




Effects of current knowledge management practices on performance of health sector NGOs in Kenya

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Background: Although knowledge management (KM) creates new value for organisations, few empirical studies have illustrated its application in the health sector non-governmental organisations (NGOs) in Kenya.

Objectives: This study evaluated the repercussions of KM practices on the performance of health sector NGOs in Kenya.

Method: This post-positivist study applied both quantitative and qualitative research approaches through a survey research method.

Results: The majority of health sector NGOs have been positively impacted by KM practices and hence consider themselves effective in the work that they do. They also feel efficient and relevant to a larger extent. However, they consider themselves financially viable only to a lesser extent. Furthermore, organisational institutional factors, including organisational structure, culture, technology, management style and employees' skills and competencies, influence the KM practices of organisations.

Conclusion: The study concludes that current KM practices of health sector NGOs influence organisations' efficiency, effectiveness, relevance and financial viability by activating and using explicit and tacit organisational knowledge. Furthermore, institutional factors have a significant effect on an organisation's KM practices and consequently impact on the performance of health sector NGOs.

Contribution: The study findings contribute to discourse on the role of KM in improving the performance of organisations and to efforts geared towards the achievement of Sustainable Development Goals (SDGs) 3 and 17 and Kenya's Vision 2030. They also provide a basis for further research and valuable information for comparative studies.

Keywords: knowledge management; health sector non-governmental organisations; sustainable development goals; good health and well-being; United Nations; Kenya.

Introduction

Knowledge Management (KM) is a young and evolving discipline, and therefore, there is no commonly agreed-upon definition. Hence, KM has attracted many definitions. Sullivan et al. (2015) claim that the most common definition is that KM is a systematic or intentional process linked to a broader set of organisational or project objectives. It is a multi-dimensional, cross-disciplinary field and, as a result, there are many competing views on how it can best be defined (Corfield, Paton & Little 2013). For example, World Health Organization (WHO) (in Mohajan 2016) defines KM as a set of principles, tools and practices that enable people to create knowledge, and to share, translate and apply what they know to create value and improve effectiveness. Alternatively, Yee, Tan and Thurasamy (2019) define KM as the systematic management of an organisation's knowledge assets to create value and meet tactical and strategic requirements. It consists of the processes, strategies and systems that sustain and enhance the creation, storage and sharing of knowledge.

Knowledge management is perceived to be among the most modern management concepts, having a major impact on the success of businesses and organisations (Dikotla, Mahlatji & Makgahlela 2014). However, Al-Yahya and Farah (2009) argue that, despite KM's recent emergence as a discipline and formal implementation as a practice within public and private sector organisations worldwide, knowledge has been managed implicitly for centuries. Ancient Egyptians, Greeks and Romans developed several ways to record and transfer knowledge to the

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next generation. In 1959, Drucker first introduced the concept of an information society and the term 'knowledge worker' (Drucker 1990). Earlier, Wiig first coined the term 'knowledge management' in 1986 following a United Nations conference where a more in-depth 'knowledge management' practice was launched. (Alnatsheh, Sağsan & Çavuşoğlu 2020). Pugna and Boldeanu (2014) claim that, with its roots in cognitive science, artificial intelligence, organisational learning and innovation, KM is not new. Downes (2014) adds that while KM has emerged as a discipline, it draws on established disciplines such as Philosophy, Psychology, Sociology, Management, Economics, Information Systems, Human Resources and Quality Management. Since 1995, there has been an explosion in the literature surrounding the developing concept of KM, as the emergence of knowledge-based economies has placed importance on the effective management of knowledge (Omotayo 2015). Adesina and Ocholla (2024) affirm that KM continues to be a growing concern in management research and practice because of its role in innovation capability, organisational competitive advantage and continuous optimum performance.

Context, problem and purpose of the study

As discussed in detail in a related study (Kimani 2021), the health sector non-governmental organisations (NGOs) play a great role in Kenya's health delivery system through the provision of preventive, promotive, rehabilitative and curative health services, as well as advocacy for access to health for all. They are important players in the achievement of the United Nations Sustainable Development Goal (SDG) number three, of attaining good health and well-being, as well as the achievement of key national development priorities, such as Kenya's Vision 2030. Kenya's community health strategy indicates government recognition of and support for the critical role of Civil Society Organisations (CSOs), including NGOs, in delivering social and health services, especially among marginalised, poor and underserved populations, such as those in remote and hard-to-reach rural areas (Juma et al. 2015). The health sector NGOs, however, face considerable challenges, including over-reliance on donor funding and material scarcity for implementing their programmes. The NGO sector has not managed to effectively harness and utilise available resources, including knowledge, to adequately sustain its programmes (Kimunguyi, Memba & Njeru 2015). Non-governmental organisations play a major role in Kenya's economy in terms of national development, job creation, which requires systematic and routine use of knowledge and information to improve an organisation's performance, provide new insights to scholars in the field of KM and contribute to the advancement of KM theory.

In view of the foregoing reflection, previous studies have not provided adequate evidence on the influence of KM on the performance of health sector NGOs, especially those working in developing countries, such as Kenya. Furthermore, the

influence of institutional factors on KM practice and the subsequent impact on the performance of NGOs has not been adequately evaluated.

The purpose of this study is to determine the effects of KM on the performance of health sector NGOs in Nairobi County, Kenya. The study is guided by the following questions:

RQ1: How does KM practice affect organisations' performance?

RQ2: How do Institutional Factors affect the KM practices of Health sector NGOs in Nairobi County, Kenya?

Theoretical perspectives

The study was underpinned by Demerest's Modified KM model and Stankosky and Baldanza's KM Framework. The two models were used jointly. Demerest's Modified KM model identifies four parts of KM within an organisation, that is, knowledge construction, knowledge dissemination, knowledge use and knowledge embodiment (Mohajan 2017). The model was used to demonstrate how knowledge is constructed, embodied, disseminated and used within organisations. This model offers a more holistic approach by viewing knowledge as intrinsically linked to the social and learning processes in an organisation. The study established that the knowledge in the health sector is often localised and is based on local health practices and challenges.

Notably, Stankosky and Baldanza's KM Framework's scope and context emphasise knowledge enablers, which are critical success factors with a great influence on the performance of organisations. The model identifies key institutional factors, including leadership, organisation structure, technology, culture and learning, as those that create a conducive environment for KM activities in an organisation (Haslinda & Sarinah 2009). These aspects have been included in this study as enabling factors. The framework was used to understand the enabling role of institutional factors in organisational KM initiatives, which in turn influence the performance of health sector NGOs.

Both conceptual and empirical literature about KM in health sector NGOs and how institutional factors affect KM in an organisation revealed that, in terms of the status of KM of health sector NGOs, both tacit and explicit knowledge exist in health sector NGOs (Granados, Mohamed & Hlupic 2017; Zapata Cantu & Mondragon 2016). However, few organisations truly understand the value of knowledge resources and how to manage knowledge to achieve their goals. Notably, Mohajan (2016) cautions that the most valuable organisational knowledge is not so much in written procedures as in the minds of humans (tacit knowledge). However, there are weak mechanisms for tapping into staff's tacit knowledge in NGOs.

With respect to the effect of current KM practices on the performance of health sector NGOs, the study revealed

that, although KM practices have a significant positive effect on an organisation's innovation and its performance, adoption of KM in health sector NGOs is limited and very informal (Gichohi & Guyo 2017; Le & Tuamsuk 2021; Tow et al. 2015). Moreover, KM practice has been highlighted as a key driver of organisational performance and a critical tool for organisational survival, indicating the need for adopting good KM practices among NGOs in the health sector to achieve improved effectiveness, efficiency, relevance and financial viability of the organisation.

