

D. Effectiveness

The Effectiveness construct evaluates the degree to which FMF projects successfully achieve their intended outputs and outcomes. The descriptive statistics of the responses on the items are summarized in table 4.15.

Table 4. 15 Descriptive Statistics of Projects' Effectiveness

No.	Item	Mean	SD	t-value	p-value	%
1	The implemented projects achieved the planned outputs.	4.22	0.59	25.10	0.00	84%
2	The expected outcomes were achieved.	4.20	0.62	23.72	0.00	84%
3	Coverage targets were achieved.	4.26	0.59	26.17	0.00	85%
4	Beneficiaries received timely and adequate services.	4.20	0.58	25.12	0.00	84%
	Effectiveness	4.22	0.54	27.48	0.00	84%

E. FMF projects are rated very highly in effectiveness (mean = 4.22, 84%), with strong agreement across respondents. Results show consistent achievement of coverage targets and timely service delivery, indicating efficient and reliable project implementation at scale.

F. Efficiency

The Efficiency construct focuses on the optimal use of resources, adherence to implementation schedules, balanced workloads, and avoidance of unnecessary delays or wastage. The descriptive statistics of the responses on the items used to measure efficiency are reported in the following table.

Table 4. 16 Descriptive Statistics of Projects' Efficiency

No.	Item	Mean	SD	t-value	p-value	%
1	Resources were used efficiently.	4.17	0.61	23.30	0.00	83%
2	Activities were implemented on schedule.	4.20	0.62	23.72	0.00	84%
3	Staff workloads were well balanced.	4.23	0.63	23.78	0.00	85%
4	The project avoided unnecessary delays or waste.	4.22	0.62	24.18	0.00	85%
	Efficiency	4.21	0.56	26.38	0.00	84%

G. FMF demonstrates high operational efficiency (mean = 4.21, 84%), with consistent results across items. Staff report well-managed workloads, minimal delays, and effective use of resources, indicating strong coordination and cost-effective project implementation.

H. Impact

The Impact construct captures the broader and longer-term developmental changes resulting from FMF interventions. The following table depicts the descriptive statistics of the response on the items used to measure this construct.

Table 4. 17 Descriptive Statistics of Projects' Impact

No.	Item	Mean	SD	t-value	p-value	%
1	The project improved beneficiaries' health and well-being.	4.21	0.60	24.62	0.00	84%
2	The project reduced morbidity or nutrition risks.	4.21	0.60	24.62	0.00	84%
3	The project strengthened community resilience.	4.24	0.62	24.22	0.00	85%
4	Positive unintended benefits were observed.	4.19	0.59	24.63	0.00	84%
	Impact	4.21	0.55	26.75	0.00	84%

FMF projects show very high perceived impact (mean = 4.21, 84%), with consistent positive effects across all indicators. Key outcomes include improved community resilience, better health and well-being, and reduced morbidity, indicating meaningful and broad community benefits beyond project objectives.

I. Sustainability

The Sustainability construct examines whether project outcomes, capacities, and systems are likely to continue after project completion. This dimension reflects institutional and community readiness to uphold the gains achieved. The following table depicts the descriptive statistics of the response on the items used to measure this construct.

Table 4. 18 Descriptive Statistics of Projects' Sustainability

No.	Item	Mean	SD	t-value	p-value	%
1	Staff and systems can continue after project closure.	4.22	0.59	25.10	0.00	85%
2	Community structures can maintain outcomes.	4.24	0.62	24.22	0.00	85%
3	Capacity building will continue producing benefits.	4.24	0.61	24.65	0.00	85%
4	Activities are integrated with local services.	4.22	0.65	22.95	0.00	84%
	Sustainability	4.23	0.56	26.93	0.00	85%

FMF interventions are perceived as highly sustainable (mean = 4.23, 85%), with strong agreement that project benefits will last over time. This is mainly due to effective capacity building and strengthened community structures that support continued outcomes beyond project support.

J. Stakeholder Satisfaction

The Stakeholder Satisfaction construct evaluates the perceptions of key actors—beneficiaries, donors, local authorities, and project staff—regarding the success and quality of FMF project implementation.

These results suggest that FMF is perceived as responsive, reliable, and collaborative, which is clear from the following table.

