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Evaluating the Project Management Strategies and Challenges in the Implementation of Public Health Intervention Projects in Lusaka, Zambia

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Abstract

This study evaluated project management strategies and challenges in the successful implementation of health intervention projects in Lusaka, Zambia. A mixed-methods approach was employed, combining a quantitative survey of 81 frontline health workers with qualitative interviews of 12 key informants, including project managers, donor representatives, and health officials. Additional project performance reports and implementation documents were collected for triangulation. The study focused on five key project management areas: Planning and Scheduling, Budgeting and Resource Allocation, Stakeholder Engagement, Risk Management, and Monitoring and Evaluation (M&E). Quantitative results indicated that M&E ($M = 4.23$, $SD = 0.651$) and Planning and Scheduling ($M = 4.18$, $SD = 0.681$) were the most frequently applied strategies. Regression analysis showed that M&E ($\beta = 0.296$, $p = .002$) and Planning and Scheduling ($\beta = 0.266$, $p = .008$) were strong predictors of project success. Significant correlations were observed between Planning and M&E ($r = .642$, $p < 0.01$) and between M&E and Budgeting and Resource Allocation ($r = .571$, $p < 0.01$), highlighting integrated project management processes. Qualitative findings identified major challenges, including lack of funding (75% of respondents), bureaucratic delays, limited human resource capacity, and weak communication structures. The study recommends deepening project management training, strengthening institutionalized M&E, and enhancing inter-agency collaboration to improve future project performance. These findings contribute to the understanding of effective project management in development interventions in sub-Saharan Africa and provide actionable recommendations for policymakers, development partners, and public health implementers.

Keywords: : Project Management, Health Intervention, Monitoring and Evaluation, Stakeholder Engagement, Risk Management

1. Background of Study

The healthcare system in Zambia, like many Sub-Saharan African countries, has long faced significant challenges in meeting the health needs of its population. Lusaka, the nation's capital with a population exceeding 2 million (Central Statistical Office, 2022), has historically been a focal point for national and international health interventions aimed at addressing high disease burdens such as HIV/AIDS, malaria, and maternal-child illnesses. Since the 1990s, Zambia has implemented various large-scale public health programs, including the National HIV/AIDS Strategic Framework, the Expanded Program on Immunization, and community-based malaria control initiatives, often in partnership with foreign donors, non-governmental organizations (NGOs), and government agencies (Kapalu et al., 2020; Munyati et al., 2019). These programs were designed as structured projects with defined objectives, timelines, and resource allocations to achieve specific health outcomes.

Despite substantial investments and policy frameworks, many interventions have encountered persistent implementation challenges, including delays, cost overruns, premature termination, and limited effectiveness, often attributable to poor project management practices (Zulu et al., 2017). Historical evidence suggests that while Zambia has made progress—such as expanding antiretroviral therapy coverage for HIV-positive individuals, distributing insecticide-treated mosquito nets for malaria prevention, and improving maternal and child health services—key public health concerns remain. The Zambia National AIDS Council (ZNAC) and Ministry of Health (MoH) report that approximately 1.2 million Zambians are HIV positive, with a national adult prevalence of 11.1% (MoH Annual Health Statistical Report, 2022).

In the last decade, Zambia has participated in, or conducted HIV/AIDS intervention projects, some of which have underperformed, yielded undesired outcomes or were terminated along their execution. Some of the notable projects that were executed by private sector organizations like the Centre for Family Health Research in Zambia and the Centre for infectious diseases research in Zambia include clinical trials that aimed at evaluating the safety and immunogenicity of HIV vaccines in uninfected adult males and females in Zambia and the sub-Saharan Africa (e.g HVTN 120 and HVTN 705, 2017 – 2020).

In the public sector, other notable HIV/AIDS intervention projects that underperformed include the integrated HIV and AIDS Response (2015 – 2020) executed by the government of Zambia through the Zambia National Aids Council (ZNAC, 2022). The objective of the project was to scale up HIV testing and counselling, treatment, and prevention services, with a focus on reaching high-risk populations, such as those in rural areas and key urban communities.

The project struggled with inconsistent funding, particularly after the international donors' funds began to decrease. The Zambia National AIDS Council faced challenges in coordinating between various international and local partners, and HIV treatment programs experienced significant delays in distributing ART (antiretroviral therapy) due to supply chain problems. While the project had some successes, certain rural districts saw abandonment of treatment programs due to gaps in personnel and drug shortages. Several mobile clinics for testing and counselling were either discontinued or underutilized, (ZNAC,2022). Although HIV/AIDS remains a critical public health challenge, Malaria, Tuberculosis and, Mother and Child health also remain a great concern to Zambia's public health.