About the influence of institutional factors on KM practices of health sector NGOs, the study sheds light on the effect of institutional factors on KM processes in organisations and the subsequent impact on their performance. The study revealed that the link between institutional factors and organisational KM practices, as well as their eventual effect on the performance of health sector NGOs, is an understudied area.

We note that existing KM models are developed with different foci, while KM perspectives, constructs and contexts are multifaceted (Elezi & Bamber 2018). This points to the need to investigate the health sector NGOs contextually by seeking specific solutions relevant to this sector to bridge the existing gaps and add to the existing body of knowledge. The full literature review of this study will be found in an upcoming publication.

Research methods and design

Research on KM methodologies is gaining prominence, thereby acknowledging its importance in information, knowledge and technology-oriented research (Ngulube 2015). The study was guided by a post-positivist research paradigm through both quantitative and qualitative research by a cross-sectional survey of all health sector NGOs in Nairobi County currently running health programmes, as registered with the NGO Bureau in Kenya in 2020. The population of the study consisted of 250 health sector NGOs whose work spans across Nairobi's eight administrative divisions. Simple random sampling was used, and this enabled each health sector NGO to have an equal chance of being selected as a subject. Random sampling techniques provide the most reliable representation of the entire population (Walliman 2011). A sample size of 151 Health Sector NGOs was selected using the Fisher, Laing and Stoeckel (1985) formula (Equation 1) as follows:

$$n = \frac{Z^2 \alpha/2 pq}{d^2} \quad n = \frac{(1.96)^2 (0.50) (0.50)}{(0.50)^2} = 384 \quad [\text{Eqn 1}]$$

$$nf = \frac{n}{1 + n/N} \quad nf = \frac{384}{1 + (384/250)} = 151 \quad [\text{Eqn 2}]$$

Where:

nf is the desired sample size (when the population is less than 10000).

N is the Population (in this case 250 NGOs).

n is the desired sample size (if the target population is greater than 10000).

z is the degree of confidence (this will be 95% confidence interval, $\alpha = 1.96$).

p is the proportion in the target population estimated to have characteristics being measured. Fifty per cent chosen as recommended by Fisher et al. (1985).

d is the level of statistical significance (set at 5%).

Before going to the field, we obtained ethical clearance from the University of Zululand, indicating the purpose of the research. A research clearance permit from the National Commission for Science, Technology and Innovation (NACOSTI) was sought to conform to the research expectations of the Government of Kenya. Consent from participants was also obtained, and all participants were assured of confidentiality regarding their identity and the information they provided for the study.

The study used both primary and secondary data. Primary data were gathered by use of semi-structured questionnaires, filled out by programme and administration staff of the sampled health sector NGOs in Nairobi City County. Further, key interviews were undertaken with directors/CEOs of health sector NGOs using key informant interview guides. Because of the coronavirus disease 2019 (COVID-19) pandemic, a blended method was used, with both virtual and face-to-face (where possible) approaches. For triangulation, both qualitative and quantitative data collection methods were utilised through the use of both questionnaires and interview tools.

As a result of a poor response rate to the questionnaires, the study incorporated a snowball sampling technique where already participating respondents were requested to recommend other contacts within the same sector who met the research selection criteria. While noting the weaknesses of snowball sampling, snowballing was only used with self-administered semi-structured questionnaires, a method used jointly with interviews. Data collection was done at a critical time following the coronavirus disease 2019 (COVID-19). The research established through follow-up phone calls that some of the NGOs had closed operations, some of the phone contacts were no longer in service, while many of the participants from sampled organisations were working from home, a situation that affected the expected response rate, leading to snowballing.

Sixty-four respondents managed to return the questionnaire through Google Forms after very close follow-up, as indicated in Table 1. Further, key informant interviews (KII) were undertaken with 16 directors of health sector NGOs in Nairobi County. Any bias from the use of this snowballing method that could have affected data integrity, representativeness and generalisability of results was reduced by undertaking key informant interviews with directors of 16 organisations.

This study used both qualitative and quantitative data analysis methods. All the quantifiable data collected were

TABLE 1: Demographic profile of the respondents.

| Variables | Frequency | % |
|---|-----------|--------------|
| Gender: | | |
| Male | 38 | 59.4 |
| Female | 26 | 40.6 |
| Total | 64 | 100.0 |
| Roles in the organisation: | | |
| Programme management | 54 | 84.4 |
| Administration & finance management | 10 | 15.6 |
| Total | 64 | 100.0 |
| Job title/position: | | |
| Programme manager/Coordinator/Officer | 38 | 59.4 |
| Executive director/Director/CEO | 17 | 26.6 |
| Board member | 4 | 6.3 |
| Finance, HR & Administration | 4 | 6.3 |
| Founder | 1 | 1.6 |
| Total | 64 | 100.0 |
| Length of time they have worked in the organisation (years): | | |
| Less than 1 | 2 | 3.1 |
| 1–5 | 28 | 43.8 |
| 6–10 | 17 | 26.6 |
| 11–15 | 12 | 18.8 |
| 16–20 | 2 | 3.1 |
| More than 20 | 3 | 4.7 |
| Total | 64 | 100.0 |

CEO, chief executive officer; HR, human resource.

collated, coded and analysed using descriptive statistics to determine frequency counts, percentages and cross tabulation. Summary sheets were utilised to analyse responses to closed questions. Content analysis was applied to analyse open-ended question responses as well as KII, while organising findings by themes. Data analysis was done based on key elements of Demerest's Modified KM model and Stankosky and Baldanza's KM Framework.

Ethical considerations

Ethical clearance to conduct this study was obtained from the University of Zululand Research Ethics Committee (No UZREC 171110 030 – PGD 2019/54).

Results and discussions

This section focuses on the findings and discussion based on the two research questions.

How does knowledge management practice affect organisations' performance?

Related studies concur that knowledge and KM have a great influence on the success of organisations, both profit and non-profit making. For example, Akhavan, Nabizadeh and Rajabion (2017) point out that in the modern age, knowledge has been recognised as the most important competitive advantage among organisations, as well as countries, and hence, management of knowledge and intellectual capital is necessary and inevitable. Adesina and Ocholla (2024) affirm that knowledge is the main driver of organisational performance; hence, there is a need to manage it effectively, as it would help to create, disseminate and exploit organisational knowledge. Igbinovia and Ikenwe (2017) maintain that KM