Table 4. 19 Descriptive Statistics of Projects' Sustainability

No.	Item	Mean	SD	t-value	p-value	%
1	Beneficiaries express their satisfaction with project services.	4.24	0.60	25.12	0.00	85%
2	Donors are satisfied with reporting and results achieved.	4.21	0.63	23.32	0.00	84%
3	Local authorities are satisfied with coordination and collaboration.	4.22	0.63	23.76	0.00	85%
4	Field staff perceive the project as successful and rewarding	4.21	0.63	23.32	0.00	84%
	Stakeholder Satisfaction	4.22	0.56	26.75	0.00	84%

Stakeholders report very high satisfaction with FMF projects (mean = 4.22, 84%), reflecting strong perceptions of responsiveness, reliability, and collaboration across beneficiaries, donors, and authorities. Overall, all M&E and project success indicators scored well above average, showing that FMF has strong, institutionalized M&E systems that support effective planning, implementation, and positive project outcomes. The findings also suggest a strong link between effective M&E practices and successful project performance, providing a solid basis for further analysis of their relationship.

Reliability and Convergent Validity of M&E Constructs

Table 4.20 presents the reliability and convergent validity statistics for the six reflective M&E constructs: M&E Plan and Design, M&E Human Capacity, M&E Resource Allocation, Stakeholder Participation in M&E, Data Quality and Information Management, and Use of M&E Findings. For each construct, the table reports the number of items (k), the average and minimum standardized loadings ($|\lambda|$), Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE).

Table 4. 20 Reliability and Convergent Validity of M&E Constructs

Construct	k	Mean $ \lambda $	Min $ \lambda $	Alpha	CR	AVE
M&E Plan and Design	6	0.861	0.842	0.930	0.945	0.741
M&E Human Capacity	6	0.871	0.854	0.936	0.950	0.759
M&E Resource Allocation	5	0.891	0.876	0.935	0.951	0.794
Stakeholder Participation in M&E	6	0.868	0.856	0.934	0.948	0.754
Data Quality and Information Management	6	0.869	0.831	0.935	0.949	0.756
Use of M&E Findings	6	0.875	0.859	0.939	0.951	0.765

All constructs show strong reliability and validity. Indicator loadings are high (0.831–0.891), Cronbach's alpha and Composite Reliability exceed 0.93, and AVE values (0.741–0.794) confirm good convergent validity. Overall, the measurement model is statistically robust and suitable for further analysis.

Reliability and Convergent Validity of Development Project Success Constructs

Table 4.21 reports the reliability and convergent validity indicators for the six reflective constructs representing development project success: Relevance, Effectiveness, Efficiency, Impact, Sustainability, and Stakeholder Satisfaction.

Table 4. 21 Reliability and Convergent Validity of Project Success Constructs

Construct	k	Mean $ \lambda $	Min $ \lambda $	Alpha	CR	AVE
Relevance	4	0.915	0.909	0.935	0.954	0.838
Effectiveness	4	0.910	0.907	0.931	0.951	0.829
Efficiency	4	0.900	0.880	0.922	0.945	0.810
Impact	4	0.916	0.901	0.936	0.955	0.840
Sustainability	4	0.899	0.885	0.920	0.944	0.808
Stakeholder Satisfaction	4	0.892	0.874	0.914	0.940	0.796

Regarding indicator reliability, all development project success constructs exhibit very high mean and minimum standardized loadings. Mean loadings range from 0.892 (Stakeholder Satisfaction) to 0.916 (Impact), while the minimum loadings vary between 0.874 and 0.909. These values are well above the commonly recommended threshold of 0.70, indicating that all items strongly reflect their respective latent constructs. The consistently high loadings suggest that each indicator contributes substantially to capturing the underlying dimensions of project relevance, effectiveness, efficiency, impact, sustainability, and stakeholder satisfaction.

Internal consistency reliability is likewise excellent across all constructs. Cronbach's alpha values range from 0.914 (Stakeholder Satisfaction) to 0.936 (Impact), whereas Composite Reliability (CR) coefficients vary between 0.940 and 0.955. All coefficients far exceed the conventional minimum of 0.70, signaling that the items within each construct are highly interrelated and measure a coherent underlying concept. The close alignment between alpha and CR within each construct further indicates that the items demonstrate strong internal consistency without excessive redundancy.