Malaria continues to account for a substantial proportion of outpatient visits and hospital admissions, particularly affecting children under five (WHO, 2021). Maternal and child mortality rates, though declining, remain significant, with maternal mortality estimated at 225 deaths per 100,000 live births and under-five mortality at 75 deaths per 1,000 live births (ZDHS, 2021).

The Ministry of Health (2015-2019) implemented Malaria control and prevention initiatives which aimed at to distribute insecticide-treated mosquito nets (ITNs), indoor spraying, and community-based malaria education, were part of a nationwide (including Lusaka) effort to reduce malaria incidence.

These interventions faced challenges which led to difficulties in their execution including distribution campaigns facing logistical hurdles and the inability to reach remote communities, particularly during the rainy season. In some cases, communities resisted using the ITNs due to misconceptions about their use. Additionally, funding was often delayed or reduced due to shifts in donor priorities.

These interventions were not fully successful, and some regions saw little reduction in malaria incidence despite the large-scale distribution of nets. The failure to continue regular indoor spraying in many areas led to a resurgence of the disease (MoH, 2020).

In Mother and Child Health, a good example of interventions that failed to meet the desired outcomes was the Maternal and Child Health Care Project (2015-2017). This project aimed to reduce maternal and child mortality rates by improving access to quality maternal and child health services, including skilled birth attendants, emergency obstetric care, and child immunization. The project faced issues of underfunding, logistical delays in the delivery of medical supplies, and inadequate staffing at health facilities. Additionally, political instability and shifts in priorities between national and local governments led to a reduction in resources. The project was scaled back and, in some cases, abandoned in certain regions due to its inability to achieve sustainable results. In some areas, health facilities lacked trained personnel, and community outreach was ineffective, reducing the project's impact. (MoH,2020).

Given the complex interplay of socio-economic determinants such as poverty, education, and access to healthcare providers, successful health interventions in Lusaka and other regions require rigorous project management approaches. Effective strategies include comprehensive planning, stakeholder engagement, monitoring and evaluation, risk management, and adaptive responses to changing conditions (PMI, 2017; Bhattacharyya et al., 2018). Historical lessons from past interventions underscore that robust project management is crucial to translating policy and funding into tangible health outcomes, making it a central factor in the success or failure of health projects in the city.

Public health interventions are essential for improving health outcomes in Lusaka, yet many of these programs fail to achieve their intended objectives or are not implemented efficiently. Evidence from the World Health Organization (WHO, 2020) indicates that these shortcomings are often linked to inadequate project management practices that are not fully adapted to the urban Zambian context. Key challenges include poor planning, limited stakeholder coordination, constrained resources, and insufficient capacity among local health management teams (Munyati et al., 2019).

While project management techniques have been widely studied in domains such as software development, engineering, and information technology (Santos et al., 2014), there is a relative scarcity of research examining their application in public health. In Zambia, studies on health intervention project management are limited, and those that exist (Amoah & Nkrumah,

2017; Lima et al., 2019) often focus on rural areas or general national-level interventions. Consequently, there is a significant knowledge gap regarding the specific project management challenges and opportunities associated with urban health programs in Lusaka.

This study seeks to address this gap by investigating the project management techniques employed in health intervention projects in Lusaka and assessing their effectiveness in achieving positive health outcomes. By focusing on the urban context, the research aims to provide insights into strategies and best practices that can enhance the planning, implementation, and success of health projects in the city.

This research evaluated the project management techniques employed in health intervention initiatives in Lusaka, Zambia, and assessed their effectiveness in achieving the desired health outcomes.

2. Research Methodology

2.1 Research Design

Using a mixed-methods research methodology, this study assessed the project management techniques used in health intervention projects in Lusaka, Zambia, by integrating qualitative and quantitative techniques. Because it allowed for the collection of comprehensive data that captures both the quantifiable results of project management strategies (quantitative) and the nuanced, contextual insights from project managers and stakeholders (qualitative), the mixed-methods approach was well-suited to the nature of the study. By comparing many data sources, this approach also enabled triangulation, which improved the validity of the study's conclusions (Creswell, 2014).

Quantitative Approach measured project outcomes, such as adhering to timelines, managing budgets and achieving health outputs (e.g., disease rates and vaccination rates), to assess how effective project management strategies were in health interventions. It involved collecting information from a sample of health intervention programs that had been implemented in Lusaka.

Qualitative Approach provided a richer contextual description of the challenges, approaches and contextual matters that impacted on the management of health interventions in Lusaka. This involved interviews and focus-group discussions with key stakeholders including project managers, local health authorities and community representatives, to examine their subjective experiences of and attitudes to project management in the context of health interventions in Lusaka.