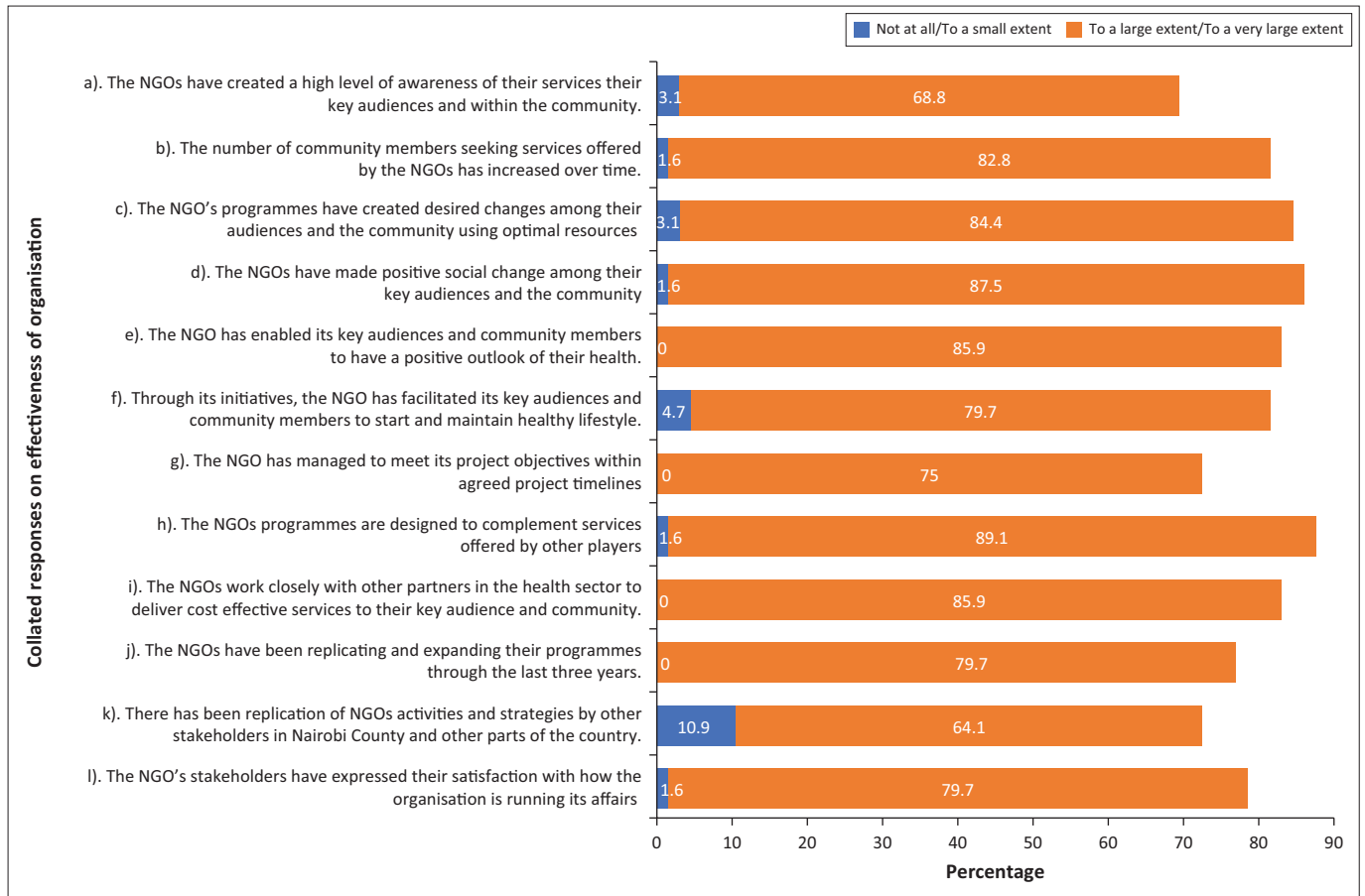
increases organisations' performances through increased efficiency, quality, innovation and productivity.

To assess the effect of KM on the performance of NGOs, this study measured performance using four elements: effectiveness, efficiency, relevance and financial viability. Most of the health sector NGOs consider themselves *effective* and *efficient* to a very large extent. Quantitative findings revealed that KM practices have led to effectiveness and efficiency of the organisations in numerous ways, as highlighted in Figure 1 and Figure 2, respectively.

Findings reveal that KM practices influence the effectiveness and efficiency of organisations in terms of management and service delivery. Also, knowledge is crucial and is used to improve the way organisations do their work, inform good designs and structuring of programmes that are cost-effective and of high standards, reduce wastage of resources, lead to quality and timely service provision, while helping organisations avoid programme intervention mistakes. Similarly, KM increases effectiveness and efficiency by enabling the documentation and replication of work processes that lead to desirable and timely results. Further, KM ensures that information flow and speed of delivery are enhanced, deadlines are kept and decision-making processes are improved. The findings further reveal that the use of knowledge is critical in ensuring value for money, efficient use of resources, maintaining the relevance of programmes, improved feedback processes, improved staff motivation and willingness to learn.

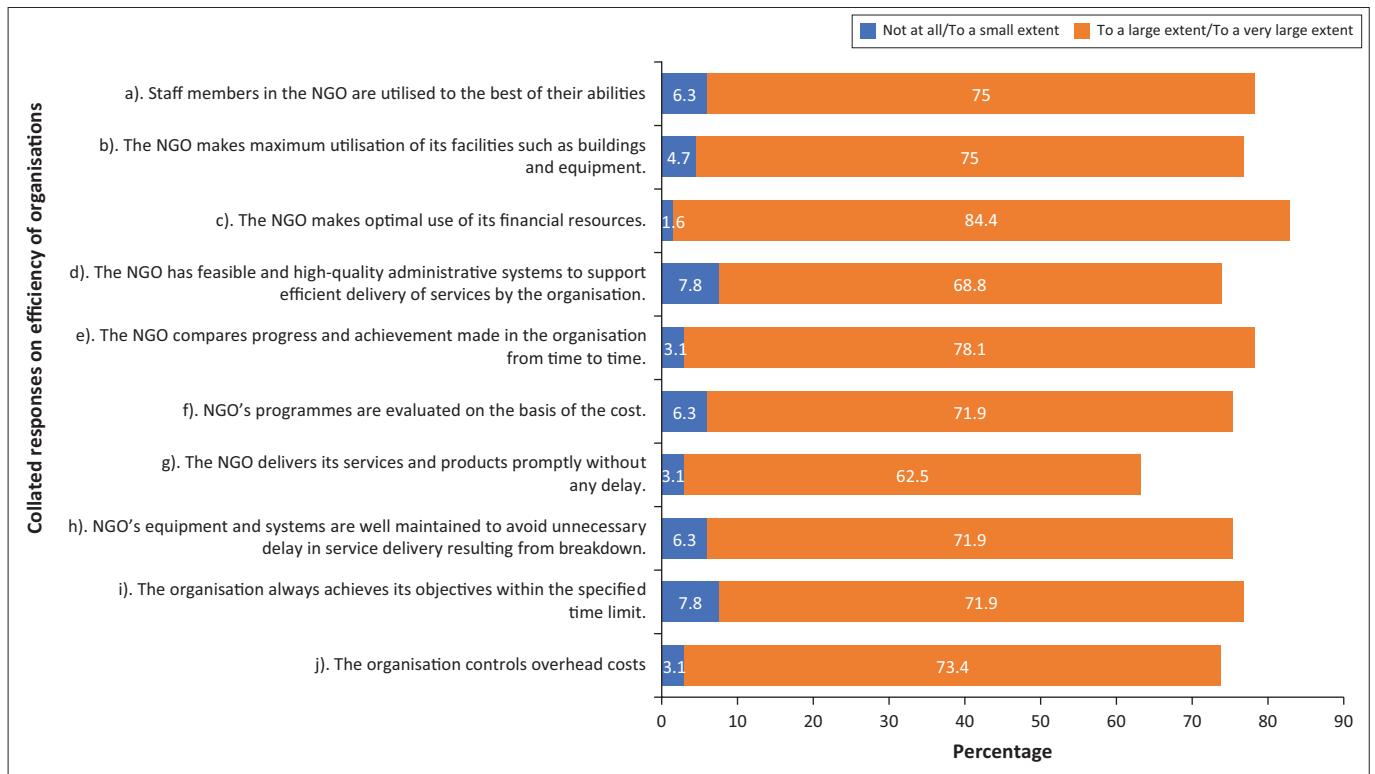
This is consistent with qualitative findings that revealed that improved KM helps in organisations' strategy development and undertaking, with regular reviews of programme targets and performance. Additionally, access to a repository of knowledge and/or information improves the speed of implementation as lessons learnt from implementation ensure that the same mistakes are not repeated and that best practices are carried forward. In addition, the findings indicate that information from KM systems assists organisations in designing programmes tailored to the community and beneficiaries' needs and increases organisational visibility. Moreover, qualitative findings indicate that a lack of adequate KM systems in organisations reduces organisations' decision-making ability and performance, rendering them less efficient.