Convergent validity is strongly supported by the AVE values, which range from 0.796 (Stakeholder Satisfaction) to 0.840 (Impact). All AVE values are substantially above the 0.50 benchmark, implying that each latent construct explains a large proportion (around 80% or more) of the variance in its observed indicators. This confirms that the items within each success dimension converge well on their respective constructs and that measurement error is relatively low.

Overall, the very high factor loadings, strong reliability indices, and substantial AVE values provide compelling evidence that the measurement model for development project success is psychometrically sound. The constructs of relevance, effectiveness, efficiency, impact, sustainability, and stakeholder satisfaction are measured with a high degree of precision and conceptual clarity. This robust measurement quality strengthens confidence in the validity of subsequent analyses examining how M&E practices influence these dimensions of project success.

Findings, Discussion and Implications

Summary of Key Findings

This section summarizes the key empirical findings derived from testing the main hypothesis and its six sub-hypotheses, which examined the impact of Monitoring and Evaluation (M&E) practices on project success. The focus here is on what the regression models reveal about the strength, direction, and relative importance of each M&E dimension and of M&E practices as an integrated system.

Discussion of the Key Findings

As summarized in last section, all six M&E dimensions showed positive and statistically significant effects on project success, with varying magnitudes, and the integrated M&E construct explained 71.5% of the variance in project success. These results are consistent with recent empirical work showing that robust M&E systems significantly enhance project and program performance in NGOs and development projects (Borisch, Amer, & Jahaf, 2023; Njiru & Thoronjo, 2024; Ovcina, 2024).

Use of M&E Findings → Project Success

Finally, Section 5.2 indicated that the Use of M&E Findings exerts a strong and significant effect on project success ($\beta \approx 0.70$). This result provides concrete empirical backing for utilization-focused evaluation, which argues that evaluations create value when findings are actively used by intended users to inform decisions, improve program, and guide future interventions (Patton, 2011; Dobbins et al., 2021; Wu, 2025).

In FMF, the positive effect of this dimension suggests that review meetings, management response plans, and learning workshops are functioning as effective mechanisms to translate evidence into operational adjustments. This is also consistent with broader discussions on learning organizations, which highlight that structured feedback loops and reflective practice are central to sustained performance improvement (Argyris & Schön, 1996). By confirming this sub-hypothesis, the study shows that data collection alone is not enough: it is the systematic use of findings—through adaptation, decision-making, and organizational learning—that ultimately drives higher project success.

Limitations and Directions for Future Research

Despite the strong empirical findings and methodological rigor of the study, several limitations should be acknowledged. These limitations do not undermine the credibility of the results but highlight areas where future research could extend and deepen the understanding of how Monitoring and Evaluation (M&E) practices influence project success in development and humanitarian settings.

Limitations of the Study

While this study offers strong empirical support for the impact of Monitoring and Evaluation (M&E) practices on project success, several methodological and contextual limitations should be acknowledged. Recognizing these limitations is essential for interpreting the findings with appropriate caution and for clarifying the boundaries within which the conclusions can be generalized. At the same time, they open meaningful avenues for further inquiry. The following subsections first outline the main limitations of

the study and then propose directions for future research that can extend and deepen the current evidence base.

Conclusions and Research Summary

The study examined how Monitoring and Evaluation (M&E) practices influence project success in Field Medical Foundation (FMF) development projects in Aden, Yemen. It assessed six M&E dimensions—planning, human capacity, resource allocation, stakeholder participation, data quality and information management, and use of findings—and found that all significantly improve project outcomes. The strongest drivers were data quality, stakeholder participation, and the use of findings, highlighting the importance of reliable information, engagement, and evidence-based decision-making.

Overall, the results show that M&E operates as an integrated system rather than separate activities, explaining 71.5% of the variation in project success. This confirms M&E as a strategic organizational capability that supports learning, accountability, and adaptability. The study concludes that effective M&E is essential for improving project design, managing risks, and achieving sustainable development impact, especially in complex humanitarian contexts like Yemen.

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