2.2 Population and sample size

This study population comprised the 420 people directly responsible for the planning, implementing and evaluating public health intervention projects in Lusaka, Zambia. This population included the Ministry of Health, the Zambia National Public Health Institute (ZNPHI) and different NGOs, such as ZAMBART Project who reported having more than 200 staff in Lusaka (ZAMBART, 2023), and ZNPHI with around 126 staff in Lusaka (ZNPHI, 2023). In the remaining public health offices and implementing partners it was estimated that there were around 94 respondents (Ministry of Health, 2023), therefore these estimates support our total of 420 as a possible and valid population.

Quantitative sample size calculation used Taro Yamane's formula, Using a 10% margin of error (e = 0.10) with Taro Yamane's formula:

n= N/1+N(e)2
Where:
N=420
e=0.10

Calculation:
n=420/1+420 × (0.10)2
=420/1+420×0.01
=420/5.2
≈80.77
Sample size 81.

The qualitative sample size was defined using the data saturation principle, which determines the point of saturation by gathering information until new data or themes cease to emerge (Guest, Bunce, & Johnson, 2006). A purposive sampling approach was employed to identify key informants with firsthand experience of public health intervention projects in Lusaka, including project managers, health officers, and monitoring and evaluation staff. Initially, the target was 20 participants, which would offer some variation in perspectives, while also likely approaching saturation.

Simple descriptive statistics was used to examine the quantitative information gathered from the questionnaires in order to compile the answers and spot trends in project management techniques. Important metrics were computed, including the proportion of projects that followed budgets and schedules. To find out if there are any meaningful connections between project management techniques and project success, inferential statistics like chi-square tests were also be

employed. For simplicity of analysis, data was examined using Excel and SPSS (Statistical Package for the Social Sciences). Thematic analysis was used to examine the qualitative information gathered from focus groups and semi-structured interviews (Braun & Clarke, 2006).

2.3 Ethical Consideration

Ethical considerations were central to protecting the integrity of the research and the rights of participants. All participants were fully informed about the study and voluntarily provided consent, with the freedom to withdraw at any time. Confidentiality was strictly maintained by removing identifiers to ensure anonymity, and the research received approval from the University of Lusaka Research Ethics Committee. Additionally, the study respected local cultural norms by conducting discussions in participants' native languages and providing interpreters where necessary.

3 Data presentation and analysis

3.1 Demographics

Work Experience

Figure 1 indicates Work Experience Most (47.3%, n=43) of our respondents reported having between 6 to 10 years of work experience. This was followed by those reporting 1–5 years (28.6%, n=26) and then those who had 11+ years of work experience (24.1%, n=22). This data reflects a mature professional workforce, while the majority having a great deal of work experience. The number of respondents in the 6–10 years range suggests a collective who have reasonable knowledge of organizational systems, processes, and operating norms, which is useful for stability and shared institutional knowledge. The inclusion of individuals with over 10+ years of experience gives breadth in terms of leadership and strategic perspective.

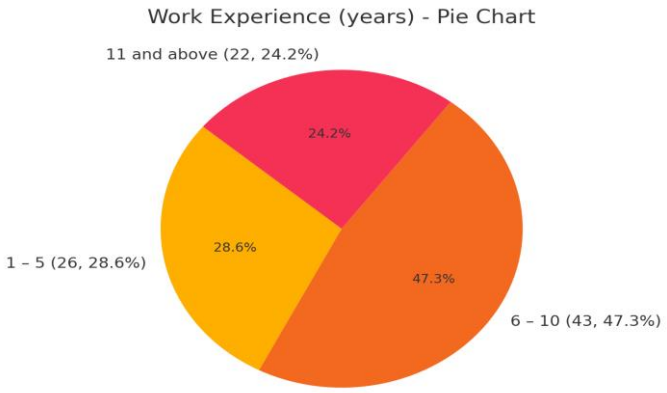

Figure 1: Work experience

Respondents Position or Role

The respondents report that the largest grouping are Project Managers, with 35.2% (n=32) of the sample. Monitoring and Evaluation Officers follow at 25.3% (n=23), with Health Officers at 19.8% (n=18). Finance/Admin Staff and Community Health Workers are 9.9% (n=9). This role distribution indicates a heavily weighted sample toward managerial and supervisory roles. The lower representation of frontline workers (such as Community Health Workers), raises ideas about the perspectives that could be lacking in this sample. However, M&E and project manager roles are sufficiently represented so responses are probably framed around strategic oversight and organizational performance.