The results concur with an observation made by Dalkir (2013) that KM practices create value by utilising organisational know-how and experience to meet goals and objectives efficiently and effectively. Similarly, Meihami and Meihami (2014) observe that KM, as a mechanism to enable systematic organisation of knowledge, leads to better use of resources, and contributes to problem solving, decision-making, strategic planning and dynamic learning. Adeinat and Abdulfatah (2019) add that possessing the knowledge needed for a given organisation to function effectively provides a basis for managers to make accurate and timely decisions, thereby improving the internal efficiency of processes,



NGO, non-governmental organisation.

FIGURE 1: Collated responses on effectiveness of organisations.



NGO, non-governmental organisation.

FIGURE 2: Collated responses on efficiency of organisations.

rendering the organisation more flexible in responding to threats and opportunities and encouraging commitment among the organisation's employees.

Most of the health sector NGOs consider themselves *largely relevant*. Organisational relevance refers to the extent to which an organisation adapts to changing conditions and its environment to meet the needs and gain the support of key stakeholders of the organisation. Knowledge management was found to influence the relevance of organisations in several ways, as highlighted in Figure 3.

Quantitative findings reveal that KM provides an opportunity for NGOs to reflect on programmes' successes, achievements and challenges, which helps organisations gain new knowledge that ensures they remain relevant, enabling organisations to run programmes that are competitive and aligned to their beneficiaries' needs. This is consistent with qualitative findings, which revealed that good KM enables sifting through and obtaining the correct and applicable knowledge that is suitable for the organisation in specific aspects, hence improving its service provision. Moreover, shared knowledge assists in keeping tabs on the changing trends and latest information so that organisations' work is responsive, dynamic, and innovations are in line with current trends. Additionally, KM informs stakeholders about key organisational goals, strategies, niches and ability to align to national health priorities and other societal changes; hence, helping organisations to be seen as leaders and a major source of innovations, a situation that is very satisfying to the organisation.

Similar findings were revealed by Adeinat and Abdulfatah (2019), who observed that possessing the knowledge needed renders the organisation more flexible in responding to threats and opportunities and encourages commitment among the organisation's employees. This study has shed some light on how KM helps organisations to assess the changing needs of the communities that they work with to tailor their programmes to meet emerging needs, align with policy changes and provide innovative and sustainable solutions, while utilising scarce resources optimally. Ode and Ayavoo (2019) concur that knowledge acquisition, knowledge storage and knowledge application practices have a significant positive effect on an organisation's innovation.

Conversely, the *financial viability* of health sector NGOs in Nairobi County, Kenya is only to a moderate or lesser extent. Organisational financial viability refers to the organisation's capacity to raise the funds and other required resources to meet its functional requirements in the short, medium and long-term. Findings indicate that KM influences the financial viability of the organisation in several ways, as highlighted in Figure 4. It is noted that, KM supports the improvement of financial management systems of organisations by ensuring good record keeping, financial reporting and documentation, all of which facilitate good financial management. When an organisation has good financial management systems, partner organisations and

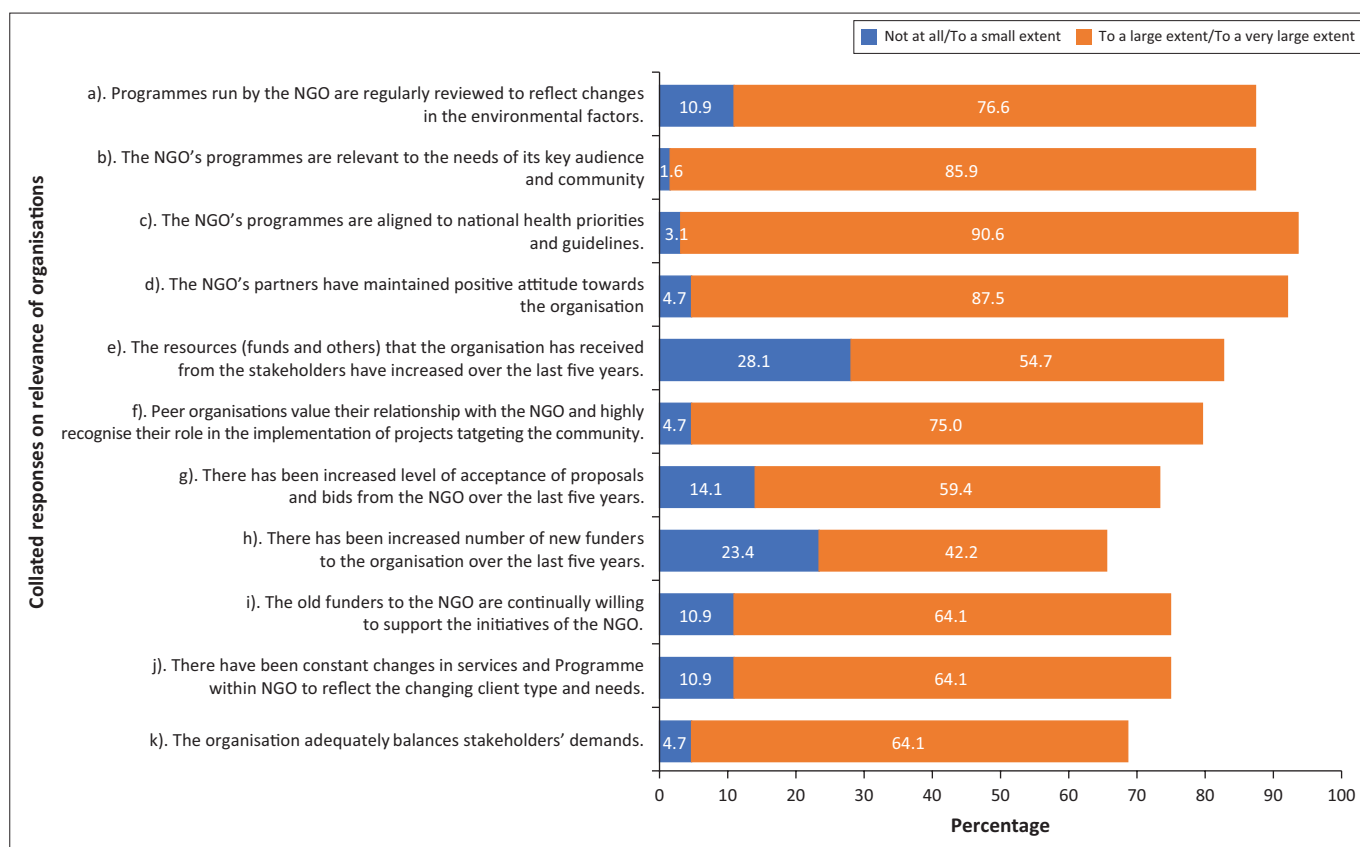
philanthropists have confidence in it, resulting in more support for their programmes. The findings also show that KM is key in enabling the financial integrity of the organisation through good control of resources, financial accountability, keeping programmes relevant, improving effectiveness and efficiency, as well as increasing community awareness and participation. This is consistent with qualitative findings, which revealed that, with improved KM processes and new innovations, organisations increased and diversified sources of income, aided by knowledge sharing that facilitated learning new ways of resource mobilisation, such as online fundraising. Organisations also get to learn about new donor strategies, as well as getting to know who the new donors in the market are. When an organisation has financial viability, it can position itself better and endear itself to existing and new partners. Through this, they can harness more support from different frontiers.

In the same note, Tahajuddin, Hasan and Kassim (2021) found that with increased competition for scarce resources, NGOs are forced to be more transparent and accountable for what they are doing with the resources provided to them. The current study findings indicate that KM helps in keeping expenditure in check, managing costs and service delivery by organisations. Likewise, Kinyua-Njuguna (2013) acknowledges that for an organisation to perform well, it must pay attention to its ability to generate the resources it requires, pay its operational bills and have some excess of revenue over expenses. Furthermore, the study highlights that through lessons learned, organisations become efficient in utilising available resources and managing funds. Adeinat and Abdulfatah (2019) add that many international and local organisations depend heavily on knowledge, such that managing this asset effectively has become the lynchpin in efforts to improve economic performance and ensure the survival and development of organisations in both the public and the private sector.

These submissions on the effect of KM practices on the performance of organisations imply that the way health sector NGOs manage knowledge has a significant impact on their performance in terms of effectiveness, efficiency, relevance and financial viability. However, while there is a great need to harness and use knowledge as a resource to improve the performance of health sector NGOs, there is a need for it to be done carefully to avoid violating the intellectual rights of staff and volunteers who are the source of tacit knowledge in organisations. Hence, the tapping of knowledge among staff and volunteers of health sector NGOs should not be done in an exploitative way, but in a way that they too benefit from the process. Consideration of the social impact of KM at the workplace is a key feature considered under Demerest's Modified Model.

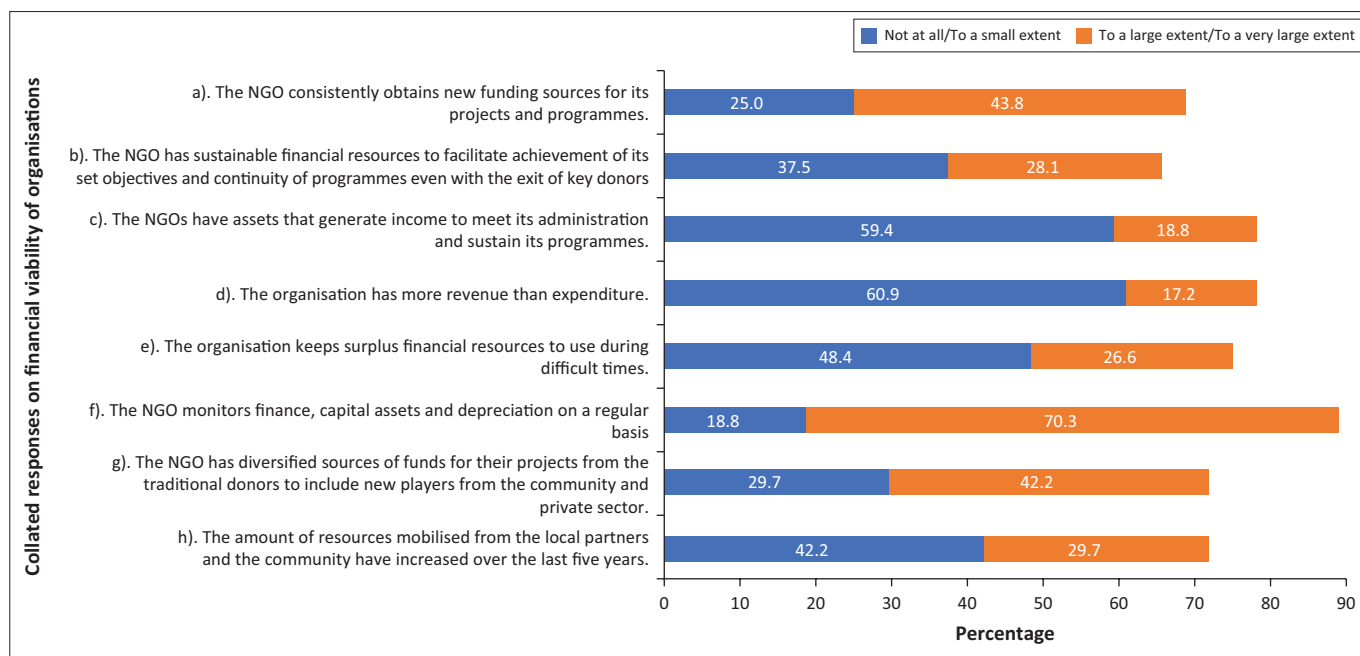
How do institutional factors affect knowledge management practices of health sector NGOs in Nairobi County, Kenya?

Studies agree that institutional factors have an influence on KM activities in organisations. For example, Adeinat and Abdulfatah (2019) identified several critical success factors,



NGO, non-governmental organisation.

FIGURE 3: Collated responses on relevance of organisations.



NGO, non-governmental organisation.

FIGURE 4: Collated responses on financial viability of organisations.

such as leadership that values and drives KM, an organisational culture that supports the values of knowledge creation and sharing, technology that connects knowledge through a network to develop and share a breadth of knowledge, and a learning organisation that relies on virtual

teams and exchange forums for sharing knowledge. While Adesina and Ocholla (2024) emphasise that tacit KM requires organisational support, Shujahat et al. (2019) claim that there are two main components of KM: the KM environment and KM processes.

We argue that for KM to be effectively undertaken in the health sector, NGOs, the internal organisational environment must be right. Notably, institutional factors impact KM practices either positively or negatively, depending on whether they provide favourable or unfavourable conditions for KM. To assess this, the following institutional factors were considered: organisational structure, organisational culture, information technology (IT), management style and employees' skills and competencies.

Quantitative findings indicate that *organisational structure* has a significant effect on the KM processes in organisations, as highlighted in Figure 5.

The findings reveal that organisations' structural types and characteristics affect the embedded processes of identifying, creating, storing and retrieving, and sharing and application of knowledge by impacting the 'social interaction' patterns within the organisation. The structure determines the manner and extent to which roles, power and responsibilities are delegated, controlled and coordinated, and how information flows between levels of management. Further, it supports creation, management, access, sharing and use of knowledge within the organisation and determines the process for receiving and sharing information from outside the organisation. Notably absence of rigid structures in organisations inspires trust among staff and volunteers and promotes free exchange of knowledge, which leads to better performance of organisations. Moreover, the structure facilitates the monitoring of a programme's effectiveness, efficiency and visibility. The study results support Acharya and Mishra's (2017) argument that the organisational set-up, which itself is deeply linked to the organisation's structure, aids in containing knowledge. These submissions imply that organisational structures in health sector NGOs affect organisations' KM activities. Hence, the organisation needs to have effective, efficient, flexible and facilitative structures that support KM and lead to superior performance of the organisation.