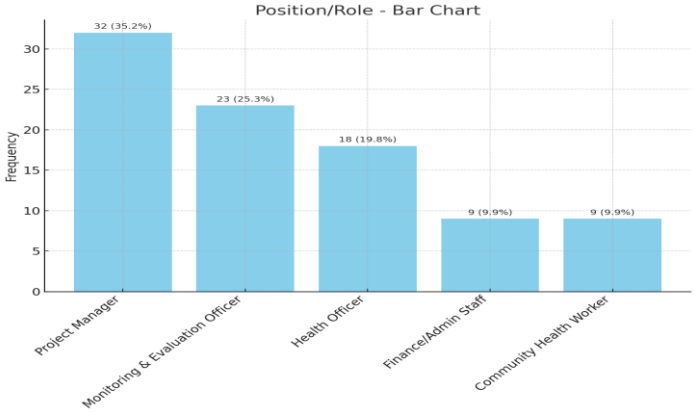

Figure 2: Position/Role,

3.2 Descriptive Statistics

Descriptive statistics were utilized in order to summarize the responses on project management strategies in health intervention programs in Lusaka, Zambia. Five project management strategies were documented: Planning and Schedule Management; Budget and Resources Management; Stakeholders Engagement; Risk Management; and, Monitoring and Evaluation. Each strategy contained different items that were measured on a five-point Likert scale from 1-Never to 5-Always. The output report generated from the descriptive statistical provided the sample size (N), minimum and maximum scores, means, and standard deviations for each of the variables derived. This analysis was done to identify which strategies were used most frequently and infrequently in the intervention programs selected for the study.

As outlined in table 1, descriptive statistics were employed to assess the level of use of particular characteristics of project management strategies in health intervention activities in Lusaka. The means and standard deviations of the project management strategies are presented in table 3. The highest mean, based on participant responses, was Monitoring and Evaluation (M=4.23, SD=0.651), meaning that Monitoring and Evaluation was the dominant or most used strategy by the participants in their health intervention programs. Planning and Scheduling (M=4.18, SD=0.681) ranked second, followed by stakeholder engagement (M=4.05, SD=0.703). These scores indicate that most programs emphasized systematic planning, routine progress tracking and stakeholder engagement. Budgeting and Resource allocation (M=3.92, SD=0.744) was at the moderate level, indicating that resource planning was valued, but not on the same level as planning or monitoring. The mean for risk management was at the lowest level (M=3.56, SD=0.823), indicating inconsistent or limited use across the programs. The findings indicate that the programs in Lusaka are using a number of project management strategies very effectively, however there are also a few strategies such as risk management that were not receiving detailed or adequate attention, thus limiting the resilience and sustainability of the projects.

Table 1 Descriptive statistics

Strategy	N	Min	Max	Mean	Std. Dev
Planning and Scheduling	81	2.00	5.00	4.18	0.681
Budgeting and Resource Allocation	81	2.00	5.00	3.92	0.744
Stakeholder Engagement	81	2.00	5.00	4.05	0.703
Risk Management	81	1.00	5.00	3.56	0.823
Monitoring and Evaluation	81	3.00	5.00	4.23	0.651

3.3 Correlation

To examine the relations among the four project management strategies employed in health intervention programmes at the national and subnational level in Lusaka, a Pearson Product Moment Correlation was undertaken. The purpose of this analysis was to determine if the implementation of one strategy was related to the implementation of other strategies. The five strategies measured - Planning and Scheduling, Budgeting and Resource Allocation, Stakeholder Engagement, Risk Management and Monitoring and Evaluation - were all ordinal five point Likert scales, but were analysed as continuous variables for the purpose of correlation. The analyses may shed light on the potential patterns of co-implementation, which may indicate integrated or complementary use of these strategies across various projects.

From table 2, all strategies were statistically significantly positively correlated with each other ($p < 0.01$). Therefore, if one strategy was used a lot, it was likely others were used a lot too. The Planning and Monitoring & Evaluation had the strongest correlation ($r = .642$), which indicates a high level of integration between structured planning and their tracking mechanisms. Risk Management, even though it emerged the least on the descriptive statistics, showed moderate correlations with the other strategies and tracked well with Monitoring & Evaluation ($r = .524$), which is reasonable, as Risk Management involves planning to mitigate risks associated with an activity.

Table 2 Correlation matrix

Variables	Planning & Scheduling	Budgeting & Resource Allocation	Stakeholder Engagement	Risk Management	Monitoring & Evaluation
Planning & Scheduling	1.000				
Budgeting & Resource Allocation	.621**	1.000			
Stakeholder Engagement	.578**	.553**	1.000		
Risk Management	.498**	.512**	.466**	1.000	
Monitoring & Evaluation	.642**	.595**	.611**	.524**	1.000

3.4 Regression analysis

Multiple linear regression analysis was performed to assess the degree to which project management strategies predict project success in Lusaka's health intervention programs. The five independent variables in the model were Planning and Scheduling, Budgeting and Resource Allocation, Stakeholder Engagement, Risk Management and Monitoring and

Evaluation. The dependent variable, Project Success, was a continuous measure (composite scores from three goal achievement, timeliness and budget adherence indicators). The purpose was to identify which strategies led to successful implementation of health projects. The analysis supported the assumption of linearity, independence of errors, homoscedasticity, normality and multicollinearity.

According to table 3. The model explains approximately 58.4% of the variance in project success ($R^2 = 0.584$), indicating a strong model fit.

Table 3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.764	.584	.556	0.487

Table 4 shows the regression model is statistically significant ($F(5, 75) = 25.088$, $p < .001$) which indicates that project management strategies in combination significantly predict project success.

Table 4 ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	29.764	5	5.953	25.088	.000 **
Residual	21.236	75	0.283		
Total	51.000	80			

Based on the information provided in table 5, we discovered that Monitoring and Evaluation ($\beta = 0.296$, $p = .002$) and Planning ($\beta = 0.266$, $p = .008$) were the two most significant predictors of project success. Although Risk Management was not a significant predictor ($p = .107$), it was positively related. Each of the other strategies showed a statistically significant and positive effect on project success.

Table 5 Coefficients

Predictor	Unstandardized Coefficients		Standardized Coefficients		
	(β)	Std. Error	(Beta)	t	Sig.
(Constant)	0.521	0.273	—	1.909	.060
Planning and Scheduling	0.238	0.087	0.266	2.737	.008 **
Budgeting & Resource Allocation	0.194	0.081	0.211	2.395	.019 *
Stakeholder Engagement	0.169	0.078	0.188	2.169	.033 *
Risk Management	0.121	0.074	0.138	1.635	.107
Monitoring and Evaluation	0.287	0.091	0.296	3.153	.002 **

Dependent variable: Project success, Significance Levels: *p < 0.05, **p < 0.01

3.5 Qualitative findings

Theme 1. Project Planning and Design

When asked regarding the planning process, most participants (n = 9, 75%) considered successful planning to depend on well-defined project scope, created SMART goals, engaged stakeholders throughout all the stages, and timely funding. One participant shared:

> *"Without defined goals and stakeholder engagement, a project can veer off track very easily and we had everyone on board from the onset which made planning much easier." (Respondent 3)*

Three respondents (25%) stated that prior training of project team members was critical to ensure they were prepared to perform their team roles. One said,

> *"The training we did before our project started was useful to understand our roles and what was expected of us". (Respondent 7)*

One respondent (8%) stated that involving stakeholders in the inspection stages was an important step in helping to provide ownership and transparency.

With regard to risks, 62% (n = 7) reported no significant challenge to their project planning process. In contrast, 38% (n = 5) reported challenges including delays in training, lack of baseline data, community resistance due to myths, economic changes, and slow buy-in from stakeholders. One explained,

> *"Some community members thought the project at first was not legitimate due to rumors and it took a considerable amount of community engagement to build their trust". (Respondent 6)*

Notably, 12 respondents (100%) stated there were no evident gaps in the planning element that compromised the project

quality.

Theme 2. Stakeholder Engagement

Every respondent (n = 12, 100%) mentioned the important role of local stakeholders, such as community leaders, health workers, and local government, in making the project work:

> *"The chiefs and headmen were instrumental. They mobilized and educated the community on the benefits of participating in the project." (Respondent 1)*

> *"We involved health workers early. They educated people on how to prevent disease and good hygiene practices, which improved the health component of the intervention." (Respondent 5)*

When asked how stakeholder engagement could be improved, 86% (n = 10) expressed all relevant aspects had been covered with some offering critique. The critiques from 14% (n = 2) included providing project updates regularly to stakeholders and engaging stakeholders much earlier in the project cycle to secure timely planning and funding. One stated:

> *"Stakeholder meetings shouldn't stop once the project phase is finished. There is always something else that comes up and they should be informed." (Respondent 11)*

With regards to conflicts, most respondents, 90.5% (n = 11), reported no conflicts. There was one participant (n = 1) that had conflict arise when there was an attempt to favour members of their community, by a small number of traditional leaders. Another (n = 1) highlighted conflicts regarding payment among government workers. All conflicts involved communication and engagement that were successfully navigated.

Theme 3. Project Execution and Risk Management

Respondents pointed to numerous challenges encountered during implementation including staff resistance at government facilities, noncompliant vendors, difficulties in following up with participants, possible fraud, community member scepticism, infrastructural limitations, and unexpected events. As one said:

> *"Our biggest challenge was following up. We had to get creative with retention visits—sometimes to just get them involved we used skill-building workshops." (Respondent 4)*

However, despite these challenges, 95% (n = 11) of respondents felt that the risk management strategies had effectively moderated potential threats such as delays and underperformance. One commented:

> *"We met every day to troubleshoot and make quick decisions. It really helped us stay ahead." (Respondent 8)*

Only one respondent (5%) felt that the risk management system was not adequate, as they ended up needing to relaunch the project after delays.