Both quantitative and qualitative findings largely reveal that most health sector NGOs in Nairobi have an

organisational culture that is supportive of KM, with a climate of openness, trust and collaboration permeating the organisation. The findings indicate that an organisational culture can constrain or facilitate KM activities in organisations. Good KM practices are positively moderated by a conducive organisational culture that enables knowledge to be shared across the organisation, which leads to organisational effectiveness and satisfactory performance. However, a lack of support from senior management hindered a positive culture of knowledge sharing. Thani and Mirkamali (2018) concur and affirm that organisational culture encourages knowledge creation in organisations.

Based on the study findings, it can be deduced that KM practices can only occur in an environment with a culture of open sharing, trust, teamwork and collaboration that supports KM throughout the organisation. These are key in facilitating health sector NGOs to leverage the benefits of KM. Arguably, a general culture of continuous improvement through learning needs to be promoted, while staff and volunteers need to have defined roles in KM in organisations, which should be appraised during staff performance assessments, as supported by related studies such as Shariq, Mukhtar and Anwar (2019) and Omerzel et al. (2011).

Both quantitative and qualitative findings concurred that there are *information technology systems* and connections that facilitate KM in the health sector NGOs in Nairobi County in Kenya, to a large extent. The findings, summarised in Figure 6, indicate that technology, as the infrastructure of tools, systems, platforms and automated solutions that improve the development, application and distribution of knowledge, is useful in capturing, storing, retrieving, disseminating and using knowledge in organisations. Notably, IT is used to create databases, information and communication systems such as intranet, websites and social media tools in health sector NGOs that assist staff and volunteers to understand what is going on in organisations, leading them to make sound decisions and to the creation of institutional memory that is accessible to the organisation's staff and volunteers. IT provides organisational staff and

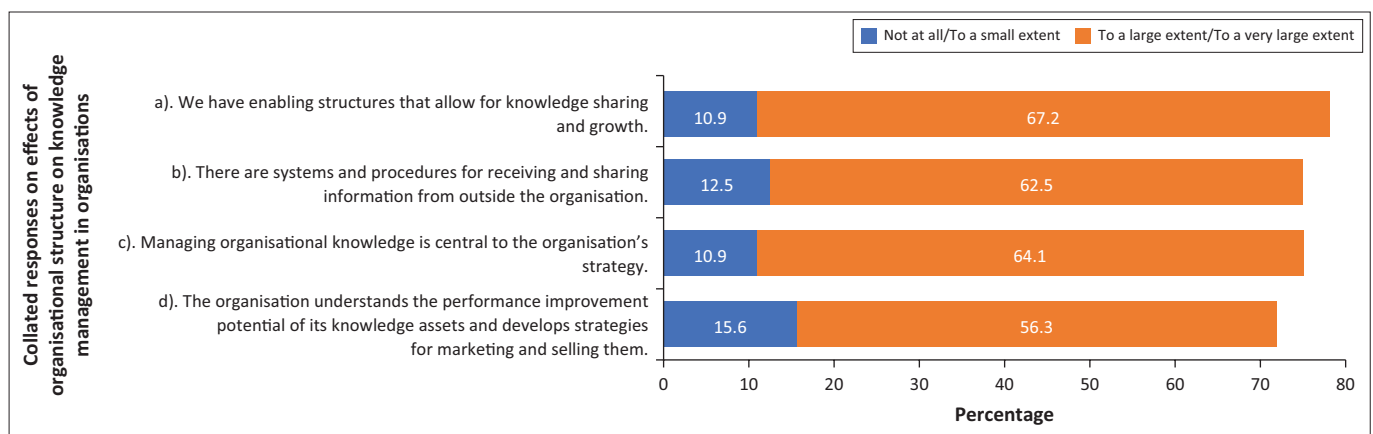


FIGURE 5: Effects of organisational structure on knowledge management in organisations.

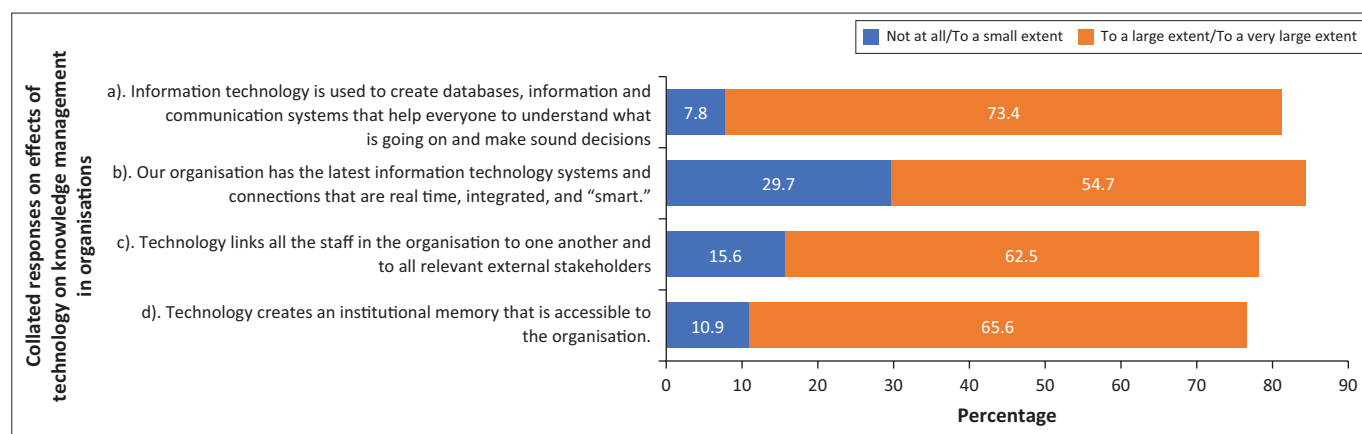


FIGURE 6: Effects of technology on knowledge management in organisations.

volunteers with quick and effective access to the right amounts of information and accelerates the speed at which information is acquired and disseminated throughout organisations. Interestingly, IT and KM have a symbiotic relationship as IT supports KM, while KM leads to the creation of IT.

Valmohammadi and Ahmadi (2015) support these submissions, arguing that KM is interlinked with IT, as one seems to lead to the creation of the other, while both Chi6n, Charles, and Morales (2020) and Gamble (2020) maintain that an adequate technological infrastructure is necessary.

Even with these benefits, findings indicate that IT systems, in a sizeable number of organisations (45.3%), are not current, real-time, integrated and 'smart'. The study revealed that some organisations lack communication systems such as an intranet, updated websites and social media tools. Qualitative findings complemented that organisations need good technology for KM, as IT is a game-changer. However, a key challenge that has hindered effective utilisation of technology by health sector NGOs is the prohibitive costs of updating the ICT systems, that is, equipment, software, as well as the high cost of staff training. To improve KM practices, the organisations need to invest in IT systems that are current, real-time, integrated and 'smart' while also investing in training to ensure that staff and volunteers have the knowledge, skills, positive attitudes and motivation to efficiently utilise available ICT systems to improve KM in organisations.

Both quantitative and qualitative findings concur that there is, to a very large extent, a participatory *management style* in health sector NGOs in Nairobi County. The findings indicate that most health sector NGOs in Nairobi County (71.9%) have embraced participatory management styles where staff's ideas are valued, rather than exerting top-down control. Democratic, inclusive, flexible and reachable leadership, and open door and participatory management styles promote teamwork in organisations, encourage feedback and shared learning across the organisations,

which are important practices for KM to happen in organisations. With a participatory management style, members of staff feel free and are encouraged to share and translate their tacit knowledge into explicit knowledge that is available for use in their organisation. This is a key component in organisational KM.