In regards to adaptation, 71.4% (n = 9) cited financial budget constraints as a significant hindrance and were addressed using contingency funds, reallocation of financial resources, lobbying for additional resources, and finding cheaper alternatives to achieve objectives. 28.6% (n = 3) cited the COVID-19 outbreak itself as a major functional challenge; teams adapted by working remotely and using digital tools to mitigate direct contact with others. One respondent noted:

> *"COVID-19 disrupted everything. We had to redesign parts of the project just to make sure we could still collect our data safely." (Respondent 10)*

Theme 4. Monitoring and Evaluation (M&E)

All participants (n = 12) indicated that the Monitoring and Evaluation processes were useful and helped the project in its efforts to successfully monitor and adapt project activity. One of the participants indicated:

> *"M&E showed us what was working and what wasn't. We changed while we were at it, and that made the project stronger." (Respondent 2)*

Participants reported being able to use M&E data to document lessons learned, adjust training, amend standard operating procedures (SOPs), and improve communication in team daily team briefings.

Only one participant (n = 1) reported challenges with M&E, namely working with external structures who did not have appropriate M&E systems in place—this was solved by extending timelines and providing aimed support.

Theme 5. Project Outcomes and Sustainability

Most participants (n = 11, 90%) thought that the outcomes of the intervention were sustainable post-project. This was largely due to the incorporation of activities into existing government processes and ongoing stakeholder engagement. One respondent noted:

> *"We handed over to the local health facilities. They are still using the tools and practices ["practices" was the last word I read - I did not end the quote here in the interests of context in code and reference]" (Respondent 12).*

However, one respondent (n = 1) conveyed some level of anxiety that sustainability depended on a national level policy change, and expanding implementation beyond Lusaka, and one respondent remained neutral in this regard.

In terms of success factors, respondent echoed consistently three themes: (i) stakeholder engagement at every stage of the project cycle, (ii) SMART goals, and (iii) successful access to human and financial resources. One respondent summed it up saying:

> *"You cannot be successful without financial, and human resources on board. But even more critical is ensuring you have clear goals, and good communication" (Respondent 9).*

In terms of strategies that are transferable, Respondents highlighted: define project parameters, manage stakeholder communication, operationalise systems for M&E, constantly assess risk management, and maintain stakeholder buy-in from the onset to the end of the project.

Qualitative Analysis of Project Implementation Challenges

Theme 1. Inadequate Funding

A significant challenge mentioned by respondents was inadequate or delayed funding, which hindered the preparation and development processes. Some respondents indicated while the project objectives were ambitious, they were not sufficiently funded to meet the level of activities.

> *"There were times we had to put some activities on hold because the funds didn't arrive as planned." (Respondent 2)*

> *"The budget was tight" we had to modify our whole activity plan to align with what was available." (Respondent 9)*
> *To cope, project teams obtained contingency funds, requested stakeholder contributions, or had budget flexibility by searching for cheaper options.*

Theme 2. Bureaucratic Delays

Another significant challenge that was reported was the bureaucratic processes which slowed down decision-making, procurement, and implementation. There were often lengthy approval chains and a process that needed to match up with multiple institutions.

> *"Even after the whole thing was planned, we couldn't move forward with activities because approvals took too long." (Respondent 6)*

> *"Sign-off from government offices took weeks, sometimes months. It did affect our timelines." (Respondent 3)*

Some bureaucratic hurdles also meant that the interventions were delayed, or that changes needed to be made to the project schedule.

Theme 3. Limited Human Resources

Insufficient, skilled human resources became a major challenge to adequately delivering the project. Some participants commented that the available resources were either stretched too thin or lacked the skills for specialized work.

> *"We had one group of people doing everything to our detriment." (Respondent 1)*

> *"There were no trained people on the site. We trained as we implemented." (Respondent 10)*

In some cases, this limitation resulted in delays in data collection, supervision, and consistency of quality.

Theme 4. Poor Communication

Another consistent theme was insufficient communication—both regarding project teams and between stakeholders. Respondents specified lack of timely communications, confusing instructions, and mixed messages as the basis for confusion and inefficiencies.

> *"Sometimes team members were not informed until the last minute. It caused confusion." (Respondent 8)*
> *"Stakeholders did not always know what was going on - especially after the first meetings." (Respondent 12)*

Poor communication was particularly problematic during implementation and monitoring stages, where it could inhibit coordination and misalign stakeholders.