Quantitative findings revealed that management determines the efficiency and structure of KM and employs a greater motivation for staff and policy compliance, which are essential to make KM work in organisations. Hence, a conducive KM culture is mostly defined and modelled by the leadership of organisations and is cascaded down to the staff and volunteers, as confirmed by Swanson et al. (2020), who note that a leader plays a crucial part in creating and nurturing a knowledge-sharing culture in the organisation. These findings affirm that good managers must ensure that ideas from everyone are valued, appreciated, which motivates them to share knowledge. Swanson et al. (2020) concur that a leader plays a crucial part in creating and nurturing a knowledge-sharing culture in the organisation.

The study found that *employees' skills and competence* are key in supporting the superior performance of health sector NGOs, as staff knowledge and skills are an important resource for organisations (Figure 7). Notably, health sector NGOs are service sector organisations that rely on their staff and volunteers' professional knowledge and skills, service attitude and motivation to provide satisfactory services to their beneficiaries. The study revealed that most organisations (42.2%) recognised that skilled employees embrace and strengthen KM in their organisations as they find it easy to use knowledge from previous experiences and can contribute to growing organisational knowledge that becomes available for use by organisational staff and volunteers. This plays a key role in ensuring that health sector NGOs deliver successful and sustainable programmes for their beneficiaries. Thus, when employees' knowledge and skills are rewarded, their enhanced performance improves KM in the organisation, leading to better performance of the organisation.

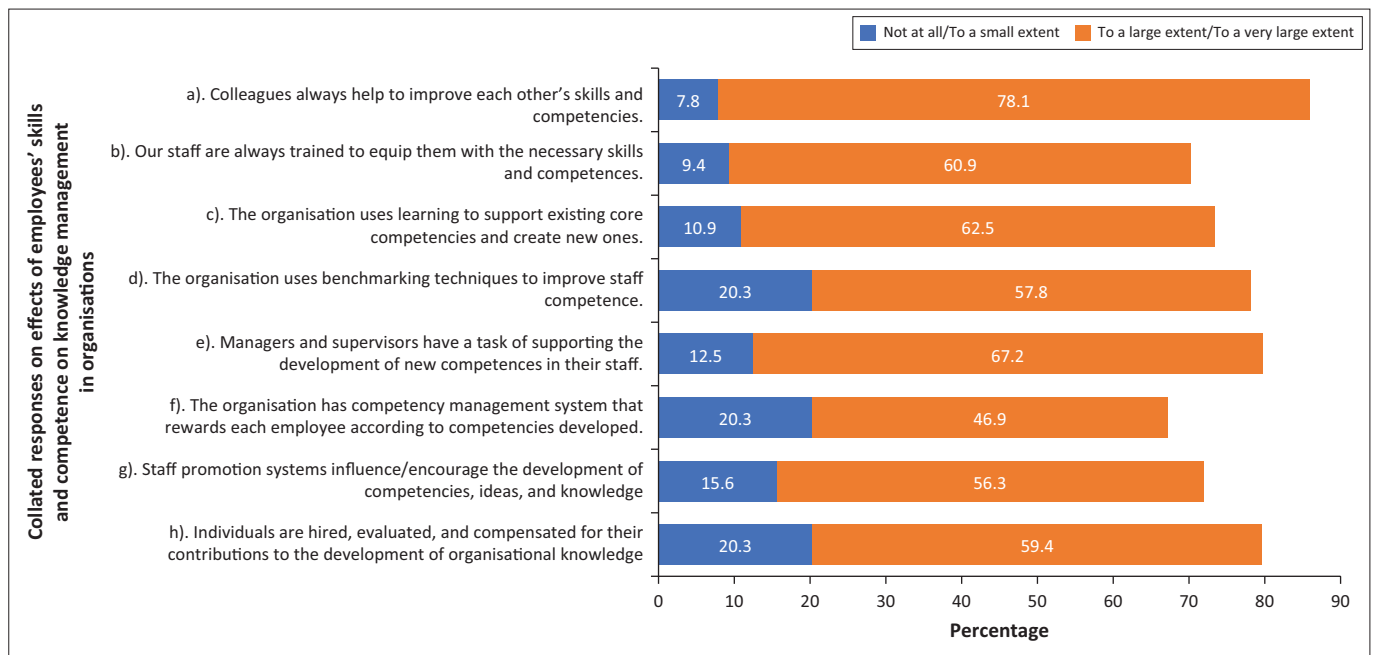


FIGURE 7: How employees' skills and competencies affect knowledge management in organisations.

Related studies support these findings. For example, Omotayo (2015) argues that processes and technology alone are not enough to drive an organisation, but its human force (staff) is integral and pivotal in an organisation's success. Matturi (2016) reports that most of the knowledge in NGOs is experiential knowledge, belonging to individual employees and that harnessing experiential knowledge for organisational learning purposes is instrumental to the survival of the NGOs.

Study findings reveal that organisations do experience loss of tacit knowledge from employees when collaboration is not encouraged, and staff and volunteers are not rewarded for sharing their tacit knowledge and transferring it into explicit knowledge. It is worth noting that health sector NGOs often rely upon a mix of paid and unpaid personnel, both employees and volunteers. Hence, they have high rates of staff turnover, leading to continual loss of tacit knowledge gained during project implementation. Unfortunately, the study findings revealed that rewarding staff according to developed competencies in the health sector NGOs is still done only at a moderate level. The findings show that financial constraints among the health sector NGOs hinder organisations' ability to fully appreciate and reward employees' skills and competencies, leading to brain drain as staff move on to other organisations.

This study confirms observations made by Le and Tuamsuk (2021) that NGOs have encountered a challenge in developing organisational memory because the turnover rate among the staff in such organisations is remarkably high. Similarly, Alnatshe et al. (2020) report that organisations experience loss of tacit knowledge from employees when collaboration is not encouraged, and individuals are not rewarded for sharing their tacit knowledge and transferring it into explicit knowledge.

This study revealed that employees' skills and competencies affect KM practices and eventually affect the performance of organisations, as the efficiency of each employee impacts the organisation's effectiveness. This implies that staff and volunteers in health sector NGOs play a significant role in enhancing organisations' KM initiatives and performance, and hence, need to be valued, motivated and retained in organisations to prevent the loss of tacit knowledge important for organisations' performance. The health sector NGOs need to create an environment to develop knowledge-based resources within organisations by recognising and rewarding staff and volunteers' KM efforts, enabling them to benefit from the knowledge they possess. Organisations must develop staff and volunteers' skills and competencies, for them to positively contribute to enhancing the performance of the health sector NGOs and for them to remain motivated, productive and willing to share and document their knowledge. Thus, it can be deduced that organisations seeking to improve organisational performance must address employee satisfaction, which stimulates better employee performance. Belle and Belle (2016) advise that organisations become alive and thrive with the energised engagement of employees. Aguinis and Kraiger (in Kodwani 2017) agree that organisations should invest significant amounts of resources in terms of time and money into staff training to increase employees' knowledge, skills and attitudes.

The institutional factors investigated in this study: organisational structure, organisational culture, IT, management style and employees' skills and competencies, affirm the elements presented in Stankosky and Baldanza's KM Framework, one of the two theoretical frameworks guiding this study. The framework's elements are culture, leadership, organisation, technology and learning (Stankosky, M., & Baldanza, C. R., 2018).