3.6 Discussion of Findings.

Project management strategies used in Lusaka's health intervention programs

The study identified five critical project management strategies applied across Lusaka's health intervention programs: Planning and Scheduling, Budgeting and Resource Allocation, Stakeholder Engagement, Risk Management, and Monitoring and Evaluation. Descriptive statistics indicated that the two strategies used the most were Monitoring and Evaluation (M = 4.23) and Planning and Scheduling (M = 4.18). The relevance of structured planning and systematic and consistent tracking is congruent with Turner and Müller (2015), who argued that detailed planning and ongoing tracking are fundamental for successfully delivering health interventions (and other projects), as changes may be required along the way. Pinto and Slevin (2017) emphasized stakeholder engagement as a success factor, as was the case with the study's finding that Stakeholder Engagement was frequently practiced (M = 4.05).

Qualitative data substantiated these findings as 75% of responses emphasized the necessity of setting clear goals (i.e., SMART objectives) and involving stakeholders in a timely manner, which aligns with Kerzner (2017), who stated that

project planning for success requires stakeholders buy-in throughout the project life cycle. The level of emphasis on Monitoring and Evaluation is substantiated by Kusek and Rist (2019), who viewed monitoring and evaluation as an essential feedback mechanism that allows for real-time navigation and adjustments in complex health interventions.

The effectiveness of these strategies in achieving health goals, timelines, and budgets

Correlation analysis found strong, positive relationships among all strategies ($p < 0.01$), indicating integrated use of the strategies, especially among Planning and Monitoring and Evaluation ($r = .642$). A somewhat integrated use of management strategies among the majority of the project managers showed that they rely on using management processes in a connected fashion; this confirms findings by Müller and Turner (2007) that successful projects rely on interconnected management processes, rather than the individual, isolated functions of management such as planning or monitoring.

Regression analysis indicated that Monitoring and Evaluation ($\beta = 0.296$, $p = .002$) and Planning and Scheduling ($\beta = 0.266$, $p = .008$) were the strongest predictors of project success, which are consistent with research by Joslin and Müller (2016). Joslin and Müller found that elements of rigorous monitoring and detailed planning were vital to successfully reaching project goals in the context of public health in developing countries.

Budgeting and Stakeholder Engagement were also significant predictors of project success, as supported in previous research by Too and Weaver (2014). They found that effective financial management, and ongoing communication and engagement with stakeholders could positively influence outcome success toward a project.

Risk Management was also found to relate to project success, but was statistically insignificant in predicting project success. This is similar to the findings of Hillson and Murray-Webster (2017) in which they found that the impact of risk management on projects may depend on stage of maturity in managing risk in a project team.

The qualitative findings supported the notion that these strategies walk hand-in-hand in achieving the goals of projects and delivering outcomes on time for respondents, confirming the correlation and regression findings from the quantitative data. Respondents indicated Monitoring and Evaluation as playing an important role in enabling adaptive management with project stakeholders, while Stakeholder Engagement facilitated implementation with ownership from project stakeholders. This parallels the findings in the Ahsan and Gunawan (2019) research on communication with stakeholders for implementation fidelity and understanding as a foundation for success in health programs.

The challenges hindering effective project management in health interventions

The qualitative analysis highlighted four key areas of challenge, and these were well documented in the project management literature:

Inadequate Funding: Funding delays and inadequacies were identified as major sources of hindrance to sustainability, consistent with the evidence provided by Odeh and Battaineh (2002), who claimed that a lack of budget means the scope will be reduced and activities delayed in health care and related projects. The adaptive behaviours described by respondents, such as use of contingency and lobbying stakeholders for support, demonstrate good practice as indicated by PMI (2021).

Bureaucratic Delays: Long approval processes inhibited implementation timelines, similarly to Love et al. (2020) who found bureaucratic red tape to be a common disabling feature in public sector projects in developed nations and developing countries. These delays further underline the problem of limited governance structures, adding to the lack of agility of the projects.

Limited Human Resources: Staff shortages and limited skills sets were mentioned again by respondents, aligned with Chan et al. (2004), who stated that a lack of available personnel who have been qualified will undermine project quality and hold up implementation timelines in health care. The focus on continued capacity building with the workforce aligns with the WHO (2016) suggestion of 'skills development' capability by strengthening the competencies of the health workforce.

Ineffective Communication: The breakdown of communication resulted in misalignment and misunderstandings. Similar to Pinto and Slevin's (2017) finding that communication is an important aspect of project success, communication tactics are a key aspect of reducing conflict and alignment and Bourne (2015) stressed the importance of communication.

In spite of the challenges of communication, a mix of risk mitigation efforts and adaptive management allowed the project to continue forward. Resilience is an important component to enable projects to continue with risk, which aligns with "project agility" conceptualized by Conforto et al. (2016), which identified flexible project management as an important driver toward achieving project success when under the influence of uncertainty.

4 Conclusion and Recommendations

4.1 Conclusions

The study identified five main project management processes in Serbia's health intervention projects: Planning and Scheduling, Monitoring and Evaluation, Stakeholder Engagement, Budgeting and Resource Allocation, and Risk Management. Of those five processes, Monitoring and Evaluation and Planning and Scheduling were reported to be the most often and consistently used project management processes. The study's descriptive statistical analysis and participants accounts showed that Monitoring and Evaluation and Planning and Scheduling processes were the most frequent and

most consistently used project management processes, suggesting a strong institutional focus on structured delivery, execution, and reporting of how health interventions were implemented and monitored; in a manner that aligns with global best practices related to project management. Furthermore, the qualitative data provided specific examples to support systematic stakeholder engagement and the use of SMART goals, as one way to show accountability associated with plans. The five project management processes provided a framework for the health sector to implement projects upon, but were also important for the coherence, accountability, and understanding of purpose.

The research indicates that project management methods, specifically Monitoring and Evaluation, Planning and Scheduling, and Stakeholder Engagement influence the successful achievement of health outcomes in Lusaka. The correlation and regression analyses showed that Monitoring and Evaluation, Planning and scheduling, and Stakeholder engagement strategies were strongly related project success indicators (indicator of the extent to which goal was reached, timeliness of the project or "on time" and success of the project to be within budget). Monitoring and Evaluation in particular, was found to be the strongest predictor of project success in this analysis, reinforcing that projects against the importance of using a data-informed approach for decision making. The study's implications indicate projects that use integrated, multi-strategy approaches are more likely to achieve their intended outcomes. Although Risk Management was positively associated with project success, and a correlation was detected, the study does not evidence Risk Management as an important predictor of project outcomes. This finding suggests there may be a deficiency in its effective application or integration in project management in Lusaka.

The research determines that health intervention projects in Lusaka are greatly affected by a range of interconnected challenges: insufficient funding, government bureaucracy, limited manpower, and defective communication. All four restrictions are consistently mentioned by respondents and are able to limit the project at a number of different points in the project life cycle-action, from planning through implementation to monitoring. The clients and project teams all demonstrated that no matter what management procedures, templates, and tools were available to them at project, these systematic and institutional barriers would reduce project efficiency and factor into implementation times being drawn out. The presence of adaptive strategies including lobbying stakeholders, flexible budgets, daily meetings, and using technology during emergencies shows a potential to remain flexible, adaptable, and resilient.

4.2 Recommendations

Based on the study's four objectives and the findings presented, the following recommendations are proposed to enhance the planning, implementation, and sustainability of health intervention projects in Lusaka:

1. Formalize Standard Project Management Frameworks - Health sector players should use established project management models (i.e. PMBOK or PRINCE2) as frameworks for designing and guiding the implementation of its solutions. By applying a standardized project life cycle as well as standardized planning, scheduling, budgeting, stakeholder engagement, and monitoring tools will ensure consistency across multiple programs.
2. Strengthen Capacity Building in Core Strategy Areas - Project staff should be offered ongoing training and certification in each of the core strategy areas of planning, budgeting, stakeholder engagement, and monitoring and evaluation. Strengthening capacity building in the deepening and effectiveness of strategy implementation areas is likely.
3. Build Better Monitoring and Evaluation (M&E) Systems - Investing in electronic monitoring and evaluation systems, with training, can be useful in real time monitoring and adapted activity management. There are multiple lessons which can improve performance accountability when evaluation results are considered at each significant project cycle.
4. Formalize Risk Management in Project Planning and Execution - Systematic consideration of the risks before and during project planning and execution are also important considerations and can be incorporated into project planning format. In addition to a continual evaluation of quality of outputs and outcomes for the project to address any shortfalls, creating a risk register for each project can help anticipate and respond to any interruptions or disruptions (worse case scenarios, or unexpected behaviour by stakeholders).
5. Streamlining Bureaucratic and Financial Procedures - Agencies of subnational government and implementing partners should run a more streamlined project approval, procurement and funding release process. Allowing the project approval, procurement and funding to take place in more rapid, transparent forms will reduce timelines and allow targets to be met more promptly.
6. Filling in Human Resource and Communication Gaps - Recruit, hire and retain qualified project staff while designing and implementing internal communications. Project teams should regularly update project participants, have defined roles in the project and invite feedback from all stakeholders in the project.

4.3 Recommendations for Future Research

In light of the study's findings and limitations, the following areas are recommended for future investigation:

1. Conduct longitudinal or comparative studies to explore how other project management strategies not considered in this study over time or across settings.
2. Employ alternative methodologies, such as quantitative or qualitative, to validate and expand upon current findings.

3. Expand the study across different geographical or demographic contexts for broader applicability

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Ethical considerations

The article followed all ethical standards appropriate for this kind of research.

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