Conclusion and recommendations

This study reveals that:

- Most of the health sector NGOs consider themselves effective, while they feel efficient and largely relevant. Conversely, they consider themselves financially viable only to a lesser extent.
- Knowledge management affects organisational effectiveness, as shared lessons learned improve programme design, resource mobilisation and implementation.
- Knowledge management impacts their efficiency through improved decision-making, speed of programme implementation and efficient use of resources.
- Knowledge management affects relevance as it enables organisations to know and address beneficiaries' needs.
- Knowledge management affects organisational financial viability through good record keeping, which helps in diversification of sources of funds and harnessing other required resources.
- Institutional factors affect KM practices in health sector NGOs and subsequently impact on their performance. Flat/horizontal organisational structures allow for better knowledge sharing, while a conducive organisational culture facilitates continuous knowledge sharing, learning and improvement of KM systems.
- Information Technology improves the development, sharing and application of knowledge.
- An open-door management style promotes participatory and inclusive leadership, promotes teamwork in organisations, demystifies knowledge sharing and encourages feedback and shared learning across the organisation. Moreover, highly skilled and competent employees make KM in organisations more effective.

Recommendations for improving institutional factors to achieve appropriate KM in health sector NGOs focused on organisational structure, culture, technology, management style and employees' skills and competencies. It is recommended that, firstly, a review of organisational hierarchy in health sector NGOs be conducted to create more horizontal/flat organisational structures, as they are friendlier systems for KM initiatives. Thus, organisations need to reorganise their departments to allow for structures that facilitate seamless KM activities within the organisation. Further, there is a need for regular review and improvement of organisational structures, organisational policies and Standard Operating Procedures (SOPs), having clear authority structures, strengthening of KM and communication departments and structured flow of information among the organisational departments to enhance the effectiveness of KM initiatives. We suggest that management staff and the organisation's board of management need to undertake a supervisory role on KM initiatives to ensure their success in health sector NGOs.

Secondly, health sector NGOs should create and nurture a climate of trust, openness and respect for each other to be able to harness knowledge among staff and use it to improve

organisations' performance. Further, findings suggest that organisations should make KM a core business by embracing and making it part of the organisational culture. Thus, KM should be entrenched in organisational strategy, mission, values and norms and should be included as a key organisational guiding principle. Knowledge-sharing sessions in organisations need to be formalised to develop a culture of open sharing throughout the organisation.

Thirdly, in order to improve KM practices and subsequent performance of the organisation, there is a need for investment in technological infrastructure that supports the development, application and distribution of knowledge. The organisations need to invest in IT systems that are current, real-time, integrated and 'smart'. Organisations should procure technology that provides tools for KM and communication, such as databases and communication systems that leverage modern systems for knowledge sharing, such as social media tools. Organisations need to make use of easy-to-navigate IT systems with seamless access and enhanced security to safeguard the knowledge products. Staff and volunteers need to be trained to ensure that they have the requisite knowledge, skills, positive attitude and motivation to efficiently utilise available ICT systems to improve KM in organisations.

Fourthly, health sector NGOs should employ a democratic, inclusive, flexible and reachable leadership style with an open door and participatory management style in the organisation. Managers must ensure that ideas from everyone are valued, leading to staff and volunteers feeling appreciated and valued, while providing guidance, motivation and necessary tools to employees and volunteers to identify, capture, store, retrieve, share and apply knowledge. Managers should also provide clarity on staff expectations and division of KM duties and make it part of staff performance assessments.

Fifthly, staff and volunteers should undergo training, coaching, mentorship and benchmarking to improve their knowledge, skills and competence in KM. Capacity development initiatives help staff and volunteers to believe in themselves, be innovative and to adequately undertake KM duties. There is a need for training and socialisation of new staff, both in technical knowledge and knowledge relating to the cultural values of the organisation. To prevent loss of tacit knowledge and increase staff retention, we recommend that organisations address employee satisfaction, which stimulates better employee performance and leads to staff retention. Health sector NGOs should allocate resources for the promotion and rewarding of employees with exceptional skills and competencies in KM. We suggest that organisations should invest in champions who advocate for KM within their organisations.

Sixthly, the improvement of KM practices to improve the effectiveness of health sector NGOs is essential. Improved KM practices ensure adequate flow of information in the

organisation, which in turn enhances overall programme design, documentation and use of experiences to enhance programmes. Strengthened KM systems will help organisations perform exemplarily well, because, when acquired knowledge is put into practice, there are positive impacts on the organisation. Access to a repository of knowledge improves the speed of rolling out programmes, as lessons learned from implementation ensure that the same mistakes are not repeated and that best practices are carried forward. In addition, effective KM practices assist organisations in increasing their visibility.

Seventhly, KM practices should be improved to enhance the efficiency of health sector NGOs, as they will provide adequate and relevant information for programme implementation. This will result in efficient use of resources, value for money, maintenance of quality and relevance of organisational programmes, improved feedback processes and staff motivation, and willingness to learn. The study suggests that good KM practices enable documentation and replication of work processes that lead to desirable and timely results for organisations while ensuring that the speed of delivery is enhanced, deadlines are kept and decision-making processes are improved. Past knowledge is crucial and is used to improve the way organisations do their work, informs good designs and structuring of programmes that are cost-effective and of high standards, reduces wastage of resources and leads to quality and timely service provision.

Eighthly, in order to increase the relevance of health sector NGOs, KM systems should be improved to provide information to staff and volunteers to enable them to keep tabs with the changing trends and latest information so that the organisation's work is responsive, dynamic, innovative and in line with current trends. This will assist organisations to run programmes that are competitive and aligned to beneficiaries' needs, national health priorities and other societal changes.

Ninthly, KM practices of health sector NGOs must be improved to enhance their financial viability. Improved KM practices will lead to better financial management systems through good record keeping, financial reporting and documentation. Findings reveal that when organisations have good financial management systems, donor organisations and philanthropists have confidence in them, resulting in more support for their programmes. Furthermore, KM is key in enabling the financial integrity of the organisation through good control of resources, financial accountability, keeping programmes relevant, improving effectiveness and efficiency of the organisation, as well as increasing community awareness and participation. When organisations have better financial viability; they can position themselves better and endear themselves to existing and new partners. Thereby, they can harness more support from different frontiers. Staff and volunteers can learn about cost

effectiveness and good stewardship of the organisation's resources through shared organisational knowledge.

Despite the study limitations, which are largely contextual, COVID-19-based and urban focus, this study is likely to contribute to discourse on the role of KM in improving the performance of organisations and efforts geared towards the achievement of SDGs 3 and 17 and Kenya's Vision 2030. Further, empirical evidence from this study enabled the development of a KM framework that highlights the critical role of institutional factors in KM processes of health sector NGOs as other KM models (including Demerest's Modified KM model and Stankosky and Baldanza's KM Framework) are diverse, with each model emphasising unique elements of KM and, therefore, making them disjointed and unsuitable for non-profit contexts.

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Authors' contributions

J.N.K., D.N.O. and G.V.J. contributed equally to writing the article. J.N.K. conceptualised the topic, collected and analysed the data and participated in the final write-up of the paper. D.N.O. and G.V.J. provided academic guidance for the project and participated in the write-up of the manuscript, including quality control by reviewing and editing the final version.

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Data availability

The data that support the findings of this study are available from the corresponding author, J.N.K., upon reasonable request.

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